



**The Implementation of Socially Sustainable Supply
Chain Management in the UK Manufacturing
Sector: A Social Capital Perspective**

A thesis submitted for the degree of Doctor of Philosophy

by

Mohammad Alhababsheh

**Brunel Business School
Brunel University London
February 2018**

Abstract

A major challenge for supply chain managers is how to manage sourcing relationships to ensure reliable and predictable actions of existing suppliers. The extant research into sustainable supply chain management (SSCM) has suggested the transactional (e.g. monitoring and auditing) and collaboration (e.g. supplier development) as the main two approaches by which buyers can sustain an acceptable level of suppliers' internal social performance. A successful implementation of such approaches, and hence improving suppliers' social performance, often requires a level of cooperation that can be difficult to establish, particularly on the part of suppliers. Despite the recent proliferation of SSCM research, little efforts have been devoted to exploring the factors that increase the effectiveness of the two approaches. This research aims to examine the individual and combined effect of socially sustainable transactional practices (SSTPs) and socially sustainable collaboration practices (SSCPs) on supplier's internal social performance and buyer's operational performance. The study also sets out to examine the moderating effects of social capital dimensions (i.e. relational, cognitive and structural) on the relationships among SSTPs, SSCPs and supplier's internal social performance. A mail survey was administered to 1,250 stratified randomly selected large manufacturing companies operating in the UK. An analysis of 119 responses using Partial Least Squares Structural Equation modelling (PLS-SEM) revealed that SSTPs are ineffective in driving supplier's internal social performance, whilst SSCPs are more effective. Moreover, although the interaction effect of SSTPs and SSCPs is non-significant, the data suggested that the simultaneous implementation can be detrimental to supplier's internal social performance. Furthermore, social capital dimensions were found to play different roles on the implementation of SSTPs and SSCPs. Relational capital plays a unique role by increasing the effectiveness of both SSTPs and SSCPs, while cognitive capital is critical for SSCPs, and structural capital is vital for SSTPs. This study contributes to SSCM literature by exclusively focusing on the social dimension of sustainability, examining the joint implementation of SSTPs and SSCPs and featuring the centrality of social capital in the implementation of SSCM practices. The study sets a foundation for new research avenues in the SSCM context and provides a set of managerial implications that support informed decision-making by supply chain managers.

Table of Contents

Abstract	I
Table of Contents	II
List of Tables	VII
List of Figures	IX
List of Abbreviations	X
Dedication	XI
Acknowledgements	XII
Declaration	XIII
CHAPTER ONE: INTRODUCTION	1
1.1 Research background	1
1.2 Research problem	2
1.3 Research questions	4
1.4 Research aim and objectives	5
1.5 Scope and limitations of the study	5
1.6 Research methodology: an outline	6
1.7 Study contribution	8
1.8 Structure of the thesis	9
CHAPTER TWO: LITERATURE REVIEW	12
2.1 Introduction	12
2.2 Background	13
2.2.1 Supply chain management: an overview and definitions	13
2.2.2 Sustainable supply chain management: an emerging field	15
2.2.3 Social issues in the supply chain	19
2.3 Review methodology	21
2.3.1 The socially SSCM research review protocol	23
2.3.2 Conducting the socially SSCM research review	25
2.4 Descriptive analysis of socially SSCM literature	26
2.4.1 Distribution of socially SSCM research over years	26
2.4.2 Sustainability dimension(s) focus in socially SSCM research	27
2.5 Thematic analysis of socially SSCM research	28
2.6 The adoption of socially SSCM (drivers, enablers and barriers)	30
2.7 The implementation of socially SSCM (mechanisms and activities)	32
2.7.1 Socially sustainable internal practices	34

2.7.1.1	Internal capability development	34
2.7.1.2	Supplier selection.....	35
2.7.2	Socially sustainable external practices	36
2.7.2.1	Socially sustainable transactional approach	37
2.7.2.2	Socially sustainable collaboration approach.....	41
2.8	Performance measurement.....	44
2.9	Socially SSCM and performance	46
2.9.1	SSCM (environmental and social) and performance.....	47
2.9.1.1	SSCM (environmental and social) and economic performance	47
2.9.1.2	SSCM (social and environmental) and sustainability performance.....	49
2.9.2	SSCM (social dimension only) and performance.....	51
2.9.2.1	SSCM (social dimension only) and social performance.....	51
2.9.2.2	SSCM (social dimension only) and economic performance.....	54
2.10	Conclusions and gaps in socially SSCM research	59
2.11	Social capital.....	64
2.11.1	The concept of social capital	64
2.11.2	Social capital vs other forms of capital	67
2.11.3	Social capital in supply chain relationships.....	68
2.11.3.1	Review methodology	69
2.11.3.2	Antecedents of social capital in supply chain relationships.....	70
2.11.3.3	Outcomes of social capital in supply chain relationships	72
2.12	Summary.....	80
CHAPTER THREE: THEORETICAL FRAMEWORK.....		81
3.1	Introduction	81
3.2	Conceptual framework	82
3.2.1	Socially sustainable supply chain practices.....	83
3.2.2	Social capital dimensions	85
3.2.3	Social and operational performance	86
3.2.4	Control variables	87
3.3	Theoretical foundations.....	88
3.3.1	Transaction Cost Economics	88
3.3.2	Relational view	90
3.3.3	Social capital theory	91
3.4	Hypotheses development.....	92
3.4.1	SSSC practices and supplier's internal social performance	92
3.4.2	The joint effect of SSTPs and SSCPs on performance.....	94
3.4.3	SSSC practices and buyer's operational performance.....	95
3.4.4	The moderating effect of social capital	97
3.4.4.1	The moderating effect of relational capital.....	97
3.4.4.2	The moderating effect of cognitive capital	99
3.4.4.3	The moderating effect of structural capital.....	101

3.4.5	Supplier's internal social performance and buyer's operational performance	103
3.5	Summary	104
CHAPTER FOUR: RESEARCH METHODOLOGY		105
4.1	Introduction	105
4.2	Research paradigm	106
4.2.1	Positivism vs interpretivism	106
4.2.2	The adoption of the positivism paradigm	108
4.3	Research approaches (deductive vs inductive)	108
4.4	Time horizon (cross-sectional vs longitudinal design)	110
4.5	Data collection methods	111
4.5.1	Interview	111
4.5.2	Observations	112
4.5.3	Data collection method adopted (Survey)	113
4.6	Study population	113
4.7	Study sampling and unit of analysis	114
4.8	Survey development	117
4.8.1	Questionnaire design	117
4.8.1.1	Question type and format	118
4.8.1.2	The order and flow of questions	118
4.8.1.3	Survey layout	119
4.8.1.4	Cover letter	119
4.8.2	Pilot study	120
4.9	Survey administration	120
4.10	The measurement model	123
4.10.1	Formative vs reflective construct	123
4.10.2	Measures of socially sustainable supply chain practices	126
4.10.3	Measures of social capital dimensions	126
4.10.4	Measures of supplier's internal social and buyer's operational performance	127
4.10.5	Control variables	128
4.11	Data analysis process and techniques	131
4.11.1	Techniques for screening and evaluating the properties of data	131
4.11.2	Assessing the measurement model	133
4.11.2.1	Evaluating the reflective measurement model	133
4.11.2.2	Evaluating the formative measurement model	134
4.11.3	Testing the structural model	134
4.11.3.1	Testing the direct effects hypotheses	134
2.11.3.1	Testing the moderation effects hypotheses	135
4.11.4	Structural Equation Modelling	136
4.11.4.1	An overview of PLS-SEM	137
4.11.4.1	Rationale for using PLS-SEM	139
4.12	Research ethical considerations	140

4.13	Summary.....	141
CHAPTER FIVE: DATA ANALYSIS & RESULTS.....		142
5.1	Introduction.....	142
5.2	Sample description.....	143
5.3	Data screening.....	146
5.3.1	Data coding and cleaning.....	146
5.3.2	Handling missing data.....	146
5.3.3	Identification of outliers.....	148
5.3.4	Non-response bias.....	149
5.3.5	Common method variance.....	150
5.3.6	Examining the assumptions of multivariate analysis.....	151
5.3.6.1	The normality assumption.....	151
5.3.6.2	Linearity and multicollinearity assumptions.....	155
5.3.6.3	Homoscedasticity and homogeneity of variance assumptions.....	156
5.4	Evaluating the measurement model.....	157
7	157
5.4.1	Evaluating the reflective measurement model.....	158
5.4.1.1	Reliability.....	160
5.4.1.2	Validity.....	161
5.4.2	Evaluating the formative measurement model.....	164
5.4.2.1	Content validity.....	165
5.4.2.2	Assessing the indicators' multicollinearity.....	165
5.4.2.3	Evaluating the indicators' relative and absolute importance.....	166
5.5	Descriptive statistics.....	167
5.5.1	Descriptive statistics of the independent variables.....	167
5.5.2	Descriptive statistics of the dependent variables.....	169
5.5.3	Descriptive analysis of the moderating variables.....	170
5.6	Testing the structural model.....	171
5.6.1	Model specification.....	171
5.6.2	Model results.....	175
5.6.3	Direct effects models.....	175
5.6.3.1	SSTPs, SSCPs and supplier's social performance.....	175
5.6.3.2	SSTPs, SSCPs and buyer's operational performance.....	177
5.6.3.3	Supplier's social performance and buyer's operational performance.....	177
5.6.4	The interaction effects model.....	177
5.6.4.1	The interaction of SSTPs and SSCPs.....	177
5.6.4.2	The interaction of SSTPs, SSCPs and social capital dimensions.....	178
5.6.4.3	Simple slope analysis of the interactions effects.....	179
5.7	Analysis of variance.....	183
5.7.1	Industry effect.....	184
5.7.2	Supplier relationship length effect.....	185
5.8	Summary.....	186

CHAPTER SIX: DISCUSSION & CONCLUSIONS	188
6.1 Introduction	188
6.2 Discussion	188
6.2.1 SSTPs, SSCPs and supplier’s internal social performance	189
6.2.2 SSTPs, SSCPs and buyer’s operational performance.....	191
6.2.3 The moderating effects of social capital dimensions.....	192
6.2.3.1 The moderating effect of relational capital.....	192
6.2.3.2 The moderating effect of cognitive capital	194
6.2.3.3 The moderating effect of structural capital.....	195
6.2.4 Supplier’s social performance and buyer’s operational performance	196
6.3 Research conclusion and implications.....	197
6.3.1 Theoretical contributions.....	198
6.3.2 Managerial implications	199
6.4 Limitations and future research directions	202
References	205
Appendix A: Data Collection Ethical Approval.....	245
Appendix B: The Questionnaire.....	247
Appendix C: Data Analysis	253

List of Tables

Table 2.1: Sample of key definitions of SCM	14
Table 2.2: Key definitions of socially SSCM in the literature	18
Table 2.3: key social issues highlighted and discussed in the extant literature	20
Table 2.4: Keywords used in the literature search	25
Table 2.5: Themes of socially SSCM research	29
Table 2.6: Comparison of the approaches of socially SSCM	37
Table 2.7: An analysis of the key current work on the SSSC-performance link	56
Table 2.8: Key definitions of social capital	65
Table 2.9: Keywords used in searching social capital literature	70
Table 2.10: An analysis of key research on social capital in supply chain relationships.....	77
Table 3.1: List of the research hypotheses	83
Table 3.2: Definitions of the conceptual model's constructs	88
Table 4.1: The assumptions of the positivist and interpretivist paradigm	107
Table 4.2: The major differences between the deductive and inductive approaches	109
Table 4.3: Guidelines for selecting a survey research approach	111
Table 4.4: Study sampling	116
Table 4.5: Decision rules for determining formative and reflective constructs	125
Table 4.6: Measurement items	129
Table 4.7: Data analysis techniques	132
Table 4.8: Key characteristics of PLS-SEM	138
Table 5.1: Position of respondents	144
Table 5.2: Industry type of the participated firms.....	144
Table 5.3: Size of the participated firms	145
Table 5.4: Age of the participated firms	145
Table 5.5: Buyer-supplier relationship length.....	145
Table 5.6: Descriptive statistics of missing data.....	147
Table 5.7: Z-scores of the constructs	148
Table 5.8: Normality test	153
Table 5.9: Multicollinearity assessment.....	156
Table 5.10: KMO and Bartlett's Tests.....	159
Table 5.11: Reliability and Convergent Validity	161
Table 5.12: Discriminant validity analysis (Fornell and Larcker's criterion).....	164
Table 5.13: Discriminant validity analysis (HTMT method).....	164
Table 5.14: Multicollinearity test of the formative indicators	166
Table 5.15: Indicators' outer weights and loadings	167
Table 5.16: Descriptive statistics of the independent variables	168
Table 5.17: Descriptive statistics of the dependent variables	169
Table 5.18: Descriptive statistics of the moderating variables	170
Table 5.19: Results of testing the structural model.....	176
Table 5.20: Homogeneity of variance analysis (Levene's test)	184
Table 5.21: Analysis of variance across industry sector	185
Table 5.22: Homogeneity of variance analysis (Levene's test)	185

Table 5.23: Analysis of variance across relationship lengths	186
Table 5.24: Summary of hypotheses testing results.....	186

List of Figures

Figure 2.1: The SCM framework.....	15
Figure 2.2: The systematic review process of socially SSCM research	22
Figure 2.3: Distribution of socially SSCM articles over the period.....	27
Figure 2.4: Sustainability dimension(s) focus in socially SSCM research	28
Figure 2.5: Stakeholders classification	31
Figure 2.6: The management of socially SSCM.....	33
Figure 2.7: Classification framework of socially SSCM-performance research	47
Figure 2.8: Conceptual framework of socially SSCM research.....	60
Figure 2.9: Antecedents and outcomes of social capital in supply chain relationships	71
Figure 3.1: Conceptual model.....	82
Figure 4.1: A classification of sampling techniques	114
Figure 4.2: The survey development process.....	117
Figure 4.3: The product indicator approach.....	136
Figure 5.1: Frequency histograms of the variables	154
Figure 5.2: Scatterplots matrix of the variables	155
Figure 5.3: The research's measurement and structural model.....	157
Figure 5.4: The interaction effect of SSTPs and SSCPs	180
Figure 5.5: The interaction effect of relational capital and SSTPs	181
Figure 5.6: The moderating effect of relational capital on the SSCPs.....	181
Figure 5.7: The interaction effect of cognitive capital and SSTPs	182
Figure 5.8: The interaction effect of cognitive capital and SSCPs	182
Figure 5.9: The interaction effect of structural capital and SSTPs	183
Figure 5.10: The interaction effect of structural capital and SSCPs	183

List of Abbreviations

AVE	Average Variance Extracted
CB-SEM	Covariance Based Structural Equation Modelling
CEO	Chief Executive Officer
CFA	Confirmatory Factor Analysis
FAME	Financial Analysis Made Easy
HTMT	Heterotrait-monotrait
KMO	Kaiser-Meyer-Olkin
MCAR	Missing Completely at Random
MNAR	Missing not at Random
PLS-SEM	Partial Least Squares Structural Equation Modelling
RV	Relational View
SCM	Supply Chain Management
SSCM	Sustainable Supply Chain Management
SCT	Social Capital Theory
SPSS	Statistical Package for the Social Sciences
SSCPs	Socially Sustainable Collaboration Practices
SSSC	Socially Sustainable Supply Chain
SSTPs	Socially Sustainable Transactional Practices
TCE	Transaction Cost Economics
UK	United Kingdom
US	United States
VIF	Variance Inflation Factor
NGOs	Non-government Organisations

Dedication

*To my beloved parents, Ibrahim and Rasmieh, for their unconditional and enduring
love*

*To my brothers, Raed, Saed, Omar and Ahmed, for their endless support and
encouragement*

Acknowledgements

This academic work could not be completed without the help and support I have received from several people to whom all I owe a deep appreciation.

Firstly, I am indebted to my supervisor, Professor David Gallear, for his valuable guidance, insightful suggestions, inspiration and enormous support throughout this PhD journey.

I would also like to express my gratitude to my friends and PhD officemates whom accompanied me in and kept me running this learning ‘marathon’; some crossed the finish line and some still running (keep running guys!). To the first person I met here at Brunel, Anas Zerhouni, for his unwavering support, especially in the early stages of my arrival in the UK. Also, to my people here and beyond, Nayel Alhawamdeh, Ahmad Alsaraireh, Huthaifa Alqaralleh, Amjad Alamad and Mazen Alkheetan for the friendship, fun time and great help in the logistic part of the data collection process. Also, to Beth, Jenny, Lee, Serap, Dear, Joey and Auhud for lunch breaks and laughs in the office.

I would also like to extend my sincere thanks to my friends in Jordan, Omar Alfreajat, Zakaria Alrebei and Abdulaziz Alghababsheh, for their continuous support and messaging me.

Finally, I’m extremely grateful Mutah University for offering me a fully-funded scholarship to undertake this PhD study and funding my stay in the UK.

Declaration

I, Mohammad Alghababsheh, hereby declare that the ideas, analyses, results and conclusions of the research presented in my thesis are fully independently developed by me towards the fulfilment of the requirements for the degree of Doctor of Philosophy at Brunel University London. I further declare that my thesis contains no material that has been previously submitted, in whole or in part, for any academic degree in any other institution. Some of the materials reported in my thesis have been published in the following conference papers:

Alghababsheh, M. and Gallear, D. (2015). The applications of social capital theory in supply chain relationships: a systematic literature review, 26th POMS, Washington D. C., USA.

Alghababsheh, M. and Gallear, D. (2015). Extending social sustainability across the supply chain: the role of social capital, 26th POMS, Washington D. C., USA.

Alghababsheh, M. and Gallear, D. (2015), The role of social capital in facilitating the implementation of socially sustainable supply chain practices, 2nd International Sustainable Operations and Supply Chain Forum, Barcelona, Spain.

Chapter 1

INTRODUCTION

1.1 Research background

Outsourcing to suppliers and establishing production networks in emerging markets have become an increasingly popular strategy among organisations to achieve cost savings and as a potential source of competitive advantage (Dyer and Hatch, 2006; Wagner and Johnson, 2007; Locke et al., 2009). However, the shift from domestic purchasing strategy to international sourcing may not always produce the intended cost savings due to considerable reputational risks that can result from suppliers' internal unethical actions (Spekman and Davis, 2004; Joo et al., 2010). Evidence indicates that increasingly, suppliers under pressure to meet the buyer's price, delivery time and high flexibility requirements that could result in lower supplier's internal social performance in the forms of eroding workers' welfare, shrinking investments in working condition improvements, lowering payment rate, forcing excessive overtime and sometimes employing children in their facilities (Roth, 2008; Jiang, 2009a; Huq et al., 2014; Sancha et al., 2015). The recent annual report of the International Labour Organization (ILO) (2014) reveals an unprecedented increase in the illegal profits

generated from forced labour, which for 2014 was estimated to be US\$ 150 billion. Indeed, Carne (2013) describes such misconduct as “modern slavery as management practices”.

Under enormous and escalating pressure from customers, employees, trade associations, non-government organisations (NGOs) and the fear of potential supply chain disruptions, organisations have taken different routes to try to tackle suppliers’ internal malpractices (Klassen, and Vereecke, 2012; Sancha et al., 2015; Sancha et al., 2016; Huq et al., 2016; Rodriguez et al., 2016). While some organisations have pursued a supplier switching route in which they search for alternative more socially responsible suppliers (Hollos et al., 2012; Porteous et al., 2015), others have adopted a vertical integration strategy to gain more control over their supply chains (Klassen and Vereecke, 2012). However, amongst other factors, unfavourable cost-benefit analyses of these two options has led organisations towards a third route in which the focus is on driving, creating and building the social sustainability of existing suppliers. Following this route, organisations have adopted two main governance approaches, with different assumptions and mechanisms, to sustain an acceptable level of existing suppliers’ internal social performance (Klassen and Vereecke, 2012; Sancha et al., 2015; Sancha et al., 2016; Huq et al., 2016; Rodriguez et al., 2016). The first approach emphasises the use of socially sustainable transactional practices (SSTPs) (e.g. monitoring and auditing) as effective mechanisms, which perceived as an arm’s length approach, to increase supplier compliance to buyer’s social requirements (Jiang, 2009a; Boyd et al., 2007; Pagell and Shevchenko, 2014). The second approach focuses on the importance of socially sustainable collaboration practices (SSCPs) (e.g. supplier development and joint efforts) to build suppliers capabilities and improve overall sustainability performance (Klassen and Vereecke, 2012; Huq et al., 2016). These two approaches presently constitute the dominant paradigms of managing socially sustainable supply chains (SSSCs) (Lund-Thomas and Lindgreen, 2014).

1.2 Research problem

Sustainable supply chain management (SSCM) is an emerging field (Walker et al., 2014) now receiving considerable attention, as is reflected in a large number of supply chain management (SCM) publications (Ansari and Kant, 2017; Johnsen et al., 2017). Nevertheless, it is evident that scholars’ attention has varied greatly amongst the three

dimensions of sustainability: environmental, social and economic. While research (and indeed practice) on the environmental aspect of sustainability has proceeded apace, research (and practice) on the social aspect has been much slower to emerge and develop (Zorzini et al., 2015; Yawar and Seuring, 2017). One particular SSCM-related area which has received growing attention is the link between SSCM and performance. The majority of the current research on SSCM-performance has, however, conceptualised SSCM to simultaneously include both environmental and social activities which makes separate analysis impossible, and hence creates theoretical ambiguity as to whether pursuing social initiatives in the supply chain can lead to performance improvements (Klassen and Vereecke, 2012; Sancha et al., 2015; Marshall et al., 2016). Moreover, although a number of studies have provided evidence of the link between the green supply chain practices and supplier's environmental performance (e.g. Lee, 2015), comparable evidence that establishes a link between SSSC practices and supplier's social performance is sparse (Sancha et al., 2016). Therefore, there is an urgent need to exclusively examine the social dimension of sustainability and its impact on performance. Such an analysis will provide a clear understanding of the impact of pursuing social initiatives in the supply chain on the performance of the exchange partners.

While very few SSCM studies have examined the individual impact of SSTPs and SSCPs on supplier's social performance, their joint effect has yet to be understood. Recently, Sancha et al. (2016) revealed that these two set of practices are related in a sense that SSTPs are antecedents to SSCPs. This might indicate that SSTPs and SSCPs are mutually exclusive and should not be implemented simultaneously. Similarly, Wagner (2010) suggest that implementing the indirect (i.e. monitoring) and direct supplier development (i.e. training) activities simultaneously on supplier's operational performance and capabilities improvement is detrimental as the goals of development programmes become less clear, equivocal and unmeasurable. A better understanding of the implications of the joint implementation of SSSC practices would help buying firms in their efforts to implement the most effective combination of SSSC practices to improve supplier's social performance.

Further, the conventional governance view of SSSCs emphasises the use of the SSTPs and SSCPs as formal mechanisms to maximise supplier compliance to buyer's social

requirements (Lund-Thomas and Lindgreen, 2014; Soundararajan and Brown, 2016). Nevertheless, previous research suggested that the compliance paradigm is not efficient enough to drive suppliers to sustain improvements in work conditions and living standards (Lund-Thomas and Lindgreen, 2014; Sancha et al., 2015). Monitoring only encourages suppliers to do just enough to avoid being caught (Jiang 2009a) and has even been related to an increase in the overall levels of violations by suppliers (Lim and Phillips, 2008; Yu, 2008). On the other hand, many organisations are reluctant to incorporate sustainability agendas into their supply chain strategy and establish a collaborative approach with suppliers due to the high costs associated with the implementation of such approach (Lund-Thomas and Lindgreen, 2014), costs can be magnified further by suppliers' resistance and opportunistic behaviours (Jing, 2009b; Huq et al., 2014; Touboulic and Walker, 2015). Therefore, there is an urgent need to provide a better understanding of how buyers can improve the effectiveness of the implementation of SSTPs and SSCPs and subsequently improve social conditions at suppliers' facilities.

An increasing amount of research has started to demonstrate the value derived from social relationships embedded in supply chain relationships (e.g. Krause et al., 2007; Lawson et al., 2008; Blonska et al., 2013; Whipple et al., 2015). Social capital (i.e. relational, cognitive and structural) is purported to enhance a variety of aspects in supply chain relationships including information sharing (Li et al., 2014), learning (Kohtamäki and Bourlakis, 2012), resilience (Johnson et al., 2013) and more importantly reducing opportunism (Wang et al., 2013; Lioliou and Zimmermann, 2015), which are key aspects for successful implementation of SSSC practices. However, the significance of social capital in driving suppliers to establish social sustainability has been largely ignored in the sustainable supply chain literature (Alvarez et al., 2010; Touboulic and Walker, 2015; Rodriguez et al., 2016). This study aims to fill this gap by examining the moderating effect of social capital on the relationship among SSTPs, SSCPs, and supplier's internal social performance.

1.3 Research questions

In the light of the gaps identified in the literature (see section 2.10) and framed above, this research seeks to answer the following three fundamental research questions:

RQ1. *What is the individual impact of SSTPs and SSCPs on suppliers' internal social performance and on buyers' operational performance?*

RQ2. *What is the impact of joint implementation of SSTPs and SSCPs on supplier's internal social performance?*

RQ3. *What role does social capital (i.e. relational, cognitive and structural) embedded in the buyer-supplier relationship play in facilitating the implementation of SSTPs and SSCPs and improving suppliers' internal social performance?*

1.4 Research aim and objectives

The aim of this study is *to examine the impact of SSTPs and SSCPs on supplier's internal social performance and on buyers' operational performance, and the moderating role of social capital dimensions on the relationship among SSTPs, SSCPs and suppliers' internal social performance.* In doing so, this study seeks to achieve the following objectives:

1. To conduct a critical systematic review of the literature on socially SSCM and on social capital in supply chain relationships to highlight current gaps in extant research;
2. To identify the different socially sustainable supply chain practices that can be used by the focal company to address suppliers' internal social issues.
3. To develop a conceptual framework highlighting the role of social capital (i.e. relational, cognitive and structural) in the implementation of socially sustainable supply chain;
4. To empirically validate and verify the proposed conceptual framework in the context of large UK manufacturing companies; and
5. To provide a significant theoretical contribution to the SSCM literature and a set of practical implications that inform supply chain managers' decision making related to the implementation of socially sustainable supply chain practices.

1.5 Scope and limitations of the study

The broad area of investigation of the current study is sustainable supply chain management (SSCM). Building on the triple bottom line (TBL) (Elkington, 1998),

Carter and Rogers (2008, p. 368) incorporated the sustainability concept into the supply chain and defined SSCM as “the strategic, transparent integration and achievement of an organization’s social, environmental, and economic goals in the systemic coordination of key inter-organizational business processes for improving the long-term economic performance of the individual company and its supply chains”. Hence, the concept of sustainability incorporates three dimensions: environmental, social and economic. The present study exclusively focuses on the social dimension of sustainability within the upstream base of the supply chain, which involves managing existing suppliers through monitoring and/or collaboration. Specifically, the study investigates the impact of SSTPS and SSCPs on suppliers’ internal social performance and buyers’ operational performance and the moderating effects of social capital dimensions on the SSSC practices-performance links. This was deemed necessary to help to resolve the theoretical confusion manifested in the extant literature that has resulted from incorporating the environmental and social dimension into a single sustainability construct.

The proposed conceptual framework was verified using data provided by large manufacturing companies operating in a set of different industries in the UK. Although these settings help control for industry (manufacturing vs service) and country-level variations as potential noises in testing the model, it also limits the generalizability of the results due to industry and culture-specific characteristics. Moreover, the buyers’ operational and suppliers’ internal social performance were captured using a self-report data from the buyer’s perspective in this study at a single point in time (cross-sectional).

1.6 Research methodology: an outline

To achieve the research questions and hence the aim, this study sought the participation of large manufacturing companies with operations based in the UK. Using the Financial Analysis Made Easy (FAME)^a database as a sampling frame, a population of 3208 companies distributed over 10 different industries were identified. A stratified random sample of 1250 companies in a variety of manufacturing industrial sectors (e.g. chemicals, furniture, industrial equipment) (see Section 4.6 for full list)

^a FAME is a database contains information on companies in the UK and Ireland including contact, activities, ownership and financial information.

was selected using random number generator software. Survey was selected as the data collection method given the limitations associated with the observation and interview methods in relation to the overall aim of the current study. Accordingly, a thorough review of the relevant literature was carried out to inform the robust development and design of a user-friendly questionnaire. The measurement model including the formative and reflective indicators was adopted and/or adapted from previous studies. The survey was pre-tested by academics in Operations and SCM field before it was pilot-tested with respondents with similar characteristics to (but not part of) the targeted population. Following Dillman's (2000) Total Design Method, a mail survey accompanied by cover letter explaining the aim of the study was personally addressed and administrated to the president/CEO, supply chain, procurement, operations, purchasing, or logistics manager within the selected sample of 1250 companies. The survey included questions mainly focusing on the company experience with implementing specific SSSC practices with a key supplier, the presence of social capital in the buyer-supplier relationship and performance. Thus, the unit analysis of this research is buyer-supplier relationship.

Data were analysed using Partial least squares structural equation modelling (PLS-SEM) using SmartPLS 3.0 software (Ringle et al., 2014) and Statistical Package for the Social Sciences (SPSS). Data were analysed in four related stages, namely sample description, data screening, evaluating the measurement model and testing the structural model (i.e. hypotheses testing). In the first stage (sample description), a general profile of the study sample was ascertained in term of respondents' position, firm size, firm age, industry and supplier relationship length using descriptive statistics. In the second stage (data screening), the data were coded and cleaned, missing data were identified and handled, outliers were detected and managed, non-response bias was checked, common method variance was scrutinised and the assumptions of multivariate analysis (i.e. normality, linearity, multicollinearity and homoscedasticity) were examined. In the third stage (evaluating the measurement model), the quality of the measurement models including the formative and reflective models was evaluated. In the final stage (hypotheses testing), the structural model was tested in three sequential steps. Control variables were introduced into the regression equation to control their possible effects on supplier's internal social performance and buyer's operational performance followed by the independent and moderating

variables and then all the interactions terms to test their potential effect on supplier's internal social performance.

1.7 Study contribution

This research contributes to the growing literature on both SSCM and to the border literature on inter-organisational social capital in several ways. Firstly, by exclusively studying the social dimension of sustainability and its impact on both suppliers' internal social performance and buyers' operational performance this study adds balance to the literature which has predominantly focused on the environmental side of sustainability in the supply chain. This exclusive examination also provides a clear understanding of the impact of pursuing social initiatives in the supply chain on the performance of associated partners, which has been largely absent as previous studies have tended to combine environmental and social dimensions into a single concept (Porteous et al., 2015).

Secondly, the findings of this study add to the limited research that links socially sustainable supply chain practices to supplier's social performance. Although a considerable number of studies have provided evidence of the link between the environmental supply chain practices and supplier's environmental performance (e.g. Lee, 2015), comparable evidence that establishes a link between SSSC practices and supplier's social performance is rare. Moreover, while some attempts have been made to examine the impact of SSSC practices on buyer and supplier's economic performance (e.g. Hollos et al., 2012; Marshall et al. 2016), attempts to examine its impact on the supplier's social performance are rare (Sancha et al., 2015 Sancha et al., 2016; Huq et al., 2016).

Thirdly, this study deepens our understating of the impact of SSTP and SSCPs on supplier's internal social performance by not only revealing their individual impacts but also their joint impact which has been largely ignored in the prior literature. A better understanding of the implications of the joint implementation of SSSC practices can help buying firms in their efforts to implement the most effective combination of SSSC practices to improve supplier's social performance.

Fourthly, this study also contributes to the research into SSCM by featuring the indirect role of all three recognised social capital dimensions (i.e. relational, cognitive

and structural) on supplier's internal social performance. More specifically, this study has provided a more comprehensive understanding of the role and influence of all three social capital dimensions by articulating how they underpin and enable the effective implementation of SSTPs and SSCPs by empirically examining their moderating effects on the relationship between SSSC practices (i.e. SSTPs and SSCPs) and supplier's internal social performance. This nuanced view helps to provide an understanding of the specific characteristics and the relative importance of each social capital dimension in the implementation of socially sustainable supply chains, which has not been discussed before in this context. This distinction is also important in order to augment understanding of the unique role of each dimension in buyer-supplier relationships.

Fifthly, prior supply chain social capital research has predominately tended to focus on examining the impact of social capital dimensions (i.e. relational, cognitive and structural) on relationship outcomes including performance outcomes such as buyer and supplier's strategic (Villena et al., 2011; Gelderman et al., 2016; Son et al., 2016) and operational performance (Krause et al., 2007; Lawson et al., 2008; Avery et al., 2014; Zhang et al., 2016) and indirect outcomes such as relationship learning (e.g. Li, 2010; Kohtamäki and Bourlakis, 2012), opportunism (Wang et al., 2013; Lioliou and Zimmermann, 2015), commitment to innovation (Tsai et al., 2013), knowledge sharing (Li et al., 2014) and supply chain integration (Yim and Leem, 2013). This study extends the growing research on social capital in supply chain by explicating its benefits to the implementation of socially sustainable supply chain.

Finally, by reviewing, organising, synthesising and integrating the applications of Social Capital Theory in SCM research this study increases our understandings of the role of social capital in supply chain relationships by developing a holistic model that comprehensively identifies the antecedents and outcomes of social capital in supply chain relationships.

1.8 Structure of the thesis

This thesis is organised into six chapters as follows.

Chapter One – Introduction. This chapter has provided a brief background and presented the research problem, questions, aim and objectives. It also outlined the study methodology, scope and limitations, and contribution.

Chapter Two – Literature Review. This chapter critically reviews the current relevant literature on socially sustainable supply chain research with particular focus on the social dimension, highlighting the existing shortcomings. The chapter presents the evolution and emergence of the sustainability concept in SCM and provides an overview of the social issues prevalent in the supply chain, before outlining the review methodology including the review protocol and the procedures. The chapter then provides a descriptive analysis and discusses the current research around four themes namely, adoption, implementation, performance measurement and performance implications of socially SSCM. The chapter identifies current research gaps and subsequently introduces the concept of social capital and review current research on social capital in the context of SCM.

Chapter Three – Theoretical Framework. This chapter introduces the proposed conceptual framework of this study by explaining the nature and direction of the proposed relationships. The chapter identifies and defines the constructs associated with the framework. It then presents and discusses the theoretical perspectives that lay the foundations for the proposed framework namely, Transaction Cost Economics, Relational View and Social Capital Theory. The chapter then develops the associated hypotheses based on relevant literature.

Chapter Four – Research Methodology. This chapter presents and justifies the methodology that was used to empirically test and verify the proposed conceptual framework developed in chapter three. This chapter highlights the different research paradigms and reasoning approaches, and provides the rationale for adopting the positivist paradigm and deductive approach. The chapter discusses the data collection method, the targeted study population and the sampling technique. The chapter also presents the survey development and administration process. It also presents the study measurement model and data analysis techniques for assessing the quality of the measurement model and testing the structural model. The chapter ends by highlighting the ethical considerations that were taken during the study design and data collection process.

Chapter Five – Data Analysis and Results. This chapter begins by providing a detailed description of the study sample, before the processes of screening and examining the data for missing values, potential outliers and its appropriateness for multivariate

analysis are highlighted. The chapter moves on to evaluate the quality of the measurement models including the formative and reflective models in term of reliability and validity. The chapter ends by presenting the results of testing the structural model.

Chapter Six – Discussion and Conclusions. This chapter interprets and discusses the results in light of other relevant empirical work. It provides plausible explanations were appropriate for counterintuitive results. This chapter set out the conclusions and provides the theoretical, methodological and managerial implications of the study. It also acknowledges the limitations of the study and puts forward future research directions that can extend the present research and advance the knowledge on SSCM and inter-organisational social capital.

Chapter 2

LITERATURE REVIEW

2.1 Introduction

The purpose of this chapter is to analyse, synthesise and integrate socially sustainable supply chain management (SSCM) prior research with particular focus on the social dimension, and in doing so to report its current state, highlight key research themes and identify directions for future studies. The chapter begins by providing a brief overview and definitions of supply chain management (SCM), the emergency of SSCM and the social issues prevalent in the supply chain. The chapter proceeds by outlining the review methodology including the review protocol (e.g. inclusion and exclusion criteria and search terms) and the procedures of conducting the review (section 2.3). The chapter then provides a descriptive analysis and reports and discusses the main research themes found in the current literature in sections 2.4 through 2.9. The chapter concludes by identifying current research gaps and outlining directions for future research (section 2.10). Having identified the main gap this research seeks to address, the chapter introduces the concept of social capital and review its current research in the context of SCM (section 2.11).

2.2 Background

2.2.1 Supply chain management: an overview and definitions

The production of a particular product and service by a focal company usually includes raw materials from and several operations that take place in several other companies (Forsman-Hugg et al., 2013). Effective supply chain management (SCM) aims to maximise the overall value for all companies by efficiently and effectively delivering product and/or service to customers (Mentzer et al., 2001; Chopra and Meindl, 2010). Indeed, effective SCM has increasingly become a valuable source of value creation and potential competitive advantage (Dyer and Singh, 1998; Li et al., 2006). As a result, competition is no longer between individual companies, but rather between supply chains (Lambert and Cooper, 2000). As companies increasingly become heavily reliant on other parties within their supply chains to ensure the effective functioning of their operations, the management, coordination and control of supply chain relationships are now an integral part of business strategy (Christopher, 2005).

Although its core assumptions are derived mainly from the idea of industrial dynamics model Forrester (1961) and channels research in the 1960s, SCM as a concept emerged in 1982 (Cooper et al., 1997; Croom et al., 2000). SCM was often confused with other terms such as logistics management, which represents only one business process within the supply chain (Cooper et al., 1997; Croom et al., 2000). The confusion is understandable given that logistics management is a wide-ranging concept that is concerned with the management of material, product and information flow within the supply chain (Lambert and Cooper, 2000). Subsequently, the concept of SCM has been subject to considerable attempts to establish its function, structure and scope (Koufteros et al., 2010; Lambert and Cooper, 2000).

The concept of SCM has evolved over the past decade from a broad concept to a more focused concept in terms of its function (Lambert and Cooper, 2000). For example, in one of the early definitions, Ellram (1991, P. 13) limited her definition - “a network of firms interacting to deliver product or service to the end customer, linking flows from raw material supply to final delivery.” – to the flow of goods and materials. Leenders and Fearon’s (1997) definition (see Table 2.1) extended this view by suggesting that SCM deals with the management of information flow as well. This is also evident in Lambert et al.’s definition (1998, p. 504) “the integration of business

processes from end customer through original suppliers that provides products, services, and information that add value for customers”. It is now widely agreed that SCM is concerned with the efficient flow of materials (raw, semi-finished and finished), information and capital (Seuring and Müller, 2008).

Table 2.1: Sample of key definitions of SCM

Definition	Provided by
“a network of firms interacting to deliver product or service to the end customer, linking flows from raw material supply to final delivery.”	Ellram (1991, P. 13)
“a systems approach to managing the entire flow of information, materials, and services from raw materials suppliers through factories and warehouses to the end customer.”	Leenders and Fearon’s (1997, p. 295)
“The integration of business processes from end customer through original suppliers that provides products, services, and information that add value for customers.”	Lambert et al. (1998, p. 504)
“all the activities involved in delivering a product from raw material through to the customer including sourcing raw materials and parts, manufacturing and assembly, warehousing and inventory tracking, order entry and order management, distribution across all channels, delivery to the customer, and the information systems necessary to monitor all of these activities.”	Lummus & Vokurka (1999, P. 11)
“The systematic, strategic coordination of the traditional business functions, and the tactics across these business functions, within a particular company and across business within supply chain, for the purpose of improving the long-term performance of the individual companies and the supply chain as a whole”.	Mentzer et al. (2001, p. 18)
“The management of upstream and downstream relationships with suppliers and customers to deliver superior customer value at less cost to the supply chain as a whole.”	Christopher (2005, p5)
“Supply chain management is the management of relationships in the network of organizations, from end customers through original suppliers, using key cross-functional business processes to create value for customers and other stakeholders”.	Lambert (2014, p. 2)

Source: Compiled by the Author

The concept also developed in terms of the nature of business processes within the supply chain. For instance, Lummus and Vokurka (1999, P. 11) provided more details on the nature of business processes arguing that “all the activities involved in delivering a product from raw material through to the customer including sourcing raw materials and parts, manufacturing and assembly, warehousing and inventory tracking, order entry and order management, distribution across all channels, delivery to the customer, and the information systems necessary to monitor all of these activities”. Similarly, Lambert (2014) developed a comprehensive view of SCM in which the author identified two types of processes in the supply chain: business processes and management processes (see Figure 2.1). According to Lambert (2014), those business processes within company (e.g. logistics and R&D) and across the supply chain should

be integrated and coordinated by management processes such as customer and supplier relationship management, demand and returns management and order fulfilment.

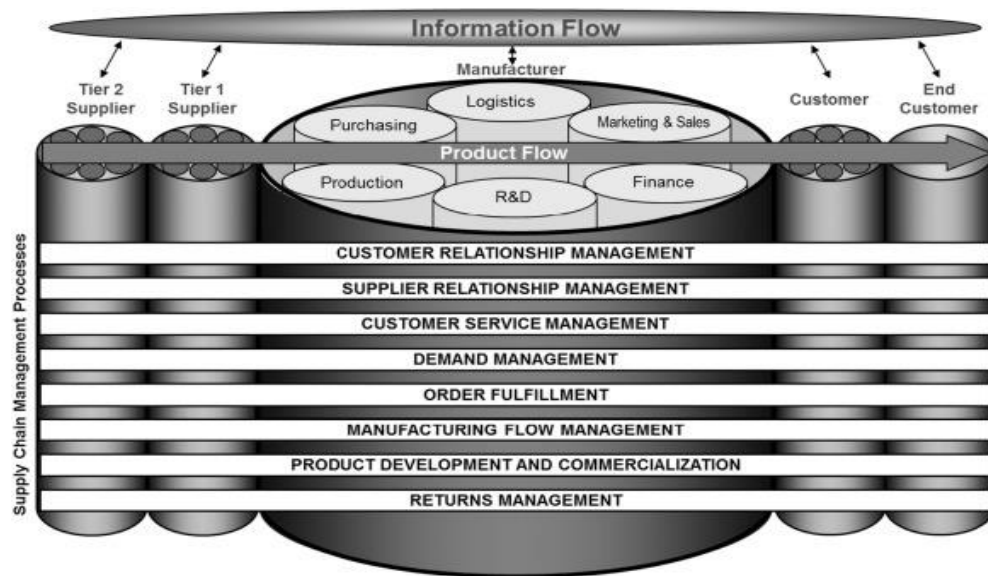


Figure 2.1: The SCM framework

Source: Lambert (2014; p. 3)

SCM has also developed in terms of the nature of members and structure. Supply chain members included all parties, both upstream and downstream, with whom the focal company interacts directly and indirectly from the point of origin to the point of consumption (Lambert and Cooper, 2000). This involves suppliers, manufacturers, wholesalers, distributors and retailers (Spekman et al., 1998; Coyle et al., 2017) and even customers themselves (Chopra and Meindl, 2010). As the number of these members increase across the supply chain (horizontal) and within each stage (vertical), the structure of the supply chain becomes more complex (Lambert and Cooper, 2000). To this end, Lambert and Cooper (2000) suggested that supply chain members should be classified as primary or supporting members in order to manage the complexity of supply chain.

2.2.2 Sustainable supply chain management: an emerging field

The establishment of Brundtland Commission (formally known as World Commission on Environment and Development (WCED)) in 1983 was the first major joint worldwide effort towards saving human environment and natural resources. Chaired by Gro Harlem Brundtland, the former Prime Minister of Norway and former Minister of Environment, the Commission released its report, *Our Common Future*, in 1987

outlining long-term strategies for achieving sustainable development by the year 2000 and beyond. The Commission's definition of sustainability - "development that meets the needs of the present without compromising the ability of future generations to meet their needs" (WCED, 1987, p. 8) – has set a broad understanding of sustainability to all relevant parties in society. This definition, however, provides organisations which have responsibilities towards the community, with little guidance on what constitutes 'needs' that should be preserved and developed (Carter and Rogers, 2008; Gimenez et al., 2012). As a result, Elkington (1998) introduced the "Triple bottom line" (TBL) concept, in which the author suggested that organisations should consider simultaneously social (people), environment (environment) and economic (profit) sustainability in their business operations.

While the term 'corporate sustainability' which has relatively recently appeared, is increasingly being used to refer to corporate responsibility, the topic of corporate social responsibility (CSR) has been a subject of considerable research and interest for three decades (Jamali, 2008). The concept dates back to Bowen (1953) who published the first book, *Social Responsibilities of the Businessman*, on the topic (Carroll, 1979). The concept of CSR emphasises a broad set of social responsibilities for organisations toward society, that are economic, legal, ethical and discretionary (Carroll, 1979). The fundamental responsibility of organisations is economic in nature, which it entails it producing products and services for community. The legal responsibility requires organisations to accomplish their economic purpose according to the legal requirements specified in the social legal system (Carroll, 1979; Jamali, 2008). Ethical responsibilities embody the expectation reflecting a concern for what the community regard as fair, just, or in keeping with the respect or protection of stakeholders' moral rights (Carroll, 1991). Discretionary (philanthropic) responsibilities are those actions that are performed voluntarily to society's expectations (not expected in an ethical or moral sense) through good corporate citizen such as training unemployed youth (Carroll, 1991; Jamali, 2008). The stakeholder theory of CSR contends that these social obligations should be fulfilled while recognising the interests of stakeholders (Amaeshi et al., 2008; Jamali, 2008) – those individuals or groups who may affect or are affected by the organisations (Freeman, 1994).

Despite the history of CSR, its research in the SCM field has only emerged since the end of the 1980s (Maloni and Brown, 2006). Poist (1989) provided an early call to integrate social considerations in the supply chain alongside the traditional economic considerations. Indeed, Murphy and Posit (2002) argued that out of the four business responsibilities (i.e. economic, legal, ethical and discretionary) research on ethical and discretionary considerations in the supply chain is limited. Although growing research efforts started to flow on social responsibility in the supply chain, the efforts were fragmented and examined environmental, human rights, ethical and social issues aspects of responsibility in a standalone fashion (Carter and Jennings, 2002). Early attempts to integrate environmental and social issues into a broad concept in the SCM field were observed in Carter and Jennings (2002) and Carter and Jennings's (2004) studies under a second order construct of Purchasing Social Responsibility consisting of environment, diversity, safety, human rights and philanthropy. Although these attempts (also Murphy and Posit, 2002) made a significant progress in integrating environmental and social elements into the broad concept of SCM, the economic element of responsibility concept was surprisingly ignored (Carter and Rogers, 2008). Building on the TBL concept, Carter and Rogers (2008) integrated the sustainability concept (environmental, social and economic) into SCM in their seminal article and defined SSCM as "the strategic, transparent integration and achievement of an organization's social, environmental, and economic goals in the systemic coordination of key inter-organizational business processes for improving the long-term economic performance of the individual company and its supply chains". Similarly, Seuring and Müller's (2008) study was influential in establishing the concept of sustainability in the context of SCM. Seuring and Müller's (2008; P. 1700) also emphasised the consideration of all sustainability elements in their definition of SSCM - "the management of material, information and capital flows as well as cooperation among companies along the supply chain while taking goals from all three dimensions of sustainability development, i.e., economic, environmental and social, into account which are derived from customer and stakeholder requirements". Thus, the basic notion of SSCM suggests that the focal company should bear the responsibility of their own environmental and social performance and those of the supply chain members, in particular, upstream suppliers (Amaeshi et al., 2008; Seuring and Müller, 2008).

Table 2.2: Key definitions of socially SSCM in the literature

Terminology used	Definition	Provided by
Supply chain responsibility	“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”.	Spence and Bourlakis (2009, p. 291)
Supply chain ethical responsibility	“managing the optimal flow of high-quality, value-for-money materials, components or services from a suitable set of innovative suppliers in a fair, consistent, and reasonable manner that meets or exceeds societal norms, even though not legally required”	Eltantawy (2009, P.101)
Sustainable supply chain management	“a firm’s plans and activities that integrate environmental and social issues into SCM in order to improve the company’s environmental and social performance and that of its suppliers and customers without compromising its economic performance”	Gimenez et al (2012, P. 150)
Environmental and socially responsible supply chain	“organisational activities that are conducted to manage the supply chain system, from material sources to customer service, to be environmentally and socially responsive, respectively”.	Carter (2005, P.874)
Sustainable supply chain management	“is the designing, organizing, coordinating, and controlling of supply chains to become truly sustainable with the minimum expectation of a truly sustainable supply chain being to maintain economic viability, while doing no harm to social or environmental systems”.	Pagell and Shevchenko (2014, p. 45)
Socially responsible supply chain orientation	“an organisational commitment that directs responsible and cooperative behaviour for the creation and continuation of affair labour conditions throughout the supply chain”	Park-Poaps and Rees (2010, P. 10)
Socially responsible buying	“...SRB can be defined as the inclusion in purchasing decisions of the social issues advocated by organizational stakeholders”.	Maignan et al (2002, P. 642)

Source: Compiled by the Author

The seminal articles by Carter and Rogers (2008) and Seuring and Müller (2008) marked the start of new era of research on sustainability in the SCM. SSCM has now received considerable theoretical and empirical research attention, and moved from a minor research topic into mainstream in the field of SCM (Pagell and Shevchenko, 2014). As a result, different definitions of SSCM was proposed and debated previously under names such as supply chain responsibility (Spence and Bourlakis, 2009), ethical sourcing (Roberts, 2003), socially responsible sourcing (Zorzini et al., 2015), supply chain ethical responsibility (Eltantawy, 2009) and socially responsible purchasing (Leire and Mont, 2010) (see Table 2.2). Although substantial work has been done, there is lack of adherence to strict terminology. The different terminologies used in

the current literature may reflect scholars' emphasise their focus on aspect of sustainability issues. However, some agreement on common terminology will likely be necessary in the future if research on SSCM is to advance systematically.

In recent years, the topic of SSCM has received considerable attention from academics, to the extent that some argued that SSCM is now a field of research in its right (Pagell and Shevchenko, 2014; Walker et al., 2014). Scholars have studied different aspects of SSCM including what drives the adoption of SSCM, how SSCM can be implemented and what are the benefits of adopting SSCM. This scholarly work has been vital in enhancing our understanding of this important topic and advancing the overall SCM literature. Despite the recent accumulation and richness of this work, it is evident that scholars' attention has varied greatly amongst the three dimensions of sustainability (i.e. environmental, social and economic). Specifically, while the research on the environmental issues in the supply chain has proceeded apace, research on the social aspect has historically received only limited attention (Seuring and Müller, 2008; Zorizini et al., 2015; Huq et al., 2016). Therefore, there is an urgent need to study the social dimension of sustainability and provide more balance to the existing literature. This chapter provides a state-of-the-art review in order to report the current state and identify key research themes of the SSCM literature with particular focus on the social dimension that in turn paves the way for identifying the current research gaps.

In the following section, an overview of social issues in the extant supply chain literature is discussed provided before the review methodology that was adopted in this study is outlined.

2.2.3 Social issues in the supply chain

Social failures or issues in the supply chain represent product or process related events or aspects that have a detrimental impact on the well-being of employees, local communities or customers (Klassen and Vereecke, 2012; Huq et al., 2016). Under this perspective, a wide range of social issues can occur in the supply chain. However, a consensus on the scope and nature of social issues that need to be addressed by focal companies in the supply chain has yet to be reached among scholars (Ahi and Searcy, 2015). The lack of agreement is likely to stem from the fact that social issues reflect the current society's baseline expectations for improving human behaviour and change

over time, and vary according to the culture in which the company and its suppliers operate (Hutchins and Sutherland, 2008; Awaysheh and Klassen, 2010; Huq et al., 2016). For example, child labour was not uncommon in developed countries a century ago but now is considered a major violation (Huq et al., 2016). However, child labour is still viewed as a vehicle of family support and early job training for children in some parts of Asia (Khan, 2007; Lund-Thomsen and Lindgreen, 2014). Thus, it is more challenging for buyers to tackle social issues at suppliers' workplace located in different cultures (e.g. developing countries) as some of the issues can be perceived as ethically and legally acceptable.

Table 2.3: key social issues highlighted and discussed in the extant literature

Category	Social issues	Sample reference
Human rights and employment issues	Child labour; freedom of association; fair payment; paid sick leave; paid over time and; employee compensation	Huq et al. (2016), Bai and Sarkis (2010); Robert (2003), Forsman-Hugg et al. (2013), Lund-Thomsen et al. (2012), Sancha et al (2015)
Working conditions	Forced labour; corporal punishment; sexual harassments, working hours; health and safety and; occupational welfare.	Yu (2008), Sancha et al. (2016), Jia et al. (2015), Awaysheh and Klassen (2010)
Society	Local well-being; purchasing from local suppliers and; inclusion of marginalised people	Carter and Jennings (2004), Klassen and Vereecke (2012)
Fair and responsible trade	Paying premium prices; ethnic minority purchasing and; female-owned purchasing.	Carter and Jennings (2002b), Worthington (2009), Maignan et al. (2002), Joo et al., (2010); Ciliberti et al., 2008b
Product safety	Suppliers using unclean and unsafe raw materials and unsafe use of food additives.	Klassen and Vereecke 2012); Forsman-Hugg et al. (2013)

Source: Compiled by the Author

The current literature highlights different social issues that can occur in the supply chain (see Table 2.3). These social issues can be grouped into five categories: human rights and employment issues, working conditions, society, fair and responsible trade and product safety. The extant literature predominantly focuses on human rights and employment issues (e.g. child labour) and working conditions (e.g. health and safety). One possible explanation for this focus might be that these issues occur in the internal environment and hence have more direct effect on business operations and workflow. Another possible explanation for the greater overall attention by scholars on human rights and employment issues is likely to be due to their wide-ranging and detrimental profound effect on human welfare compared to other social issues.

While a wide range of social issues can exist in the supply chain, organisations might choose to address certain issues depending on a number of factors. According to Harwood and Humby (2008), individual's values and interests can give the socially responsible practices adopted by an organization a particular focus in terms of the specific social issues addressed (e.g. labour conditions vs. safety-related issues). Other organisations might instead choose to deal with social issues that have been raised and seen as critical by external stakeholders (e.g. media and NGOs), given their powerful ability to influence public opinion. Organisations might also give priority to tackle social issues that occur in the suppliers' internal environment (e.g. bad working conditions) rather than issues in their external environment (e.g. support local communities) as those in the internal environment might directly affect the supplier's operations and hence cause supply chain disruptions (Pullman et al., 2008; Rodriguez et al., 2016). Organisations can also be interested in resolving specific social issues that are more concentrated in their industry compared to other industries. For example, working conditions and human rights are more common, and accordingly more emphasised, in labour intensive industries such as apparel (Jiang, 2009a; Zorizini et al., 2015). Similarly, product safety (e.g. clean and safe raw materials) and animal welfare are more relevant in the food and agribusiness supply chains (Maloni and Brown, 2006; Forsman-Hugg et al., 2013).

2.3 Review methodology

A literature review is a systematic, explicit, and reproducible process of identifying, evaluating, and interpreting the current body of recorded documents relevant to a particular inquiry question, or topic area, or phenomenon of interest (Kitchenham, 2004; Fink, 2005). The main aim of conducting a literature review is to identify the conceptual content of the area (Meredith, 1993), determine research gaps within the extant research to suggest research directions for further insights (Kitchenham et al., 2007) and guide practitioners for decision making (Cook et al., 1997; Briner and Denyer, 2012).

This study adopted the systematic literature review process suggested by Tranfield et al. (2003), thus comprising three important phases (see Figure 2.2):

Phase 1– planning the review of socially SSCM research: defining the review objectives; and preparing the protocol;

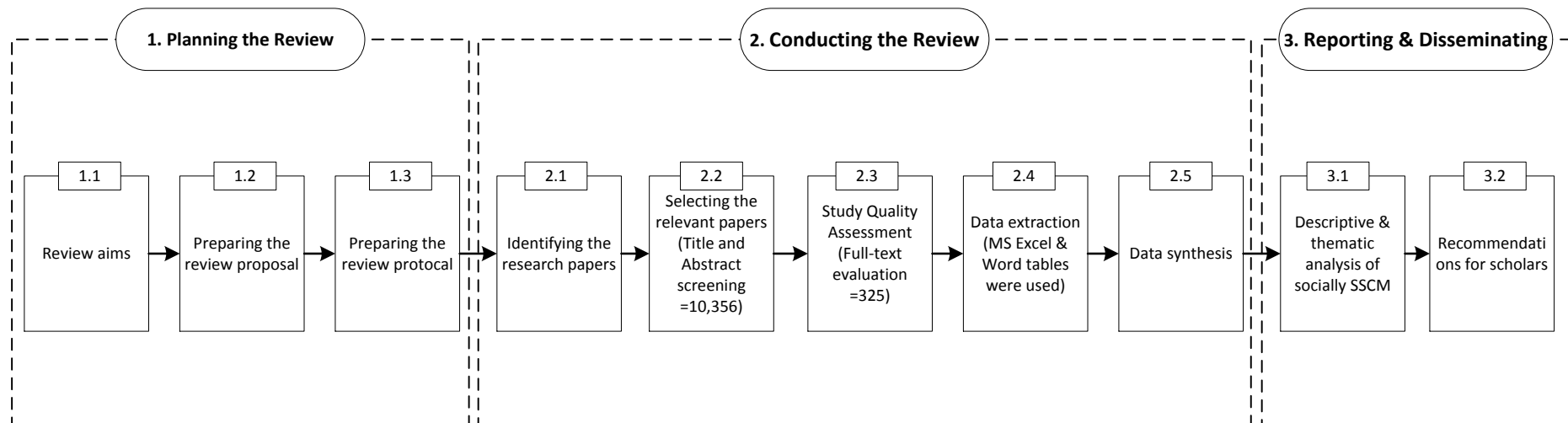


Figure 2.2: The systematic review process of socially SSCM research

Source: Adapted from Tranfield et al. (2003)

Phase 2 – conducting the review of socially SSCM research: identifying, selecting, evaluating and synthesising the relevant socially SSCM research; and

Phase 3 – reporting and disseminating socially SSCM research: descriptive analysis reporting of socially SSCM research; thematic reporting of journal articles and identify gaps and directions for future research.

The systematic literature review has been borrowed from medical and healthcare sciences by other disciplines (Tranfield et al., 2003) and is currently being widely adopted in the SCM domain (Durach et al., 2017). In contrast to the narrative literature review, the systematic review attempts to develop a reliable knowledge base by synthesising and accumulating knowledge from a range of studies (Tranfield et al., 2003). The systematic review can provide a high level of transparency (Growther and Cook, 2007; Denyer and Tranfield, 2009) resulting from the unbiased and objective review procedures (Torraco, 2005).

The following subsections (2.3.1 and 2.3.2) detail the review protocol and describe socially SSCM research search process including the databases searched.

2.3.1 The socially SSCM research review protocol

The overarching aim of this review was to report the current state and identify key research themes of the socially SSCM literature with particular focus on the social dimension. The domains for the research synthesis included all conceptual, literature review and empirical (both quantitative and qualitative) papers on socially SSCM. Therefore, before proceeding with the search, it was essential to decide on the conceptualisation of socially SSCM and on the scope/boundaries of supply chain relationships to be included.

This review includes only those articles that equally consider the three sustainability dimensions (i.e. environmental, social and economic) simultaneously, and those articles focus solely on the social dimension in the upstream supply chain. This review adopts the Purchasing and Supply management perspective, thereby considering upstream buyer-supplier relationships. Although the exclusive focus on managing social sustainability in the upstream supply chain precludes a much wider ranging multidisciplinary review, this was deemed necessary due to both analytical and space

constraints (Webster and Watson, 2002; Delbufalo, 2012). As emphasised by Durach et al. (2017) ensuring the same unit of analysis (i.e. the same part of supply chain) in the systematic literature review help to facilitate the synthesis of the studies' findings.

Having established the scope and boundaries of the review, several decisions corresponding to the types of the literature contributions to be incorporated and to the selection criteria were taken as follows:

- a. The search was initiated using Scopus. The rationale for this was that the Scopus database represents the largest and the most frequently updated (daily) database with over 20,000 titles from different fields. It forms a large pool of published materials in the Operations, Marketing and SCM fields.
- b. Only articles published in peer-reviewed scholarly journals were included in the review. Therefore, conferences, books, book chapters, editorials and unpublished work such as PhD theses were not included. This procedure was followed to enhance the quality of the review (David and Han, 2004).
- c. Articles from subject areas Business and Management, Decision Sciences and Social Sciences and published only in the English language were only included.
- d. Given that the overarching aim was to provide an inclusive state-of-the-art review, no restriction was placed on the starting date for the review. This allowed tracing of the progress and evolution of socially SSCM research and hence enabled the review to capitalise on all the insights that have accumulated over the past years.
- e. The initial substantive relevance of articles was ensured by requiring the article's title, abstract or keywords to include one of the combinations of search terms illustrated in Table 2.4. The keywords were carefully selected based on the author's early readings of the literature and based on relevant associated literature review articles.
- f. Articles that consider the three sustainability dimensions (i.e. environmental, social and economic) simultaneously and those articles focusing solely on the social dimension in the upstream supply chain were included. Accordingly, articles that focused exclusively on environmental (green) issues were excluded.

- g. The final substantive relevance was guaranteed by scrutinising the whole article.

Table 2.4: Keywords used in the literature search

Sustainability		Supply chain relationships
Responsib*	And	“Supply chain” OR
Ethic*		“buyer-supplier” OR
Sustainab*		Supplier OR
Social*		purchasing OR
		procurement OR
		sourcing

2.3.2 Conducting the socially SSCM research review

In the second phase, five steps (see Figure 2.2) were carefully followed. In the first step, the search strings (as controlled vocabulary and as free-text searches) reported in Table 2.4 were used to search within article’s title, abstract and keywords using the Scopus database. This process identified over 10,000 possible documents. Applying the review protocol inclusion/exclusion criteria (b), (c) and (d) above retained 8,721 initially relevant papers.

In the second step, each article’s title, abstract and keywords were closely scrutinised to meet the pre-specified relevance and selection criteria (e). In total, 7,053 articles were excluded following this step. This procedure resulted in 1,668 articles being retained.

In the third step, all the articles identified in the previous step were subjected to full-text analysis and evaluation against the inclusion and exclusion criteria listed in the review protocol (f). Through this process, a further tranche of articles were found not to be relevant and were excluded for two main reasons. Firstly, some papers found to focus exclusively on the environmental pillar of sustainability in the supply chain. Secondly, other articles examined sustainability in the downstream supply chain relationships. Thus, after this detailed evaluation process had been completed, 325 articles remained and were included in the review.

In the fourth step, a portfolio of Microsoft Excel and Word databases was created. MS Excel sheets were used to extract the following data about each article: author(s), publication year, journal name and sustainability dimensions examined. MS Word

tables were used to summarise and extract the relevant findings from each article and hence to identify the potential themes of socially SSCM research.

In the final step, the literature was analysed and synthesised in two sequential stages as recommended by Webster and Watson (2002). In the first stage, an author-centric synthesis approach was used in which the author chronologically analysed and presented a summary of each identified article. This enabled mapping out the progress and trends in socially SSCM research. In the second stage, a concept-centric synthesis approach was used in which a concept (theme) matrix was built from the summary presented in the previous stage. Using this matrix, the socially SSCM research was grouped into relevant concepts (themes and subthemes), which facilitated the discussion of the socially SSCM research related to each theme. The themes and subthemes were derived inductively and refined during the review process.

2.4 Descriptive analysis of socially SSCM literature

The purpose of the descriptive analysis was to provide an overview and background of the socially SSCM research. This analysis focuses on the trends in publication over the review period, journal focus of the publications and sustainability dimension examined in the current literature.

2.4.1 Distribution of socially SSCM research over years

The review highlights that there has been a gradual growth in publications on socially SSCM with an accumulated total of 325 papers over the 20 year review period. There were a small number of publications between 1997 and 2002 with only 15 articles published focusing on socially SSCM (see Figure 2.3). Although a steady but very limited flow of papers began to appear from 2003, real growth did not begin until 2008 when 34 articles were published in one year, however, this surge was followed by a decline in 2011. From then on publications have continued to rise with 2012 recording the highest number of publications (43). The rapid increase in socially SSCM publications can be explained by the large number of special issues appeared in academic journals. However, the fluctuations in the number of publications may reflect the imbalanced focus on sustainability dimensions.

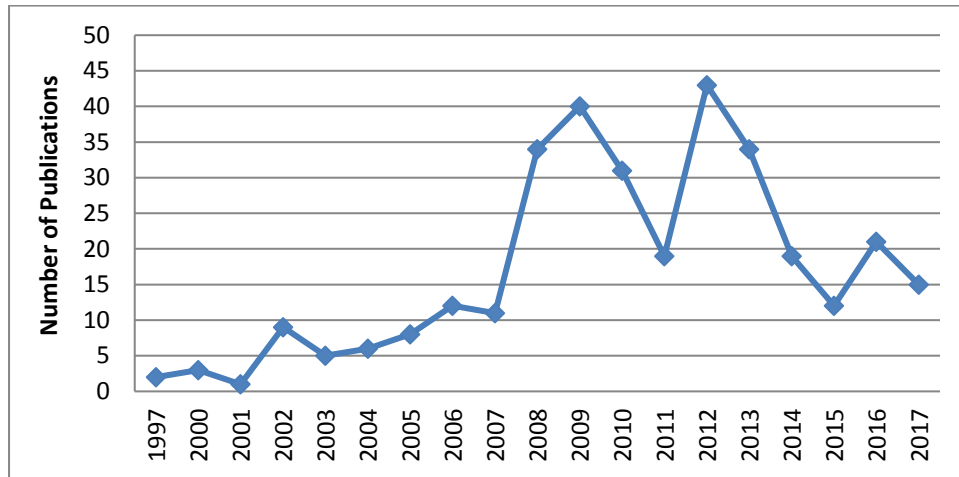


Figure 2.3: Distribution of socially SSCM articles over the period

Source: Developed by the author

2.4.2 Sustainability dimension(s) focus in socially SSCM research

This review includes all SSCM research that focuses on the social dimension of sustainability. Therefore, as noted earlier, all papers that examined only the social dimension and those equally examined both the social dimension with the environmental dimension were included. The literature has varied considerably in their focus on sustainability dimension (see Figure 2.4). The review shows that almost two-thirds of the papers (204 articles; representing 62.76%) had taken a broad perspective by investigating both dimensions, while the rest (121; 37.23%) had taken a nuanced perspective by exclusively studying the social dimension of sustainability. If we were to compare the number of studies that only focus on the social dimension with that only focus on the environmental dimension, the social dimension is far behind (Ansari and Kant 2017; Johnsen et al. 2017; Touboulic and Walker, 2015). The greater overall attention to studying environmental and social together amongst the 325 papers reviewed likely to be due to the early calls for a simultaneous investigation of both dimensions (e.g. Carter and Rogers, 2008; Seuring and Müller, 2008). However, while the simultaneous investigation of both dimensions has advanced the SSCM field, the majority of these studies have conceptualised environmental and social practices in one single construct which creates theoretical ambiguity regarding their impact on performance as will be discussed in Section 2.9.

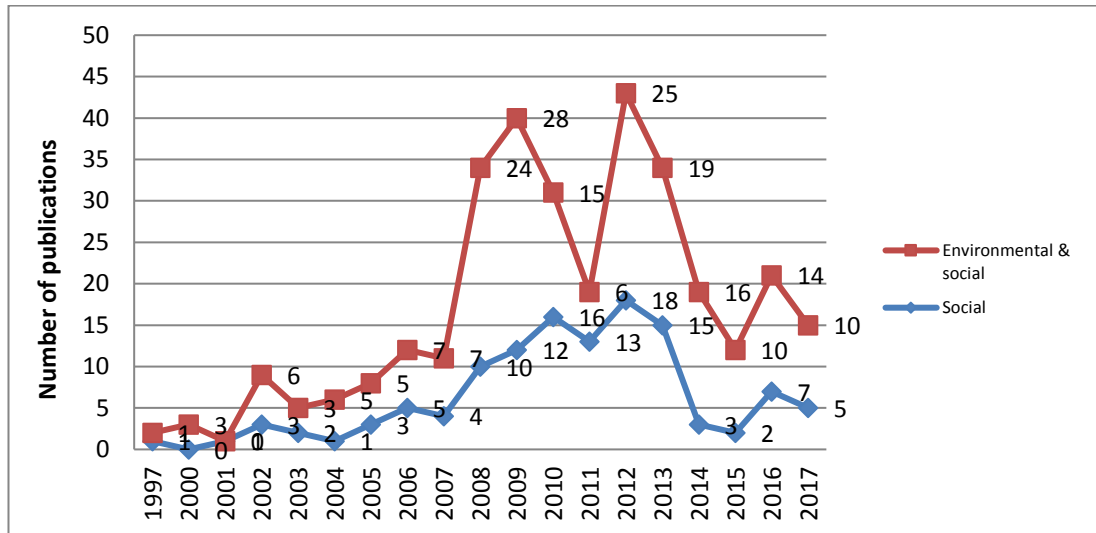


Figure 2.4: Sustainability dimension(s) focus in socially SSCM research

Source: Developed by the author

2.5 Thematic analysis of socially SSCM research

The review identified four broad themes of socially SSCM research, namely adoption, implementation, performance measurement and performance outcomes/benefits. The themes were further divided into subthemes to provide an in-depth analysis of the current research. A classification of socially SSCM research according to the four themes and their associated subtheme is summarised in Table 2.5. As mentioned earlier, the themes and subthemes were derived inductively and refined during the review process. The first theme (adoption) pertains to research that has explored the driving forces and factors (drivers and barriers) that influence the adoption and introduction of socially SSCM initiatives. The second theme (implementation) relates to those studies that have mainly examined the practices/mechanisms/activities by which a buying firm drives socially responsible behaviour of the supplier. This theme was divided into three subthemes, namely internal, transactional and collaboration practices. The third theme (performance measurement) is associated with research that has developed and proposed measurement frameworks and metrics of the social performance in supply chains. The final theme (outcomes/benefits) relates to those studies that have examined the outcomes/benefits of the implementation of socially SSCM. Under this theme, the outcomes of the implementation of socially SSCM were split into indirect and performance outcomes. Each of the themes analysed are discussed in turn in the following sections (2.6 to 2.9). In each section, the focus is on analysing key contributions rather than attempting to comprehensively discuss each

Table 2.5: Themes of socially SSCM research

No.	Main theme	Subthemes		key articles	
1.	Adoption	Driving forces (stakeholders)		Ehrogtt et al (2011), Wolf (2014); Park-Poaps & Rees (2010); Tsoi, J. (2010), Cheng & Ahmad (2010), Crespín-Mazet & Dontenwill (2012), Gualandris & Kalchschmidt (2014), Maignan & Mcalister (2003), Meixell & Luoma (2015), Reuter et al. (2012).	
		Enablers and barriers		Huq et al. (2014), Mont & Leire (2009), Gattiker et al. (2014), Goebel et al. (2012), Harwood & Humby (2008), Mani et al. (2015), Mani et al. (2016).	
2.	Implementation (mechanisms, activities and capabilities)	Internal	Internal adaptations (e.g. capability development, revised supplier selection)	Erridge and Hennigan (2012), Mani et al. (2014), Kumar and Rahman (2016), Luthra et al. (2017), Azadnia et al (2015), Bai & Sarkis (2010), Shalke et al. (2017), Xu et al. (2013), Chiouy et al. (2011), De Bakker and Nijhof (2002), Gold et al. (2013), Koplín et al. (2007), Reuter et al. (2010).	
			Monitoring (e.g. code of conduct, auditing etc)	Lim and Phillips (2008), Colwell et al. (2011), Grosvold et al (2014), Sartor et al. (2016), Pedersen & Andersen (2006), Yu (2008), Beske (2008), Castka & Balzarova (2008a, 2008b), Ciliberti (2011), Ciliberti et al. (2008, 2011), Dai & Blackhurst (2012), Geibler (2013), Kaptein (2004), Kolk & van Tulder. (2002a, 2002b), Locke et al. (2013), Preuss (2009).	
		External	Collaboration	Supplier (e.g. supplier development)	Gimenez and Tachizawa (2012); Grosvold et al (2014); Grimm et al. (2016), Klassen & Vereecke (2012), Sancha et al. (2015), Gimenez et al (2012), Huq et al. (2016), Jiang (2009a), Jiang, B. (2009b), Lund-Thomsen & Lindgreen (2014), Andersen & Skojett-Larsen (2009).
			Stakeholders (e.g. NGOs)	Rodriguez et al. (2016a, 2016b); Hsueh & Chang (2008), Ansett (2007), Gold et al. (2013), Perez-Aleman and Sandilands (2008).	
3.	Performance measurement (methods and indicators)	-		Hutchins and Sutherland (2008), Isaksson et al (2010), Ketola (2010), Luken and Stares (2005), Taplin et al. (2006), Van Hoek and Johnson (2010), Yakovleva et al. (2011), Ahi et al. (2016), Ahi & Searcy (2015), Bai and Sarkis (2014), Erol et al. (2011), Govindan et al. (2013). Hassini et al. (2012), Husgafvel et al. (2015), Miemczyk et al. (2012).	
4.	Outcomes/benefits	-		Akamp & Müller (2013), Carter (2005), Carter & Jennings (2002a), Carter & Jennings (2002b), Eltantawy et al. (2009), Galleary et al. (2012), Gimenez, et al. (2012), Gualandris & Kalchschmidt (2016), Hojmosse & Adrien-Kirby (2012), Hollos et al. (2012), Klassen & Vereecke (2012), Lee, (2016), Marshall et al. (2016), Porteous et al. (2015). Sancha et al. (2016), Sancha et al. (2015), Wang & Sarkis (2013), Wolf (2014), Carbone et al (2012), Kumar & Rahman (2016).	

Source: Developed by the Author

and every paper. In section 2.10, the findings are brought together to identify the salient gaps and hence associated potential further research needs. It is noteworthy that these themes are not mutually exclusive, and hence some articles feature under more than one theme. For example, Klassen and Vereecke (2012) examined the impact of monitoring and collaboration practices on performance and hence contributes to the discussion of the two themes.

2.6 The adoption of socially SSCM (drivers, enablers and barriers)

The factors that influence the adoption of socially SSCM represent a mainstream research area that has received considerable attention (e.g. Maignan and Mcalister, 2003; Park-Poaps and Rees 2010; Ehrogtt et al., 2011; Reuter et al., 2012; Wolf, 2014; Gualandris and Kalchschmidt, 2014; Meixell and Luoma, 2015). Supply chain scholars have drawn on different theoretical perspectives (e.g. stakeholders and institutional theory) to better understand the driving forces and the factors (i.e. enablers and barriers) that influence the adoption of socially SSCM.

The current research into socially SSCM has highlighted the critical role of stakeholders' pressure on the adoption of SSCM. A stakeholder is "any group or individual who can affect or is affected by the achievement of the organization's objectives." (Freeman, 1984; P. 46). Based on this perspective, Schneider and Wallenburg (2012) provide a stakeholders classification in the context of SSCM whereby stakeholders were categorised into firm-internal stakeholders, stakeholders external to the firm but internal to the supply chain, and supply chain-external stakeholders (see Figure 2.5). Top management (Foerstl et al., 2010; Walker and Jones, 2012;), top management ethical norms (Blome and Paulraj, 2013), middle management in supply functions (Schneider and Wallenburg, 2012; Ehrogtt et al., 2011), and internal employees (Mont and Leire, 2009; Goebel et al., 2012) all can play a critical role in embracing sustainable sourcing. However, their influence on firm actions vary depending on the role and value they hold in the firm (Ehrogtt et al., 2011).

External stakeholders also exert pressures on companies to adopt socially SSCM. In the current market dominated by highly aware customers who are often able to exert power through their prevailing purchasing power, companies may be forced to either switch to a responsible supplier or enhance their suppliers' internal working conditions to levels that meet normal labour standards in order to meet customers' expectations

(Vachon and Mao, 2008; Ehrogtt et al., 2011; Gualandris and Kalchschmidt, 2014). NGOs, with their ability to report irresponsible activities at suppliers' premises and establish market campaigns, also represent a significant factor in driving companies to adopt socially SSCM (Schrader et al., 2012; Meixell and Luoma, 2015). Similarly, civil society organisations (such as trade associations) and the media are major drivers for leading firms to seek to improve labour standards (Wright and Brown, 2013). Likewise, competitive pressure (Mani et al., 2015), retention of skilled labour and economic gains (e.g. increase productivity) are also motivations cited for adopting social sustainability (Huq et al., 2014).



Figure 2.5: Stakeholders classification

Source: Schneider and Wallenburg (2012, p. 248)

The degree of stakeholders influence on socially SSCM adoption varies with stakeholders type, sustainability dimension and sustainability practice (Meixell and Luoma, 2015). For example, employees and managers were highlighted as the most influential types of stakeholders that drive the adoption of socially SSCM (Andersen and Skjoett-Larsen, 2009; Mani et al., 2016). NGOs and media were more salient in adopting socially SSCM to address the social issues rather than environmental issues (Awaysheh and Klassen, 2010). Finally, Ehrgott et al. (2011) revealed that the strength or intensity of the pressure exerted by managers was positively associated with socially sustainable supplier selection as a core practice to manage socially SSCM.

The research into socially SSCM has also explored how the adoption of socially SSCM can be facilitated (e.g. Huq et al., 2014; Mani et al., 2015; Busse et al., 2016). Taking the perspective of developing suppliers, Huq et al. (2014) revealed that establishing an industry-wide code of conduct and a code that reflects the socio-economic environment were the main enablers for adopting social sustainability in suppliers' premises. Sharing the costs of implementing social sustainability between buyer and

supplier can enable its adoption, where is particularly beneficial for poor suppliers whom resources for sustainability are beyond their reach (Yu, 2008). Mani et al. (2015) reported that direct incentives from policymakers in the form of tax benefits (e.g. exemption) and extending property rights can also enable the adoption of social sustainability initiatives in the supply chain.

The extant literature has also explored barriers that impede the adoption of socially SSCM. Extant research has demonstrated that price pressure and lack of sharing implementation costs between buyer and supplier (Yu, 2008; Baden et al., 2009; Huq et al., 2014), misalignment between code of conducts and local contexts (Huq et al., 2014), lack of government-led legislation (Park-Poaps and Rees, 2010; Gopalakrishnan et al., 2012; Mani et al., 2016), lack of awareness of social sustainability measures (Mani et al., 2016) and the complexity of the sustainability concept (Busse et al., 2016) are the main barriers of implementing social sustainability. Surprisingly, Mont and Leire (2009) revealed that the supplier's workers can also represent an obstacle since some of the social sustainability requirements are perceived to reduce their incomes (e.g. reducing excessive overtime) or increase additional costs (e.g. trade union subscriptions).

In summary, the drivers and enablers of socially SSCM have received significant more attention in the extant research compared to the barriers facing companies in their attempts to establish sustainability across the supply chain. Moreover, the perspectives of suppliers and small-and-medium-sized enterprises (SMEs), who often lack the required capabilities, instruments or resources, when it comes to exploring the drivers, barriers and enablers to the adoption of socially SSCM has received comparatively little attention. In particular, the perspective of suppliers in developing countries is largely absent in the current literature. Therefore, more in-depth (e.g. case study) research would be warranted to explore the barriers that suppliers and SMEs encounter in pursuing socially SSCM.

2.7 The implementation of socially SSCM (mechanisms and activities)

This theme relates to the research that has examined the mechanisms, capabilities, methods and activities by which a buying firm can seek to ensure supplier's social performance (Gimenez et al., 2012; Huq et al., 2016). Buying firms have responded by taking different routes to ensure more reliable and predictable behaviours of

existing suppliers (see Figure 2.6). The journey often begins by strengthening the supplier selection process by incorporating, in addition to the conventional criteria (e.g. cost, quality and delivery), appropriate social standards (Leire and Mont 2010; Akamp and Müller, 2013) and building the capacity of the procurement function (e.g. employee training) to better manage social issues in the supply chain (Roberts, 2003; Leigh and Waddock, 2006; Huq et al., 2016). While some buying firms have pursued a supplier switching route in which they search for alternative more socially responsible suppliers (Holloos et al., 2012; Porteous et al., 2015), others have adopted a vertical integration strategy to gain more control over their supply chains (Klassen and Vereecke, 2012). However, amongst other factors, unfavourable cost-benefit analyses of these two options has led buying firms towards a third route in which the focus is on driving, creating and building the social sustainability of existing suppliers. Following this route, many buying firms adopted a transactional approach by effectively forcing their own code of conduct on and performing heavy monitoring and auditing of suppliers to generate compliance (Jiang, 2009a; Boyd et al., 2007). Others have reinforced a more collaborative approach, thereby sharing resources by establishing development/training programmes to build suppliers' capabilities and improve overall sustainability performance (Klassen and Vereecke, 2012; Huq et al., 2016). These latter two approaches presently constitute the dominant paradigms of managing socially SSCM (Lund-Thomas and Lindgreen, 2014).

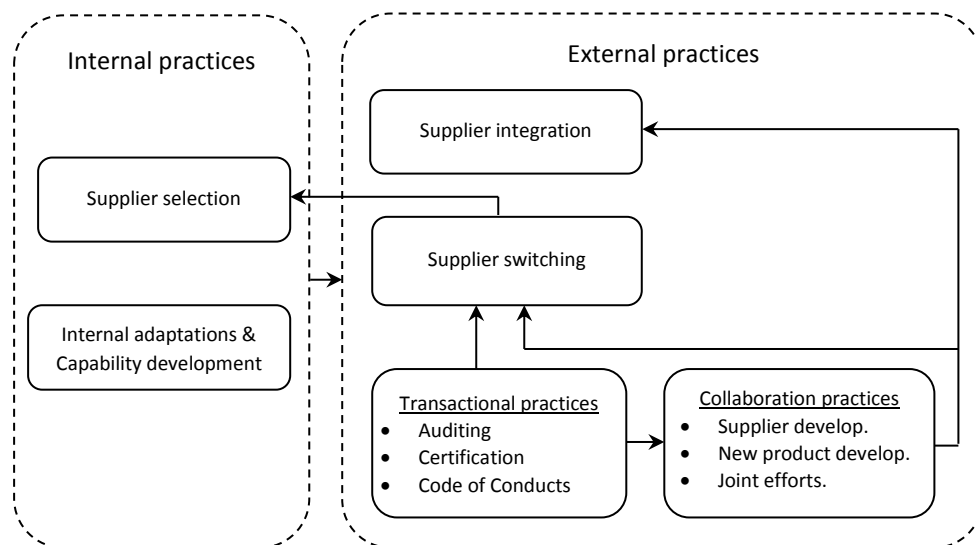


Figure 2.6: The management of socially SSCM

Source: Developed by the author

2.7.1 Socially sustainable internal practices

The enormous and escalating pressure from both external and internal stakeholders has led companies to make necessary adjustments to supply chain strategy to accommodate sustainability requirements (Mani et al., 2014; Kumar and Rahman, 2016, Luthra et al., 2017; Huq et al., 2016). The extant socially SSCM research has directed its investigation towards two interrelated internal practices that support the implementation of socially SSCM namely, internal capability development and supplier selection.

2.7.1.1 Internal capability development

The shift from conventional SCM to socially SSCM requires firms to make changes and adaptations within their internal environment. The process often begins by fully aligning and integrating firm's sustainability strategy with its business strategy (Carter and Rogers, 2008; Zorizini et al., 2015). Integration means building the commitment to manage sustainability into core aspects of the firm's operations (De Bakker and Nijhof, 2002; Andersen and Skjoett-Larsen, 2009). This requires defining what sustainability means to the firm and its employees (Gold et al., 2013). This cannot be achieved without receiving and understanding all the salient stakeholders' perceptions of what constitutes social issues (Leigh and Waddock, 2006; Pagell and Shevchenko, 2014) rather than solely the perceptions of their suppliers (Leigh and Waddock, 2006; Schneider and Wallenburg, 2012). Therefore, this requires developing effective communication strategies (Yawar and Seruing, 2017) and knowledge sharing activities (Andersen and Skjoett-Larsen, 2009) with stakeholders, as they not only help to increase the firm's awareness of social issues (Meixell and Luoma, 2015), but also help to provide skills and capabilities to support the firm's efforts in addressing these issues (Rodriguez et al., 2016a). The aim of communication with different stakeholders should not solely directed to understanding their expectations, but also to report firm's efforts to address sustainability issues across the supply chain (Belal, 2002; Perrini et al., 2007). This highlights the need for extending and developing firms financial annual reporting to include sustainability reports (Tate et al., 2010).

The implementation of socially SSCM also requires firms to build and develop the necessary capabilities and in particular those of the purchasing function (Roberts, 2003; Leigh and Waddock, 2006; Schneider and Wallenburg, 2012). Improving the

skills and capabilities of internal employees is a crucial aspect for successful implementation of socially SSCM. In their study of Sainsbury's – a major UK food retailer, Leigh and Waddock (2006) highlighted two types of training of internal employees. The first focuses on providing appropriate information on the basic elements of ethical performance. The second, and most important, provides employees with the information and skills necessary to ensure effective monitoring and auditing (e.g. how performance can be assessed during supplier's inspection). Similarly, in their study of IKEA's sustainability programme, Andersen and Skjoett-Larsen (2009) reported that the internal training program and knowledge enhancing mechanisms key to the effective implementation of CSR in IKEA's supply chain. The internal training programme covers different areas including production-related social issues, audit procedures, country-specific regulations and local culture and language. IKEA ensured constant internal knowledge sharing of experiences among the employees within the purchasing department and others including auditors. This is consistent with Schneider and Wallenburg's (2012) argument that sourcing departments should establish a cross-functional cooperation with other departments within the firm.

2.7.1.2 Supplier selection

Supplier selection represents a pre-relationship stage in which the buyer evaluates a number of potential suppliers with the aim of choosing the best candidate(s) based on a set of pre-specified criteria (Ford, 1980). As outsourcing to suppliers has become a popular strategy to save costs and focus on core competencies, organizations increasingly rely more heavily on their suppliers for the design and production of certain component parts and services (Vonderembse and Tracey, 1999). As a result, supplier selection criteria are designed and developed to ensure a higher performance of supplier's quality, cost, delivery and flexibility (Kumar and Pani, 2014; Mukherjee, 2016). However, under pressure of different stakeholders to enhance the sustainability of their supply chains, buyers have also incorporated environmental and social criteria into the decision-making process of supplier selection (Ehrgott et al., 2010; Luthra et al., 2017). Unlike other mechanisms (e.g. monitoring and collaboration), supplier selection is considered as a proactive technique to reduce the risks involved in the relationship and helps in only selecting suppliers that meet buyer's social requirements (Reuter et al., 2010; Goebel et al., 2012; Yadlapalli et al., 2017).

The current literature provides inconclusive evidence for the view that supplier selection based on social criteria enhances performance. In their study of the buyer's perspective in Germany, Akamp and Müller (2013) revealed that, among other supplier sustainability management activities (i.e. supplier development and supplier integration), supplier selection based on social and environmental standards contributes to enhance supplier operational performance (quality, delivery, cost flexibility and good service portfolio). Similarly, Yadlapalli et al. (2017) reported based on data from Bangladeshi manufacturing firms that the integration of social-responsibility criteria for selecting apparel manufacturers and supplier development results in a significant improvement in environmental and social performance of manufacturing firms but not economic performance. In contrast, Kumar and Rahman (2016), based on a survey of 157 Indian automobile companies found that supplier selection using social criteria improves environmental and economic performance but not social performance.

2.7.2 Socially sustainable external practices

In the socially SSCM literature, two approaches have been suggested to govern supplier sustainability performance, namely the transactional and collaboration approaches (Klassen and Vereecke, 2012; Sancha et al., 2015; Sancha et al., 2016; Huq et al., 2016; Rodriguez et al., 2016). The first approach emphasises the use of socially sustainable transactional practices (SSTPs) (e.g. monitoring and auditing) as effective mechanisms, which perceived as arm's length, to increase supplier compliance to buyer's social requirements (Jiang, 2009; Boyd et al., 2007; Pagell and Shevchenko, 2014). The second approach focuses on the importance of socially sustainable collaboration practices (SSCPs) (e.g. supplier development and joint efforts) to build suppliers capabilities and improve overall sustainability performance (Klassen and Vereecke, 2012; Huq et al., 2016). These governance approaches have their specific assumptions and theoretical underpinnings. Based on these approaches, scholars have proposed different practices for governing sustainability and have consequently highlighted a variety of limitations associated the implementation of such approaches. Table 2.7 provides a summary comparison of the transactional and collaboration approaches of socially SSCM.

2.7.2.1 Socially sustainable transactional approach

Based on transaction cost economics (TCE) theory, the socially sustainable transactional approach rests on the assumption that supplier' misconduct represents forms of opportunistic behaviours (Sancha et al., 2016). Grounded in this assumption, the transactional approach points to different practices through which a buying firm assesses, monitors, audits and seeks to control supplier's behaviour relating to the working conditions, employees welfare and the elimination of the use of child labour (Jiang, 2009a; Klassen and Vereecke, 2012; Marshall et al., 2015a; Huq et al., 2016; Sancha et al., 2016; Gualandris and Kalchschmidt, 2016). Socially sustainable transactional practices (SSTPs) are undertaken to evaluate the extent to which suppliers conform to the societal expectations formulated in buyer's criteria, stipulated in regulations or pre-specified in international standards (Mamic, 2005; Ciliberti et al., 2009). Thus, the process is concerned with ensuring alignment between policy and practice (Grosvold et al., 2014). The review identified three primary SSTPs that were been the focus of socially SSCM scholars, namely codes of conduct, third-party certification and social auditing.

Table 2.6: Comparison of the approaches of socially SSCM

Characteristics	Transactional approach	Collaboration approach
Timeframe	Short-term	Long-term
Theoretical basis(s)	Transaction cost economics	Social exchange theory, resource dependency, relational view.
Main assumptions	Supplier performance is driven by heavy monitoring and auditing	Supplier performance is driven by building capability.
Main proposed practices	Monitoring; auditing; code of conduct; third-party certification and; contracts.	Supplier development; resource sharing and; knowledge sharing.
Limitations	Increase in the overall levels of violations by suppliers; lack of sharing implementation costs; and neglecting the social context.	Applicable to selected suppliers; long time needed to develop, implement and achieve the expected outcomes and; high costs.
Main driver(s)	Legitimacy	Legitimacy and competitive advantage (e.g. new product development).
Direction of communication	Often one-way communication	Two-way communication
Involved party (s)	Buyer; Supplier; third-party auditor.	Buyer; Supplier; NGOs, civil society organisations.

Source: Developed by the author

2.7.2.1.1 Codes of conduct

In order to address reputational risks brought by suppliers' internal unethical actions including using child labour, forced labour, unfair payment and poor working conditions, a number of firms have developed and introduced their own codes of conduct with the aim of reducing such illegal actions of suppliers and providing a baseline of expected standards (Mamic, 2005; Andersen and Skjoett-Larsen, 2009). In 1991, Levi Strauss and Company are purported to have introduced the first code of conduct in the garment industry, followed by Nike (Murphy and Matthew, 2001) and Gap Inc. in 1992 (Ansett, 2007). A code of conduct is a set of written guidelines and standards that cover a range of environmental and social issues that should be followed by the firms and its suppliers in the supply chain (Andersen and Skjoett-Larsen, 2009). Codes of conduct are drafted based on the values with which the company aims to be associated, and its principles are frequently derived from different sources including local legislation and international conventions, standards and principles (e.g. International labour organisation (ILO) and United Nations) (Ahi and Searcy, 2015; Yawar and Seuring, 2017;). However, it is also widely agreed that codes of conduct tend to be broad, lack the ability to be legally enforcement (Andersen and Skjoett-Larsen, 2009), lack involvement of the suppliers in planning and setting the associated sustainability goals (Yawar and Seuring, 2017) and ignore the culture and economic context in which suppliers operate (Cilibereti et al., 2009; Huq et al., 2014).

The current literature indicates that the introduction of codes of conduct depends on a variety of factors. In comparing three different industries (i.e. clothing and footwear, forest products and confectionary), Robert (2003) argued that the successful introduction of an ethical sourcing code of conduct largely depends on four supply network characteristics; number of links between supply networks member demanding the code of conduct and stage of supply network under scrutiny (the closer the stage to the focal company, the more likely to implement, but the more links, the less likely to introduce; diffuseness of stage of supply network under scrutiny (the larger the number of suppliers, the less likely to introduce; reputational vulnerability of different network members (the higher the brand profile, the more likely to introduce the code of conduct); and the power of different members of supply network. This was partially empirically supported by Awaysheh and Klassen (2010) who revealed that while higher levels of supply chain transparency (i.e. high product visibility and brand

recognition) and greater supply chain distance (i.e. large number of tiers between the buying company and its suppliers) lead to greater use of supplier codes of conduct, supplier dependency was not found to be related to the adoption of supplier socially sustainable practices. More recently, Marshall et al. (2016) provided more insight on the role of power in socially SSCM by explicating how different types of relationship power affect the adoption of socially sustainable supply chain practices from the supplier's perspective. Marshall et al. (2016) shown that mediated power (coercive, legitimate and reward) but not non-mediated power (expert and referent) increases the adoption of process-based practices (including monitoring and code of conduct).

2.7.2.1.2 Third-party certifications and management systems

Another method of ensuring upstream supply chain social sustainability is where buyers demand suppliers to obtain well-recognised certifications granted by high profile independent bodies (Sartor et al., 2016; Mueller et al., 2009; Castka and Balzarova, 2008a). In contrast to the few internationally accepted environmental and quality standards (e.g. ISO 9001 and ISO14001), different standards and guidance on social sustainability (e.g. national standards, industry standards etc.) have been provided. However, the inconsistency and confusion caused by the plethora of different standards on social sustainability drove the International Organization for Standardization (ISO) to initiate the development of ISO 26000 as a globally accepted standard for social sustainability (Castka and Balzarova, 2008a). ISO 26000's international acceptance was gained by involving different stakeholders from government, NGOs, industry, consumer groups and labour organizations around the world in the development process, which lasted for five years (ISO, 2010). ISO 26000 covers seven interrelated areas including human rights, labour practices, the environment, fair operating practices, consumer issues and community involvement and development (ISO, 2010). However, unlike other ISO standards (e.g. ISO 9001 and ISO14001), ISO 26000 is only a guide and cannot be certified, which has led to criticism.

Another management system standard which is widely accepted is Social Accountability 8000 (SA8000), which was developed in 1997 by Social Accountability International (SAI) based on the International Labour Organisation's (ILO) conventions and the United Nation's Declaration of human rights (Sartor et al.,

2016). SA8000 is an auditable set of requirements that cover nine different areas of social sustainability including: child labour, forced or compulsory labour, health and safety, freedom of association and right to collective bargaining, discrimination, disciplinary practices, working hours, remuneration and management system (SAI, 2014). However, several stipulations in the SA8000 standard clearly reflect Western values which, it has been argued, are incompatible with situations in developing countries (Ciliberti et al., 2009).

The current literature divides into two streams regarding the effectiveness of third-party accreditations on driving social sustainability in the supply chain. The first stream suggests that third-party standards contribute towards enhancing the social conditions in the supply chain. Based on a case study of five Chinese companies, Kortelainen (2008) revealed that the SA8000 auditing of labour conditions is a useful tool to improve social conditions and supply chain performance. This finding has received support from Ciliberti et al. (2009, 2011) who found that SA8000 helps SMEs and their partners to solve the problem of incomplete contracts, build trust and facilitates communication and coordination. The second stream, however, questioned their abilities (Lund-Thomsen and Lindgreen, 2014). In their evaluation of four different third-party standards (SA8000, ISO14001, Fair Labour Association (FLA) and Forest Stewardship Council (FSC)), Mueller et al. (2009) concluded based on five criteria (inclusivity, discourse, control, transparency and supply chain) that all of the standards are deficient, calling for further development of an effective standard.

2.7.2.1.3 Social auditing

Auditing refers to “the procedures through which internal or external auditors systematically check whether a supplier is complying with the requirements contained in a given code of conduct” (Lund-Thomsen, 2008; p. 1013). The process involves a physical inspection of the supplier’s facilities, records and documents (e.g. timesheets), and interviews with workers (Ciliberti et al., 2008). The process can typically be accomplished by asking suppliers to perform self-risk assessment (i.e. self-auditing) of the current social conditions at their facilities (Sancha et al., 2016; Grosvold et al., 2014), or to initiate an audit of their operations using a local independent third-party auditor (Huq et al., 2016). However, it has been reported that verification of information provided by suppliers (Leire and Mont, 2010) or by local

auditors and government officials, in light of corruption, represents a major problem in social auditing implementation (Jiang, 2009; Huq et al., 2014). Alternatively, therefore, buyers carry out the auditing process by physically inspecting suppliers' progress using their own auditors or by employing their choice of a third-party auditor (Huq et al., 2016). In case of non-compliance, buyers may ask suppliers to develop corrective action plans detailing areas requiring improvement and timeframes for their execution (Mamic, 2005).

In summary, mounting anecdotal evidence along with recent empirical evidence indicates that the transactional approach may not effectively produce the intended purpose of maximising supplier compliance to buyer's social requirements (Lund-Thomsen and Lindgreen, 2014; Sancha et al., 2016; Soundararajan and Brown, 2016;). The voluntary nature and the lack of legal enforcement of codes of conduct and other social sustainability standards, compromises their effectiveness to truly improve supplier's working conditions. Moreover, monitoring and assessment found to encourage suppliers to do just enough to meet threshold requirements (and hence to avoid 'being caught') (Jiang, 2009a) and have even been related to an increase in the overall levels of violations (Lim and Phillips, 2008; Yu, 2008). This raises the question how such approach can be deployed more effectively to improve the working conditions and living standards in suppliers' premises.

2.7.2.2 Socially sustainable collaboration approach

Unlike the transactional approach, the collaborative approach emphasises a longer-term view by enhancing and cumulatively building suppliers' capabilities to manage social issues (Klassen and Vereecke, 2012; Huq et al., 2016). Socially sustainable collaboration practices (SSCPs) involves those activities and processes by which buyers, suppliers and other stakeholders (e.g. customers and NGOs) work together directly in planning and managing suppliers' social deficiencies (Klassen and Vereecke, 2012; Rodriguez et al., 2016). Two types of collaboration based on the involved actor were identified in the current literature namely, collaboration with suppliers and collaboration with non-traditional supply chain members.

2.7.2.2.1 Collaboration with supplier

Collaboration builds a bridge by opening two-way dialogue and interaction routines between buyer and suppliers to jointly address social issues (Jiang, 2009a; Klassen and

Vereecke, 2012; Gualandris and Kalchschmidt, 2016). Such collaboration on sustainability issues between buyer and supplier can take place at a variety of levels including operational, structural and strategic (Klassen and Vereecke, 2012; Huq et al., 2016). At the operational level, the collaboration focuses on enhancing the efficiency of transactions and information exchange, whilst at the structural level the collaboration places emphasis on process integration through standardised systems. At the strategic level, the collaboration aims to develop and achieve shared objectives, and, in many cases, develop partnership.

Supplier development has been a key practice in the collaboration approach to improve supplier's social performance (Klassen and Vereecke, 2012). Supplier development is "any activity undertaken by a buying firm to improve either supplier performance, supplier capabilities, or both, and to meet the buying firm's short- and/or long-term supply needs" (Krause et al., 2000, p. 34). Supplier development/education programmes involve sharing knowledge with suppliers, organizing meetings and conferences, awarding suppliers subsidies to obtain third-party certification and jointly developing new products or processes that increase the health and safety of the employees (Jiang, 2009; Marshall et al., 2015b; Porteous et al., 2015; Sancha et al., 2016). In supplier development, buying firms often also allocate relationship-specific resources such as financial capital, technical skills, personnel resources, technologies and managerial capabilities to a supplier (Krause, 2007; Wagner, 2010; Gualandris and Kalchschmidt, 2016; Zhang et al., 2017).

SSCPs have been shown to drive social improvements in suppliers' employee welfare, providing clear support for the effectiveness of the collaborative paradigm, as opposed to the compliance paradigm (e.g. Sancha et al., 2016; Zhang et al., 2017). For example, in their study, Sancha et al. (2015) examined the impact of supplier social development practices (e.g. joint efforts with these suppliers) on supplier's social performance and revealed, using a sample of 120 Spanish manufacturing firms, that buyer-supplier social sustainability joint-efforts and training sessions promote mutual learning and knowledge exchange, enabling suppliers to build specific capabilities to improve their social performance. More recently, Zhang et al. (2017) explored how supplier development can improve social responsibility in the pharmaceutical industry. Based on multiple case studies, Zhang et al. (2017) found that supplier development

programmes can improve suppliers' facilities, employees' skills, and systems and processes, which in turn reduce safety hazards and improve overall working conditions at suppliers.

2.7.2.2.2 Collaboration with non-traditional supply chain members

The main focus of extant research has been on buyer-supplier dyad collaboration for sustainability. Although the collaboration with non-traditional supply chain actors (such as NGOs) whom have different strategies, organizational structures, and goals (non-profit) can pose unique challenges (Pagell and Shevchenko, 2014), recent research advances have highlighted the benefits associated with buying firms extending the collaboration circle beyond suppliers to include non-traditional supply chain actors such as civil societies and NGOs (Tencati et al., 2008; Gold et al., 2013; Rodriguez et al. 2016a, 2016b). In their study, Rodriguez et al. (2016a) explore how firms and NGOs achieve inter-organizational fit to carry out cooperative initiatives that create value in socially SSCM. Based on a case study, Rodriguez et al. (2016a) pointed out the inter-organizational fit can be accomplished through an alignment process that starts with value logic alignment, then NGO mission alignment, company strategy alignment, and finally company structure and routines alignment. However, Rodriguez et al. (2016a) argue this process can be enabled by the NGO's structural social capital, the NGO representatives' boundary spanning capabilities, the company's specialized purchasing function and the company's organizational routines.

The collaboration with non-traditional supply chain actors has been shown to increase the effectiveness and efficiency of the implementation of socially SSCM in different ways. Rodriguez et al. (2016b) revealed the resources typically provided by NGOs take the form of bespoke (e.g. situation-specific) knowledge for tailoring supplier development programmes to match supplier needs and bridge capability gaps, and complement buying firm resources including knowledge transfer routines and logistical resources (e.g. assets, infrastructure and information technologies that facilitate production or delivery) to increase the effectiveness of the implementation of SSSC initiatives (Rodriguez et al., 2016b). This is consistent with Gold et al.'s (2013) observation that working with NGOs can provide a variety of inputs with the potential to complement resources and capabilities, and thus foster mutual learning.

Likewise, Perez-Aleman and Sandilands (2008) uncovered that multinational corporations (MNCs) partnership with NGOs helps in defining sustainability standards (standards localisation) and providing financial and technical support for suppliers.

Despite the effectiveness of the collaboration approach (e.g. Klassen and Vereecke, 2012; Huq et al., 2016), several challenges with the implementation of such approach have been highlighted in the current literature. Many buying firms are reluctant to establish a collaborative approach with suppliers due to the high costs (relation-specific investment) associated with the implementation of such approach (Lund-Thomsen and Lindgreen, 2014) which can be magnified by suppliers' resistance and opportunistic behaviours (Jiang, 2009a; Huq et al., 2014; Touboulic and Walker, 2015). Moreover, the narrower applicability to selected suppliers (Lund-Thomsen and Lindgreen, 2014) and the generally long time needed to develop, implement and achieve the expected outcomes (Klassen and Vereecke, 2012; Grosvold et al., 2014) has made the collaborative approach less attractive. Despite the documentation of these limitations and challenges associated with the monitoring and collaboration approaches, little attention has been paid to understand the factors that underpin and can help enable a more effective adoption of such approach.

2.8 Performance measurement

The third theme of socially SSCM relates to the research that has examined the measurement of sustainability performance. Compared to other themes, performance measurement in sustainable supply chains has received relatively little attention. More specifically, the measurement of the social performance aspect of overall sustainability performance is scarce. The following discussion focuses on the measurement of the social performance in the extant literature in relation to what (metrics) should and how (methods) can or should it be measured.

Measuring progress toward (or away) from performance targets is a key aspect of effective planning, controlling and decision-making in the management of supply chains (Gunasekaran et al., 2004; Gunasekaran and Kobu, 2007). However, the shift from conventional SCM where the focus is on maximising economic value (Gunasekaran et al., 2004), to SSCM where the emphasis is on simultaneously sustaining the economic, environmental and social performance (Carter and Rogers, 2008; Seuring and Müller, 2008), has further increased the complexity of measuring

supply chain performance (Beske-Janssen et al., 2015; Ahi et al., 2016). While the measurement of the economic and environmental performance of supply chains is relatively well advanced, the measurement of the social performance is rather an underdeveloped (Hutchins and Sutherland, 2008; Sarkis et al., 2010; Ahi and Searcy, 2015). This is, in part, can be attributed to the relative importance of each type of performance and to the nature of the social performance per se. The majority of sustainable supply chain research has been framed using an instrumental logic in which the economic performance is the ultimate goal, not sustainability (Gao and Bansal, 2013; Montabon et al., 2016). Moreover, the majority of sustainable supply chain research has focused on environmental issues as they have been perceived to have a wider impact, and hence are perceived to be relatively more important than social issues as Montabon et al. (2016, p.15) stated “all environmental issues have social consequences, but not all social issues are environmental”. Furthermore, the general lack of agreement on the scope and nature of social issues in supply chains resulted from their constant change over time and by context (country) can be another possible reason for the underdevelopment of social performance measurement (Awaysheh and Klassen, 2010; Ahi and Searcy, 2015). Arguable, social performance in supply chains has received far less attention among both sustainability scholars and practitioners (Ahi and Searcy, 2015; Beske-Janssen et al., 2015; Zorzini et al., 2015).

The lack of agreement on the scope and nature of social issues in the supply chain, compared to environmental issues, has recently prompted different scholars to propose different metrics. This lack of agreement is evident in Ahi and Searcy’s (2015) review that identified 53 unique metrics used in measuring social issues in the supply chain. The majority of the proposed or examined metrics in the current literature tended to focus on firm’s operations and processes-related issues such as an employee safety and using child labour. Firm’s products can also have a detrimental impact on their employees’ safety and welfare, which can also extend to affect their local communities and customers (Klassen and Vereecke 2012). Others have also highlighted the impact of firm’s activities on animal welfare as a social issue in the supply chain (Maloni and Brown, 2006). More recently, Huq et al. (2016) proposed that in order to reduce the ambiguity and facilitate the measurement of supply chain social performance, it should be seen in two broad dimensions: internal and external. External social performance relates to the general welfare of local communities in which the firm operates (Huq et

al. 2016). On the other hand, firm' internal social performance is associated with the working conditions, safety and healthcare, forced labour, working hours, payment rate, disciplinary practices and child employment within their premises (Awaysheh and Klassen, 2010; Zorzini et al., 2015; Sancha et al., 2016; Yawar and Seuring, 2017). The large number of metrics and their qualitative nature pose a further challenge to supply chain managers to capture the social performance (Ahi and Searcy, 2015). Although standardised metrics for capturing supply chain social performance facilitates measurement and comparability of progress (Ahi and Searcy, 2015), context-based indicators (e.g. industry and country) can enable the implementation of social sustainability (Huq et al., 2014).

The extant research has developed frameworks and methodologies to measure supply chain social performances. In one of the early efforts in this context, Hutchins and Sutherland (2008) proposed a value-weighting based method of four measures (i.e. labour equity, healthcare, safety and philanthropy) to evaluate the supply chain social sustainability. Specifically, the social sustainability of the supply chain of a given company is the sum of its total value-weighted of social sustainability (value of the four measures X their weights X value of the item produced by a given company) and that of its suppliers (note, the value of item is replaced with cost of item provided by a given supplier). However, the four proposed quantifiable indicators only capture a small number of the wide ranges of supply chain social issues. Thus, qualitative metrics of supply chain social performance were also excluded from this approach of capturing the social performance. Similarly, in another study, Yakovleva et al. (2011) took a broad perspective and developed a multi-stage procedure to evaluate all sustainability performance dimensions in the food supply chain. Specifically, Yakovleva et al. (2011) integrated expert opinion to determine the relative importance of each indicator in each stage of five supply chain stages using the Analytic Hierarchy Process (AHP). Although Yakovleva et al.'s method incorporated managers' perspective to determine the relative weights of indicators, the perspective of stakeholders, who may hold different views, were absent.

2.9 Socially SSCM and performance

The final theme of socially SSCM research identified through the literature review is 'performance outcomes' which concerned with the research that has examined the

impact of socially SSCM on buyer and supplier sustainability performance. Two streams of research on the relationship between socially SSCM and performance were identified within the extant literature (see Figure 2.7). The first stream has combined environmental and social dimensions into a single concept and examined its impact on performance. The second research stream, on the other hand, has exclusively examined the social dimension in order to gain a clearer understanding of its performance implications.

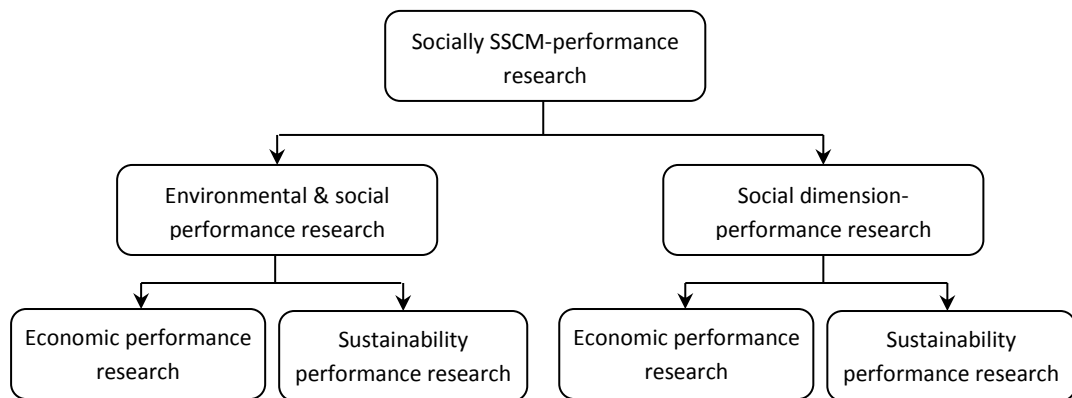


Figure 2.7: Classification framework of socially SSCM-performance research

Source: Developed by the author

In the following subsections, both streams are discussed. This is followed, in section 2.10, by a critical assessment highlighting the shortcomings of the extant literature on socially SSCM and the urgent need for more research.

2.9.1 SSCM (environmental and social) and performance

There is a body of literature that conceptualised SSCM to include both environmental and social dimension that has sought to link socially SSCM to type types of performance: economic performance and sustainability performance. To facilitate the presentation and discussion of the extant literature, all the research into operational and financial performance implications of SSCM will be analysed under the economic performance section.

2.9.1.1 SSCM (environmental and social) and economic performance

One of the early studies in this research stream, Carter and Jennings (2002a), indicated that purchasing social responsibility (PSR) should incorporate five activities (i.e. environment, diversity, human rights, philanthropy and safety). Carter and Jennings (2002a) examined the impact of PSR activities on supplier performance (i.e. quality

product, less lead times and efficient supply) and buyer-supplier relational aspects (i.e. commitment and trust). Their data of 201 purchasing managers revealed that organisations involved in PSP activities can benefit by directly enhancing their suppliers' performance. Moreover, they found that PSR activities can increase supplier performance indirectly by increasing buyer's commitment and buyer's trust in the supplier, where trust can foster buyer-supplier cooperation, which in turn increases supplier performance. Using the same data in another study, Carter (2005) found no direct relationship between PSR and firm's costs; however, pursuing PSR reduces firm's cost indirectly through enhanced organisational learning, which subsequently improves supplier performance. Also, in a qualitative study, Carter and Jennings (2002b) conducted semi-structured interviews with logistics managers and found that organisations can reap several positive outcomes from implementing Logistics Social Responsibility namely: improved employee job satisfaction and motivation, increased trust with suppliers, and improved supplier performance and stakeholder relationship.

Akamp and Müller's (2013) study examined the impact of supplier environmental and social related management activities (supplier selection and evaluation, supplier monitoring, supplier development and supplier integration) implemented by 137 German buyers on their satisfaction with activities and on their developing countries suppliers performance (quality, delivery, cost flexibility and good service portfolio). Their results suggested supplier selection and evaluation, supplier development and supplier integration were positively related to supplier performance - supplier development and integration were found to be the most effective means of supplier management. However, supplier monitoring found to have no effect on supplier performance. Among the four supplier management activities only supplier monitoring and supplier integration lead to increased buyer satisfaction. Surprisingly, supplier development had no influence on buyer satisfaction, most probably due to the opportunistic behaviour of supplier.

Eltantawy et al. (2009) examined the impact of supply management ethical responsibility (SMER) on supply chain perceived reputation (within the organisation) and performance in the US. Their results indicated that SMER has no direct effect on supply chain performance; however, indirectly it positively affects supply chain performance through enhanced perceived reputation of the supply chain function (i.e.

individuals employed in that functions perceive themselves to add value). In the UK, Gallear et al. (2012) examined the impact of the supply chain corporate responsibility activities (internal awareness, monitoring and sharing best practices) on firm performance using objective measures (sales per employee and profit margin). Their findings revealed none of the supply chain corporate responsibility activities had positive direct impact on firm financial performance. However, they found that developing internal awareness among buyer's employees and involving suppliers in monitoring activities fostered buyer-supplier partnership, which in turn increases performance. Moreover, they found that sharing responsibility best practices with suppliers is detrimental to the development of partnership between buyer and supplier. In contrast, using a secondary data on both independent and dependent variables of 411 companies in US, Wang and Sarkis (2013) examined the individual and joint impact of environmental and social supply chain activities on firm's financial performance (return on assets and return on equity). Their results indicated that neither environmental nor social supply chain activities separately and independently contribute to firm performance. However, the joint implementation of social and environmental supply chain activities positively related to firm's performance. This is an interesting finding since the joint implementation of both activities is highly likely to incur higher costs than one activity. A possible explanation is that when firms pursue both activities they benefit from economies of scale and sharing experiences across activities, which result in less incremental costs (administrative and training costs) of implementing both activities on average, compared to the costs of individual activity (Wang and Sarkis, 2013).

2.9.1.2 SSCM (social and environmental) and sustainability performance

In an attempt to address the shortcomings of the previous research, Gimenez et al. (2012) developed an integrated model of the impact of internal and external sustainability programmes on the triple bottom line (environmental, social and economic performance). Using data collected from the fifth round of the International Manufacturing Strategy Survey, Gimenez et al. (2012) found that internal environment sustainability initiatives were positively associated with all three areas of sustainability performance (i.e. environment, social and economic), however, internal social sustainability initiatives are only positively associated with social and environmental performance. In relation to the external supply chain sustainability programmes, their

results demonstrated that the assessment practices of suppliers had no effect on sustainability performance (i.e. environmental, social and economic) whereas collaboration practice with suppliers lead to better performance in social, environmental and economic performance. Although Gimenez et al. (2012) considered external environmental and social practices, they conceptualised both practices into a single construct. This creates a theoretical limitation as it fails to separate out their individual impacts. A similar result and hence theoretical limitation was reported by Wolf (2014) who found, using secondary data from Sustainalytics Database on 1621 firms worldwide, that SSCM (i.e. social supply chain policies and codes of conduct, supply chain monitoring systems and green procurement) positively related to corporate sustainability performance (including environmental and social).

Likewise, Porteous et al. (2015) examined the influence of using buyer initiated social and environmental penalties (i.e. with or without warning termination of contract, reduced business and fines) and incentives (i.e. supplier training , increased business, preferred supplier status, better terms and conditions, public recognition and price premiums for suppliers) on suppliers' social and environmental performance and the buyer's operating costs. Using survey data from 334 companies their results indicated that reduced business with prior warn negatively associated with reduced supplier's environmental and social violations, while termination with prior warning was positively associated with reduced supplier's environmental and social performance. Warning followed by termination was found to be more effective, probably due to the fact that suppliers may view reduced business as a temporal penalty. However, both were found to be significantly negatively associated with buyer operating costs. Surprisingly, penalties (reduced business and termination without warning) were not associated with reduced supplier's social and environmental violations. However, they were found to be positively related to reduce buyer operating costs. Finally, fines (either with or without prior warning) were not associated with both suppliers' social and environmental violations and buyer operating costs. With regards to incentives, supplier training, increased business and public recognition were significantly associated with reduced supplier's social and environmental violations. Increased business and better terms and conditions were found to be significantly positively associated with reduced buyer operating costs. Supplier training and increased business appeared to be the most effective incentives to motivate suppliers to reduce

social and environmental violations while also reducing buyer's operating costs. Consistent with prior research, they found that supplier monitoring such as auditing ineffective in reducing supplier's social and environmental violations (e.g. Gimenez et al., 2012; Sancha et al., 2016).

2.9.2 SSCM (social dimension only) and performance

Some scholars have criticised the way in which socially SSCM has been claimed to impact performance, arguing that combining social and environmental dimensions into a single concept makes separate analysis impossible, and hence creates a theoretical limitation and lack of insight as to whether pursuing social initiatives in the supply chain can actually pay off (e.g. Klassen and Vereecke, 2012; Sancha et al., 2015; Sancha et al., 2016; Marshall et al., 2016). As a result, a new research stream has recently started to flow looking exclusively at the social dimension to gain a clear and better understanding of the associated performance (for instance, Klassen and Vereecke, 2012; Sancha et al., 2015; Huq et al., 2016). Scholars in this stream have called for an exploration into a new theoretical framework with possible mediating or moderating variables that better explain and understand the mechanism by which the social dimension affects performance (e.g. Hoejmose and Adrien-Kirby, 2012; Wang and Sarkis, 2013).

Similarly, in this more recent research stream, researchers have sought to link socially SSCM (social) dimension to a variety of types of performance including economic performance and sustainability performance. To facilitate the presentation and discussion of the extant literature in this area, all of the research into operational and financial performance implications of socially SSCM is analysed within the economic performance section, while the research into the sustainability performance of SSCM (social) will be discussed in a separate section.

2.9.2.1 SSCM (social dimension only) and social performance

The extant work on socially SSCM (social) suggested that the use of transactional activities (i.e. codes of conduct, monitoring and auditing etc.) by buyers is overall not effective to drive suppliers to enhance work conditions and comply with human rights. In contrast, close work with suppliers through collaboration and investment practices can make observable improvements. In his study, Yu (2008) examined the impact of the implementation of a code of conduct on supporting labour standards (i.e. social

impacts) at Reebok's suppliers in Chain. The findings from semi-structured interviews demonstrated that CSR policy and code of conduct were ineffective in curbing low-wage payment and promoting worker's right to freedom of association and collective bargaining. Moreover, buyer's imposition of code of conduct had left supplier no option except commencing unethical practices (e.g. child labour) in relation to their workplace to stay competitive in marketplace where quality, price and delivery are only criteria for buyers to grant contracts and orders. This suggests that enforcing suppliers to adhere to a code of conduct without making a contribution to sharing the cost can increase social violations rather than decrease them (Yu, 2008). Similarly, Huq et al. (2014) found evidence of supplier's mock compliance with buyers' social code of conduct (e.g. suppliers have two sets of timesheets) from their field observations in several clothing factories in Bangladesh.

Jiang (2009a) examined the antecedents (i.e. price pressure, production complexity and contract duration) of inter-organisational governance (i.e. buyer-to-supplier and peer-to-peer) and the effect of these two governance modes on supplier's commitment to codes of conduct. Their results, from surveying 108 non-compliant and 223 compliant Chinese apparel and textile suppliers, indicated that price-oriented buying firms adopt buyer-to-supplier governance (the transactional and arm's length approach) to reduce specific assets investment, while buying firms that emphasize production complexity (e.g. shorter lead time and high quality and production flexibility) and longer contract, use peer-to-peer governance (i.e. collaboration) to control supplier's opportunistic behaviour in relation to codes of conducts. Moreover, their results revealed that buyer-to-supplier governance had no effect on supplier compliance to code of conduct, whilst peer-to-peer governance had a positive influence on supplier's commitment towards codes of conduct. In another study, Jiang (2009b) found that implementing hybrid governance (i.e. hierarchy and relational governance) was more efficient to guarantee supplier's adherence to codes of conducts as opposed to market governance (transactional).

In the first study that explicitly measured supplier's social performance, Sancha et al. (2015) examined the impact of supplier social development practices (suppliers' performance through formal evaluation, feedback about the results of their evaluation, perform audits, suppliers' facilities visits and joint efforts with these suppliers) on

supplier's social performance and the buying firm's operational and economic performance using a sample of 120 Spanish manufacturing firms. Their findings revealed that supplier social development practices were positively related to suppliers' social performance and the buying firm's operational performance. However, supplier social development practices enhance the buyer's economic performance indirectly by increasing supplier's social performance. Moreover, they found that supplier's social performance was positively related to buying firms' operational and economic performance. They concluded that in the short-run, the implementation of these practices implies higher cost, which could be related to the cost of evaluating suppliers or to the provision of training. In another study, Sancha et al. (2016) investigated the relationship between sustainability assessment and collaboration practices and their individual impact on supplier's and buyers' social performance. Their results suggested the assessment practices (monitoring and auditing) were positively related to collaboration practices, which indicates that the former is an antecedent and enabler of the latter. Moreover, their results demonstrated that while collaboration practices were positively related to supplier's social performance, assessment practices have no impact. Surprisingly, they found that assessment practices had positive impact only on the buying firm's social reputation but not its employees' well-being whereas, whilst collaboration practices have no effect on both the buying firm's social reputation and the buying firm's employee's well-being.

More recently, in their longitudinal study, Huq et al. (2016) adopted a dyadic perspective supplemented by views from a variety of stakeholders (NGOs and unions) and explored the role of social management capabilities namely: monitoring, collaboration and innovation on improving supplier's internal and external social performance. Their findings revealed that in the absence of intense stakeholder pressure, buyers establish the ground for improved social conditions by using their own auditors and collaborating with suppliers rather than using third-party auditors. However, in the face of close scrutiny from customers, NGOs and media that can arise following an industrial shock, they found that stakeholder collaboration in the form consultative buyer-consortium audits developed and shared third-party audits, provided increased transparency and improvements in worker education and training.

2.9.2.2 SSCM (social dimension only) and economic performance

In case-based study research of five multinational firms operating in a variety of industries, Klassen and Vereecke (2012) examined the impact of social management capabilities (i.e. monitoring, collaboration and innovation) on mitigating social risk and on economic performance (market expansion, market preservation and supply chain costs). Their results indicated that monitoring and collaboration practices both played a vital role in mitigating social risk associated with international sourcing. However, only collaborative and social innovation (developing new product/service) practices lead to improved buyer's performance in term of market expansion, market preservation and reduced costs within the supply chain.

Although Hollos et al. (2012) examined green and social practices in their study, the two practices were operationalised as two distinct constructs. They examined the impact of strategic orientation as an antecedent on supplier sustainable co-operation and this co-operation on sustainability performance (i.e. environmental, social and economic). Their results demonstrated a positive impact of strategic orientation on supplier sustainable co-operation. Moreover, they found that supplier sustainable co-operation improved supplier's green and social behaviours (performance), but not cost reduction and operational performance. Furthermore, while green behaviours were positively related to cost reduction and operational performance, social behaviours have had effect on cost reduction and operational performance. The latter result is contrary to Sancha et al.'s (2016) observations mentioned earlier.

More recently, unlike previous studies, Marshall et al. (2016) sought the perception of first-tier suppliers on the implementation of SSSC practices within their second tiers suppliers. Specifically, Marshall et al. (2016) examined the impact of different relationship powers (i.e. expert, referent, coercive, legitimate and reward) held by the first-tier suppliers' customers on the adoption of the process-based practices (monitoring and management system) and market-based practices (innovation and strategy practices) with their second-tier suppliers and their impact on performance. Their data from 156 Irish suppliers showed that mediated power (coercive, legitimate and reward) increased the adoption of both types of practices, whilst non-mediated power (expert and referent) had not impact on both types. Moreover, process-based

practices were not associated with performance, while market-based practices (innovation and strategy practices) were positively related to performance.

Table 2.8 chronologically provides a summary analysis of the current research on the SSCM-performance link by explicating the conceptualisation of SSCM, research design, research context (country and industry), research perspective, the main findings and types of buyer and supplier performance examined.

Table 2.7: An analysis of the key current work on the SSSC-performance link

No	Author(s)	Practices		Method	Country	Industry	Buyer/supplier Perspective	Relevant Findings	Buyer performance				Supplier Performance					
		S	ES						E	S	ES	E	S	ES	E	S	ES	
																		F
1	Carter and Jennings (2002a)	✓		Survey	Not specified	Consumer products	201 buyers	Purchasing social responsibility (PSR) has direct and indirect positive impact through enhanced buyer-supplier trust and commitment that foster their cooperation on supplier' performance.										✓
2	Carter (2005)	✓		Survey	Not specified	Consumer products	201 buyers	No direct relationship between purchasing social responsibility (PSR) and firm costs. However, PSR reduces cost indirectly through enhanced organisational learning, which in turn improves supplier performance. No direct relationship between PSR and supplier performance.	✓									✓
3	Yu (2008)	✓		Case study	China	Apparel	Suppliers	The study examined the impact of the implementation of the code of conduct on supporting labour standards (i.e. social impacts) at suppliers. Their results demonstrated that CSR policy and code of conduct were ineffective in curbing low-wage payment and promoting worker's right to freedom of association and collective bargaining.										✓
4	Eltantawy et al. (2009)	✓		Survey	US	Multiple industries	162 buyers	The results indicated that supply management ethical responsibility has no direct effect on supply chain performance; however, indirectly positively affect supply chain performance through enhanced perceived reputation.	✓									
5	Gallear et al. (2012)	✓		Survey	UK	Not specified	152 Buyers	The authors examined the impact of supply chain (SC) corporate responsibility activities (internal awareness, monitoring and sharing best practices) on SC partnership and on firm performance. While internal awareness and monitoring are positively related to SC partnership, sharing best practices negative related. None of SC corporate responsibility activities has a positive direct impact on firm financial performance.	✓									
6	Gimenez et al. (2012)	✓		Survey	Across countries	Multiple industries	519 buyers	Assessment practices of suppliers have no effect on the buyer's sustainability performance (i.e. environmental, social and economic), whereas collaboration practices lead to better performance in the social, environmental and economic performance.	✓	✓	✓							

(Continued on next page)

Table: 2.1 (continued)

No	Author(s)	Practices		Method	Country	Industry	Buyer/supplier Perspective	Relevant Findings	Buyer performance				Supplier Performance					
		S	ES						Eco		E	S	ES	Eco		E	S	ES
									F	O				F	O			
7	Hollos et al. (2012)	✓		Survey	Across countries	Multiple industries	70 buyers	Socially sustainable supply chain (monitoring) practices have an effect on cost reduction and operational performance. Green practices, in turn, positively related to cost reduction and operational performance.	✓	✓								
8	Klassen and Vereecke (2012)	✓		Case study	Across countries	Multiple industries	Buyer	Their results indicate that monitoring and collaboration practices play a vital role in mitigating social risk. However, only collaborative and social innovation (developing new product/service) practices lead to better economic performance.			✓							
9	Akamp and Müller (2013)		✓	Survey	Germany	Multiple industries	137 buyers	Supplier selection and evaluation, supplier development and supplier integration positively related to supplier's operational performance. However, supplier monitoring found to have no effect on supplier performance.										✓
10	Wang and Sarkis (2013)	✓	✓	Secondary data	US	Multiple industries	Buyers 411	The study examined the individual and combined effect of environmental and social SC activities on firm financial performance. Their results indicated that the social activities individually not related to performance. However, when it jointly implemented (integrated) with the environmental activities, it positively related to performance.	✓									
11	Wolf (2014)		✓	Secondary data	Across countries	Multiple industries	1621 buyers	Sustainable supply chain management (i.e. social supply chain policies and codes of conduct, supply chain monitoring systems and green procurement) is positively related to corporate sustainability performance.										✓
12	Sancha et al. (2015)	✓		Survey	Spain	Multiple industries	120 Buyers	Supplier's social development practices are positively related to supplier's social performance and the buying firm's operational performance but not related to the buying firms' economic performance. Moreover, supplier's social performance is positively related to buying firms' operational and economic performance.	✓	✓								✓
13	Porteous et al. (2015)		✓	Survey	US	Multiple industries	334 buyers	Supplier training and increase business appear to be the most effective incentives to motivate supplier to reduce social and environmental violations, while also reducing a buyer's operating costs. Overall, supplier incentives have the strongest impact on supplier's social and environmental performance compare to supplier penalties.	✓									✓

(Continued on next page)

Table: 2.1 (continued)

No	Author(s)	Practices		Method	Country	Industry	Buyer/supplier Perspective	Relevant Findings	Buyer sustainability performance				Supplier sustainability Performance					
		S	ES						Eco		E	S	ES	Eco		E	S	ES
									F	O				F	O			
15	Gualandris and Kalchschmidt, (2016)	✓		Survey	Italy	Machinery and equipment industry	77 buyers	Sustainable supply management has no direct impact on firm's sustainability performance. However, it affects it indirectly through improved supplier's sustainability performance. Buyer-supplier trust enhances the impact of sustainable supply management on supplier's sustainability performance.					✓				✓	
16	Huq et al. (2016)	✓		Case study	Bangladesh and UK	Apparel industry	Dyadic	Three social management capabilities: monitoring, collaboration and innovation to improve supplier's internal and external social performance. Of monitoring capabilities, buyers auditing can increase internal social performance as opposed to using third-party audit. Both collaboration and innovation capabilities improve significantly both internal and external supplier's social performance.									✓	
17	Marshall et al. (2016)	✓		Survey	Ireland	Multiple industries	156 Suppliers	The results indicated that process-based practices (monitoring and management system) are not associated with operational performance, whilst market-based practices (innovation and strategy practices) are positively related to performance.						✓				
18	Sancha et al. (2016)	✓		Survey	Spain	Multiple industries	120 Buyers	Collaboration practices are positively related to supplier's social performance, while assessment practices have no impact. Assessment practices have a positive impact only on the buying firm's social reputation but not its employees' well-being whereas collaboration practices have no effect on both.	✓			✓					✓	
19	Lee (2016)	✓		Survey	Kora and Vietnam	Multiple industries	366 suppliers	Responsible supply chain social practices are positively related to supplier environmental, social and operational performance. However, the impact of will not transfer to environmental and operational improvements without developing commitment in the relationship (full mediation).						✓	✓	✓		

Note: E = Environmental; S = Social; ES = Environmental and Social; Eco = Economic; F = Financial; O = Operational.

Source: Developed by the author

2.10 Conclusions and gaps in socially SSCM research

Up to this point, this chapter has provided a state-of-the-art review that has organised, integrated and evaluated the fragmented research on socially SSCM research with a focus on the social dimension of sustainability. In total, 325 papers published in peer-reviewed listed journals since 1997 were identified and have been descriptively and thematically analysed. In the descriptive analysis, the articles were analysed in terms of distribution over time, by journal, and by sustainability dimension focus. Despite the recent increase in socially SSCM research, it is evident that scholars' attention has varied greatly amongst the three dimensions of sustainability (i.e. environmental, social and economic). While the research (and indeed practice) on the environmental aspect of sustainability has proceeded apace, research (and practice) on the social aspect has been much slower to emerge and develop.

In the thematic part, the review has identified four main themes, which are partly interrelated, including the adoption, implementation, performance measurement and performance implications of socially SSCM. Accordingly, the literature was discussed and analysed along these themes. It is evident that socially SSCM research has tended to focus on exploring the influencing factors for adopting socially SSCM that affect the implementation of socially SSCM. Moreover, the extant studies have predominantly focused on the transactional and collaboration practices as approaches to drive supplier's social performance, whereas only a few studies have reported on performance measurement and performance implications of socially SSCM.

The findings of the status of socially SSCM research are summarised a conceptual map of socially SSCM research (see Figure 2.8) that holistically incorporates the adoption, implementation and performance outcomes of socially SSCM research examined in the literature. The remainder of this section presents gaps observed in the extant literature relating to each of the research themes. This study, however, addresses gaps related to the implementation (theme 2) and performance implications (theme 4).

- *The adoption of socially SSCM (Theme 1)*. The driving forces and factors that influence the adoption of socially SSCM have received the majority of

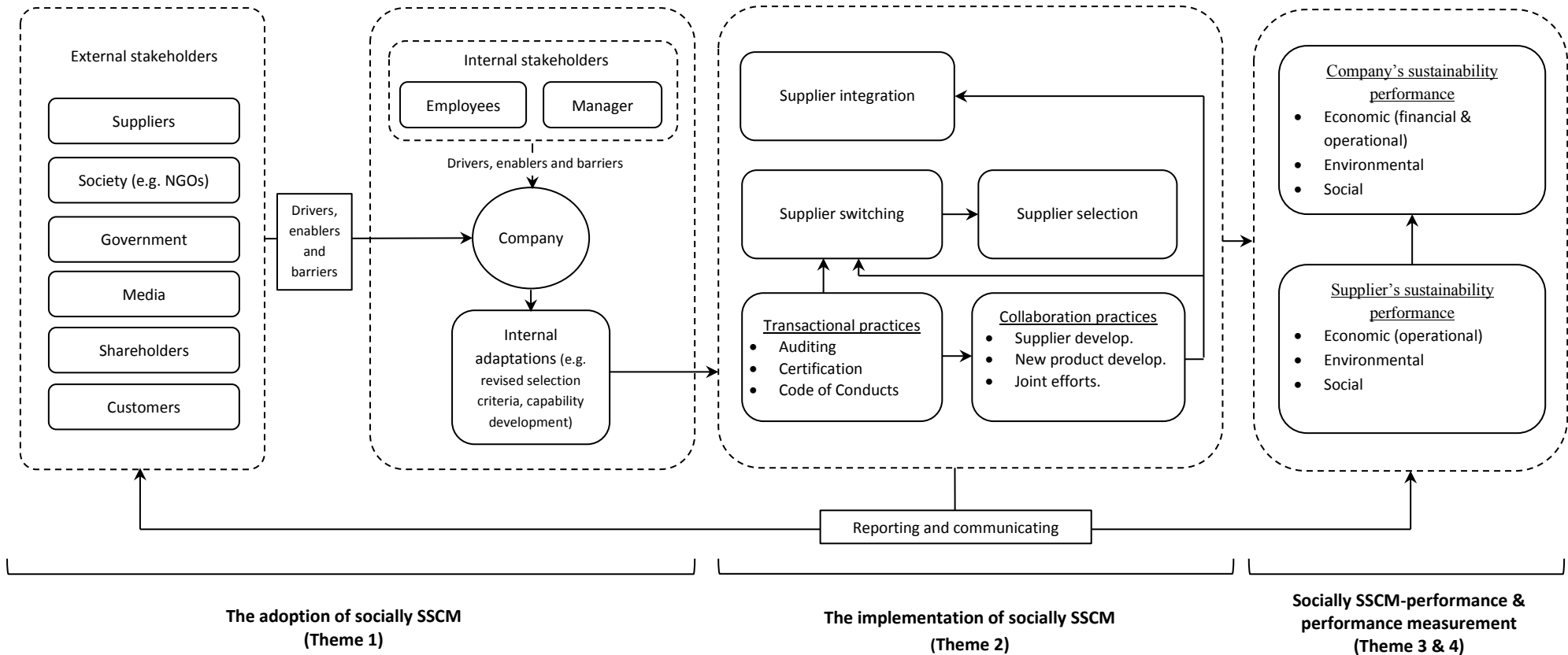


Figure 2.8: Conceptual framework of socially SSCM research

Source: Developed by the author

attention in the existing research, and moreover, the drivers and enablers of socially SSCM have received more attention compared to the barriers companies face in their attempts to establish sustainability across the supply chain. The perspectives of suppliers and small-and-medium-sized enterprises (SMEs), who often lack the required capabilities, instruments or resources, when it comes to exploring the drivers, barriers and enablers of the adoption of socially SSCM is lacking. In particular, the perspective suppliers in developing of developing suppliers is almost absent in the current literature. Therefore, more in-depth research is warranted to explore the barriers that suppliers and SMEs encounter in pursuing socially SSCM. This gap is out of the scope of the present study. It is a promising avenue for future supply chain research.

- *The implementation of SSCM (Theme 2).* Whilst the conventional governance view of socially SSCM emphasises the use of monitoring and collaboration practices as formal mechanisms to maximise supplier compliance to buyer's social requirements (Lund-Thomas and Lindgreen, 2014; Soundararajan and Brown, 2016), it has become clear from previous research that the monitoring approach is less likely to drive suppliers to sustain improvements in work conditions and living standards (Lund-Thomas and Lindgreen, 2014; Sancha et al., 2016;). Specifically, it is argued that monitoring only encourages suppliers to do just enough to meet threshold requirements (Jiang 2009a) and has even been related to an increase in the overall levels of violations by suppliers (Lim and Phillips, 2008; Yu, 2008). On the other hand, many organisations are reluctant to establish a collaborative approach with suppliers due to the high costs associated with the implementation of such approaches (Lund-Thomas and Lindgreen, 2014). Moreover, the narrower applicability to selected suppliers (Lund-Thomas and Lindgreen, 2014) and the generally long time needed to develop, implement and achieve the expected outcomes of the collaborative approach (Klassen and Vereecke, 2012; Grosvold et al., 2014) appears to make it less attractive. These circumstances indicate an urgent need to better understand the conditions that underpin and can enable a more effective adoption of the monitoring and collaboration approaches. This research seeks to address this gap by examining the interplay between the

relational aspect (social capital) and SSSC practices (monitoring and collaboration) on supplier's social performance.

- *Performance Measurement (Theme 3)*. The measurement of supply chain social performance has received relatively much less attention compared to other research themes (e.g. adoption). The extant literature has yet to reach consensus on a commonly agreed set of metrics to capture supply chain social performance. Although very few scholars have proposed different frameworks of metrics, the metrics are either limited to a number of social issues, are mainly quantitative metrics or broad and do not account for the context (e.g. socio-economic, institutional and cultural) in which suppliers in developing countries work. Therefore, more research is needed to incorporate both qualitative and quantitative metrics into a single holistic model and to develop a context-based metrics (e.g. based on industry) to provide a more accurate measure of social performance.
- *Performance implications of socially SSCM (Theme 4)*. Despite the previous and more recent contributions towards a better understanding of the benefits associated with socially SSCM, an in-depth assessment of the extant literature reveals several limitations. Firstly, prior research considers supplier's social performance improvement to be one of the ultimate goals of the implementation of SSSC practices. However, while several attempts have been made to examine the impact of socially SSSC practices on buyer and supplier's economic performance (e.g. Hollos et al., 2012; Marshall et al., 2016), attempts to examine its impact on the supplier's social performance are rare (Sancha et al., 2015; Sancha et al., 2016; Huq et al., 2016). Only three studies (Sancha et al., 2015; Sancha et al., 2016; Kim et al., 2016) have explicitly attempted to examine supplier' social performance. Secondly, the majority of the current research on socially SSCM-performance has conceptualised SSCM to include both environmental and social activities in a single construct, which results in an inadequate insight regarding the real impact of social practices on performance. Combining social and environmental dimensions into a single concept makes separate analysis impossible, and hence creates a theoretical limitation regarding whether pursuing social initiatives in the supply chain can lead to performance improvements. Therefore, there is an urgent need to

exclusively study the social dimension of sustainability and its impact on performance. This exclusive examination will provide a clear understanding of the impact of pursuing social initiatives in the supply chain on the performance of the buyer and supplier. Thirdly, although a few studies examined the individual impact of the monitoring and collaboration approaches on supplier's social performance, a systematic and clear examination of their combined (synergetic) impact has yet to be provided. This gap is addressed as a part of the current study. Finally, the current literature has provided inconclusive results of the impact of the monitoring approach on supplier's social performance. For example, Sancha et al. (2016) found that assessment has no effect on supplier's social performance. In contrast, Lee (2016) found that responsible supply chain social practices (monitoring) drive supplier's social performance. Nevertheless, the mixed results concerning the direct relationship between socially SSCM and performance highlights the urgent need for deeper investigations including consideration of possible mediating and moderating variables (Wang and Sarkis, 2013). This study responds to this call by examining the moderating effect of social capital dimensions on the relationship between SSSC practices and performance.

The successful implementation of SSTPs and SSCPs often requires a level of coordination and cooperation between buyers and suppliers that entail the exchange of information, knowledge and the allocation of different resources (e.g. financial and human capital) which can be difficult to establish, particularly on the part of suppliers. An increasing amount of research has started to demonstrate the value derived from social relationships embedded in supply chain relationships (e.g. Krause et al., 2007; Lawson et al., 2008; Blonska et al., 2013; Whipple et al., 2015). In particular, social capital (i.e. relational, cognitive and structural) is purported to enhance a variety of aspects in supply chain relationships including information sharing (Li et al., 2014), learning (Kohtamäki and Bourlakis, 2012), resilience (Johnson et al., 2013) and more importantly reducing opportunism (Wang et al., 2013; Lioliou and Zimmermann, 2015), which are key aspects for successful implementation of SSTPs and SSCPs. However, the significance of social capital in driving suppliers to establish social sustainability has been largely ignored in the SSCM literature (Rodriguez et al., 2016; Zhang et al., 2017). This study aims to fill this gap by examining the moderating effect

of social capital dimensions on the relationship among SSTPs, SSCPs, and supplier's internal social performance.

Given the gaps highlighted above and the potential significant role of social capital in the implementation of SSCM, the next section defines the concept of social capital, compares social capital with other forms of capital and provides a review of the current research on social capital in SCM.

2.11 Social capital

2.11.1 The concept of social capital

From its roots in sociology, the concept of social capital has received considerable attention from scholars in different fields where it has been applied to different events, in many contexts and at different levels (Nahapiet and Ghoshal, 1998; Portes, 1998; Kwon and Adler, 2014) ranging from macro level (including nations) (Fukuyama, 2001), to meso level (including communities (Putman, 1995), networks (Burt, 1992) groups (Oh et al., 2004, 2006) and inter-organisational relationships (Inkpen and Tsang, 2005) and micro level (including individuals) (Pena-López and Sánchez-Santos, 2017). All of this scholarly work agrees that individuals' or organisations' networks of relationships can be considered as valuable resources that facilitate collective actions (Uzzi, 1996; Adler and Kwon, 2002; Inkpen and Tsang, 2005; Pillai et al., 2017), providing them with "collectivity-owned capital" which entitles them to credit, in the various senses of the word" (Bourdieu 1986, p. 249). Under this umbrella conceptualisation, a variety of definitions for social capital have been proposed by theorists and scholars (see Table 2.9) (Adler and Kwon, 2002; Kostova and Roth, 2003).

The social capital definitions vary depending on whether the focus is on the antecedents (sources), nature, benefits or location of social capital (Leana and Van Buren, 1999; Robison et al., 2002). For example, according to Coleman (1988, p. 98), "social capital is defined by its function. It is not a single entity but a variety of different entities, with two elements in common: they all consist in some aspect of social structures, and they facilitate certain actions of actors -whether persons or corporate actors- within the structure", Coleman (1988) emphasised two aspects, namely the nature and benefits of social capital. Likewise, Fukuyama, (1997, p. 7)

proposed that “social capital is an instantiated informal norm that promotes co-operation between two or more individuals. The norms that constitute social capital can range from a norm of reciprocity between two friends all the way up to complex and elaborately articulated doctrines like Christianity or Confucianism”.

Table 2.8: Key definitions of social capital

Definition	Source	Nature	Benefits	Where	Author(s)
"The aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition".	✓			✓	Bourdieu (1985, p. 248)
"Social capital is defined by its function. It is not a single entity but a variety of different entities, with two elements in common: they all consist in some aspect of social structures, and they facilitate certain actions of actors -whether persons or corporate actors- within the structure."		✓	✓		Coleman (1988, p.98)
"A resource that actors derive from specific social structures and then use to pursue their interests; it is created by changes in the relationship among actors".	✓		✓	✓	Baker (1990, p. 619)
"Friends, colleagues, and more general; contacts through whom you receive opportunities to use your financial and human capital"			✓	✓	Burt (1992, p. 9)
"The sum of the resources, actual or virtual, that accrue to an individual or a group by virtue of possessing a durable network of more or less institutionalized relationships of mutual acquaintance and recognition".	✓				Bourdieu and Wacquant (1992, p. 119)
"Features of social organization such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit".	✓		✓		Putman (1995, p. 67)
"The sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit".	✓			✓	Nahapiet and Ghoshal (1998, p. 243)
"Social capital is the goodwill available to individuals or groups. Its source lies in the structure and content of the actor's social relations. Its effects flow from the information, influence, and solidarity it makes available to the actor".	✓	✓	✓	✓	Adler and Kwon (2002, p. 23)
"The potential value arising from certain psychological states, perceptions, and behavioural expectations that social actors form as a result of both their being part of social structures and the nature of their relationships in these structures".	✓	✓			Kostova and Roth (2003, p. 301)
"The aggregate of resources embedded within, available through, and derived from, the network of relationships possessed by an individual or organization".	✓			✓	Inkpen and Tsang (2005, p. 151)

Source: Compiled by the author

Other definitions such as suggested by Kostova and Roth (2003, p. 301) - “the potential value arising from certain psychological states, perceptions, and behavioural expectations that social actors form as a result of both their being part of social structures and the nature of their relationships in these structures” - have extended previous conceptualisations to include what gives rise to social capital. More recently, Adler and Kwon (2002, p. 23) proposed a comprehensive definition that

covers all aspects of social capital including its source, nature, benefits and where it resides: “Social capital is the goodwill available to individuals or groups. Its source lies in the structure and content of the actor’s social relations. Its effects flow from the information, influence, and solidarity it makes available to the actor”.

Some scholars have also emphasised the structure of the relationship, whilst others emphasised the resources available through these relationships in their definition of social capital (i.e. the relational aspect). For example, in the first systematic modern analysis of the concept, Bourdieu (1980) provided an initial assessment (Portes, 1998) where he emphasised the resources derived from social relationships in his definition “the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition” (Bourdieu, 1985, p. 248). In contrast, Baker (1990, p. 619), among others, limited his definition to the nature of the relationship and proposed that social capital is "a resource that actors derive from specific social structures and then use to pursue their interests; it is created by changes in the relationship among actors". Rather than focusing only on the resources available through these relationships (e.g. Bourdieu, 1986) or on the structure of the relationships (e.g. Baker, 1990; Putnam, 1995), Nahapiet and Ghoshal (1998, p. 243) incorporated both perspectives and defined social capital as “the sum of the actual and potential resources embedded within, available through and derived from the network of relationships possessed by an individual or social unit”. Similarly, Kostova and Roth (2003, p. 301) proposed “the potential value arising from certain psychological states, perceptions, and behavioural expectations that social actors form as a result of both their being part of social structures and the nature of their relationships in these structures”. Nahapiet and Ghoshal’s (1998) definition has been a key guide for considerable subsequent scholarly work on social capital. Nahapiet and Ghoshal (1998) suggested that social capital is captured in three dimensions, namely: relational, cognitive and structural.

Relational capital refers to the goodwill that exists between actors and is leveraged through a history of repeated interactions (Granovetter, 1992; Burt, 2000). Relational capital is a multi-faceted concept that includes trust, obligation, identification, respect and friendship that present in the relationships between partners (Nahapiet and Ghoshal, 1998; Kale et al., 2000). The cognitive capital dimension refers to “those

resources providing shared representations, interpretations, and systems of meaning among parties” (Nahapiet and Ghoshal, 1998; p. 244). Cognitive capital manifests when partners have shared language and codes (Nahapiet and Ghoshal, 1998) and aligned organisational culture, business philosophy, goals and vision (Villena et al., 2011). It reflects a mutuality of expectations and similar perceptions that enable partners to identify common and appropriate procedures for the achievement of mutual goals and tasks (Roden and Lawson, 2014; Son et al., 2016). Structural capital refers to the overall pattern of connections between supply chain partners (Nahapiet and Ghoshal, 1998). Structural capital reflects the presence, frequency and strength of social interactions between partners (Tsai and Ghoshal, 1998). Social interaction ties refer to “the extent of social processes and activities implemented between a buyer and supplier to coordinate and structurally embed the relationship” (Roden and Lawson, 2014, p. 91).

2.11.2 Social capital vs other forms of capital

Using the term ‘capital’ to describe the relational resources available from a network of relationships that may generate potential mutual benefits for actors has been questioned, mainly by economists (Robison et al., 2002). Nevertheless, social capital shares some properties with other forms of capital (e.g. economic, physical, human and cultural), but also has unique characteristics (e.g. Nahapiet and Ghoshal, 1998; Lin 2001; Adler and Kwon, 2002; Robison et al., 2002).

Social capital’s characteristics resemble some of those of other forms of capital in different ways. Firstly, social capital is flexible and versatile (Adler and Kwon, 2002; Robison et al., 2002). Coleman (1988) pointed out that social capital is “appropriable” in the sense that it can be used for multiple purposes. For instance, in an inter-organisational relationship, social capital facilitates information sharing between partners (Kim et al. (2012), while also working towards curbing opportunism (Wang et al., 2013). Secondly, like other forms of capital, social capital can be an alternative and/or supplement to other capitals (Adler and Kwon, 2002). As a substitute, individuals can compensate for lack of financial resources and human skills by having strong and valuable connections (Adler and Kwon, 2002). As a supplement, social capital enhances the productivity of economic capital by reducing transaction and monitoring costs (Robison et al., 2002). Thirdly, social capital requires maintenance

like other forms of capital (Adler and Kwon, 2002). A lack of continuous contacts and interactions between actors can reduce the strength of the social relations and thus its potential benefits (Robison et al., 2002). Finally, like other forms of capital, social capital is an asset that needs investment to achieve benefits in the short and long-term (Bourdieu, 1986; Portes, 1998). Social capital is a product of endless efforts but through building it, actors can obtain benefits such as access to information, power and solidarity (Adler and Kwon, 2002).

Social capital also has some properties that make it distinctive from other forms of capital. In contrast to other forms of capital, and in particular human capital which resides in the actors, social capital is embedded in a social relationship (Portes, 1998; Robison et al., 2002). Social capital is jointly owned by actors (Nahapiet and Ghoshal, 1998) and no actor has exclusive ownership rights of it (Burt, 1992). Thus, social capital ‘vanishes’ with the end of the relationship. Moreover, while physical capital is generated by transforming materials to form tools and human capital is created by changes in individuals that develop their skills, social capital arises via changes in the relations among actors to facilitate actions (Coleman, 1988). Furthermore, unlike other forms, social capital cannot be traded by people on an open market as it is inherited in the social relationship (Leana and Van Buren, 1999; Gant et al., 2002). Additionally, unlike other forms, the benefits of social capital are not limited to the individual who possesses it, but they are also accessible to all within the community (Kostova and Roth, 2003). Nevertheless, in general, social capital provides direct primary benefits to its owner (Burt, 1997) and secondary benefits to all within community without necessarily having participated in the creation of social capital (Putman, 1993).

2.11.3 Social capital in supply chain relationships

Over the past decade, the field of SCM has called for greater adoption and use of theories to analyse, explain and predict relationships among relevant concepts (Ketchen and Hult, 2007a, 2011). The application of theories is also instrumental in opening up new areas of research inquiry and advancing the field (Ketchen and Hult, 2007b). These applications of theories or what Choi and Wacker (2011) have called as ‘theory building practices’ were in different forms, from using a single theoretic to using multi-theoretic orthogonal or unrelated perspectives (Choi and Wacker, 2011). Scholars in the SCM field are constantly borrowing insights from sociology,

psychology, economics, law, political science, and many other fields to develop explanations that help us understand specific aspects of supply chain phenomena (Hitt et al., 2016). A plethora of theoretical underpinnings have been used by scholars to examine, address and better understand different supply chain phenomena, including Transaction Cost Economics (Williamson, 1975), Resource-Based View (Barney, 1991) and Social Exchange Theory (Blau, 1964) to name a few (Ketchen and Hult, 2007; Hitt et al., 2016). While the aforementioned theories (like others) have been in the SCM literature for a while, it is only recently that social capital theory has emerged (Matthews and Marzec, 2012).

The substantive focus on exchange (Kale et al., 2000) and its applicability to multiple levels of analysis (i.e. individual, group and inter-organisational) (Koka and Prescott, 2002) make social capital theory relevant to a wide range of supply chain issues (Krause et al., 2007). As a result, social capital theory is becoming an important theoretical underpinning to examine supply chain relationships (Matthews and Marze, 2012). Social capital theory provides an opportunity for increased understanding of supply chain relationships' complexities (Lawson et al., 2008; Carey et al., 2011), their dynamic nature (Petersen et al., 2008; Roden and Lawson, 2014) and associated uncertainty (Wang et al., 2013; Elfenbein and Zenger, 2014).

2.11.3.1 Review methodology

Having identified the role of social capital as critical relational factor that would improve the implementation of SSSCM, this review aims to critical review the antecedents and outcomes of social capital in supply chain relationships. To this end, review considers all vertical buyer-seller relationships along the supply chain, both upstream and downstream, involving suppliers, manufacturers, wholesalers, distributors and retailers (Coyle et al., 2017; Spekman et al., 1998), however it excludes those contributions in the context of strategic alliance and joint venture relationships. This is because these contributions were found not to consider buyer-supplier (i.e. chain) relationship architectures.

The terms reported in table 2.9 were used to search in the article's title, abstract and keywords using Scoupas database. The rationale behind using Scoupas is that provides a large number of publications and its daily updated. This process resulted in 123 articles. These articles were further assessed to ensure that they are published in ABS

(2015) listed journal. Following this, 57 publications were identified and been read in whole to assess whether they fit with the scope of the review. Thirteen articles were found irrelevant for different reasons. Firstly, studies that used social capital theory as an explanatory tool as they did not examine its constructs (i.e. relational, cognitive and structural). Secondly, other studies were excluded as it exclusively focused on examining social capital in other inter-organizational relationships rather than supply chain relationships. Finally, studies that did not examine the antecedents and/or outcomes of social capital were excluded as this review aims to highlight the potential role of social capital in the context of SSCM.

Table 2.9: Keywords used in searching social capital literature

Social capital		Supply chain relationships
Social capital OR	And	“Supply chain” OR
Relational capital OR		“buyer-supplier” OR
Contitive capital OR		Supplier OR
Structural capital		purchasing OR
		procurement OR
		sourcing

The majority of research efforts into social capital in supply chain relationships have focused on the antecedents and/or the outcomes of social capital (see Figure 2.9). Few scholarly works has been devoted to other aspects of social capital, for example, the process of social capital development over buyer-supplier relationship (Hughes and Perrons, 2011). For this reason, the applications of social capital in the supply chain will be organised into two main sections. The first section discusses the antecedents of social capital, while the second section discusses the outcomes of social capital. Under the latter, the outcomes of social capital are further divided into two broad types: indirect and performance outcomes.

2.13.3.2 Antecedents of social capital in supply chain relationships

The current research has explored the impact of a variety of antecedents on the development of social capital (see Figure 2.9). The antecedents can be grouped into three main types, namely supply chain structure-related antecedents; supply chain practices-related antecedents and supply chain relational-related antecedents.

Supply chain structure-related antecedents (i.e. supplier closeness, organisational implantation and supplier integration). From a buyer’s perspective, Lawson et al.

(2008) reported that supplier integration and supplier closeness creates relational capital, which in turn leads to performance improvements. This finding was also supported by Petersen et al.'s (2008) study which found that supplier integration plays an important role in developing relational capital. Based on dyadic perspectives of logistics service providers (LSPs) and their customers, Grawe et al. (2012) revealed that organisational implantation (an on-site representative of the other party) increases LSPs's commitment towards customers through increasing the level of outcome interdependence. On the other hand, organisational implantation enhances customers' commitment towards LSPs through leveraging relational capital and increased responsiveness.

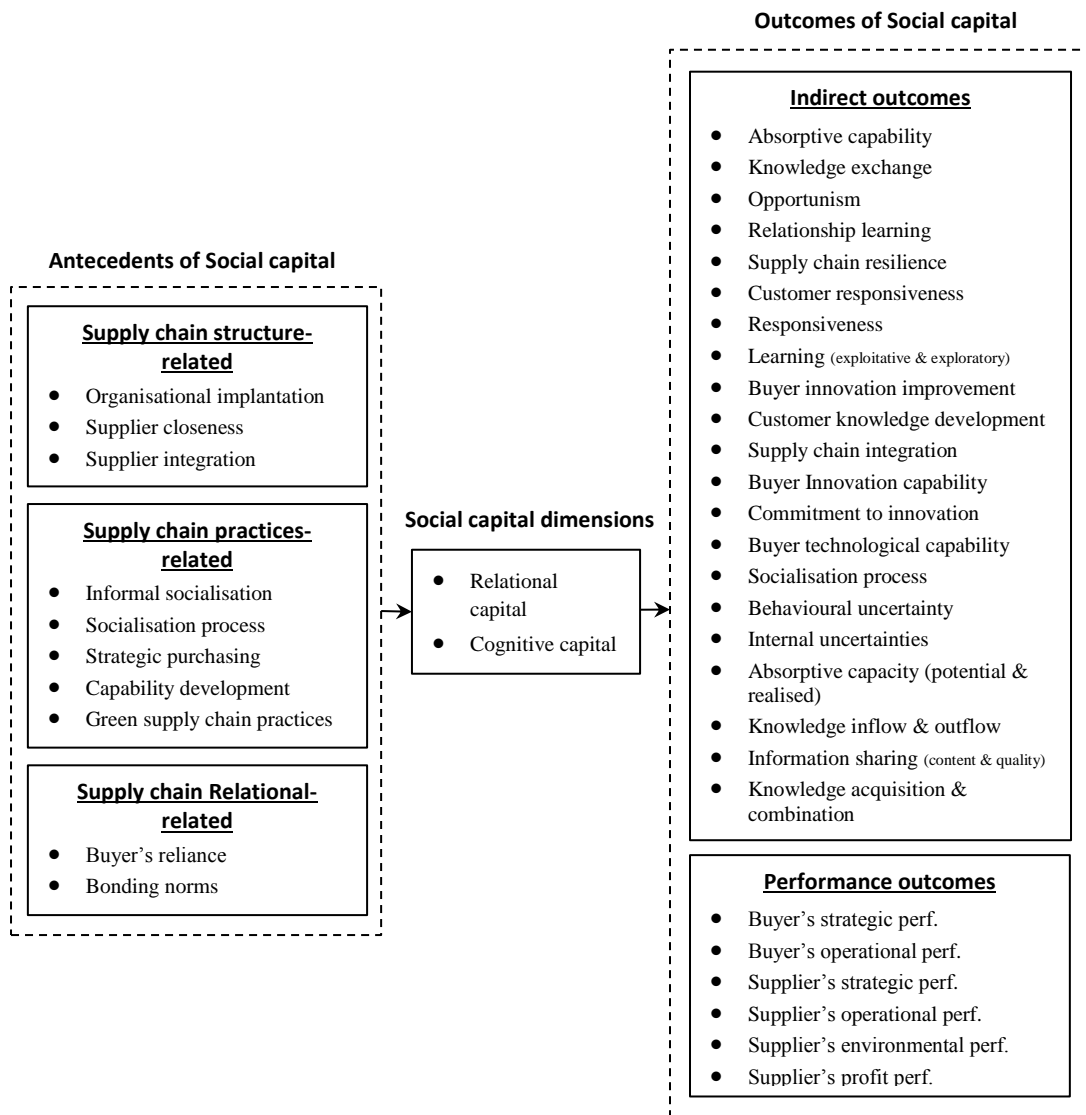


Figure 2.9: Antecedents and outcomes of social capital in supply chain relationships

Source: Developed by the author

Supply chain practices-related antecedents (i.e. capabilities development, supplier governance, informal socialisation, green supply chain practice and strategic purchasing). Taking the supplier's perspective, Blonska et al. (2013) indicated that two types of supplier development (i.e. capability development and supplier governance) contributes to the relationship by building relational capital, which in turn, increases both buyer and supplier benefits. Similarly, Lee (2015) found that green SCM practices (monitoring and collaboration) do not only help in leveraging relational capital, but also lead to the development of structural capital between buyer and supplier. Likewise, Cousins et al. (2006) found from their data from multiple industries in the UK that informal socialisation, but not formal socialisation lead to the development of relational capital, which in turn, leads to improved supplier relationship outcomes. Finally, Bernardes's (2010) results suggest that strategic supply chain function contributes to the development of relational and cognitive capital, which leads to increase customer responsiveness.

Supply chain relational-related antecedents (i.e. buyer reliance and bonding norms). Miocevic's (2016) study appears to represent the first and only attempt to understand the role of relational aspects on the development of social capital in supply chain relationships. Milosevic (2016) examined the impact of buyer's reliance (i.e. ability to fulfil contractual obligations) and relation bonding norms on the development of relational capital and how formal and informal institutional distance moderates these relationships. The results suggest that both reliance and relational bonding norms positively enhance relational capital. However, as formal institutional distance decreases, buyer's reliance has more impact on the development of relational capital. On the other hand, as informal institutional distance decreases, relational bonding norms have more effect on the development of relational capital.

2.13.3.3 Outcomes of social capital in supply chain relationships

The existing literature has linked the different dimensions of social capital to a variety of supply chain relationship outcomes including performance and indirect outcomes. It is evident from this review that the indirect outcomes associated with the accumulation of social capital dimensions have received the majority of the attention among scholars. In this section, performance outcomes are discussed first, before discussing the indirect outcomes.

Performance outcomes. Evidence suggests that the development of social capital dimensions can improve the strategic, financial, operational and environmental performance for the two sides of the relationship (i.e. buyer and supplier). In a study of 132 buyers in Spain, Villena et al. (2011) revealed that the development of the three dimensions of social capital (i.e. relational, cognitive and structural) are positively related to both strategic and operational performance. However, Villena et al. (2011) also found an inverted curvilinear relationship between relational capital and structural capital and performance, suggesting a 'dark side' of social capital. The curvilinear relationship was significant between relation capital and both operational and strategic performance, while structural capital was only significant for operational performance. Yang (2009) also observed the risk associated with too much relational capital when examined, among other factors, its impact on alliance performance in the supply chain. Yang (2009) suggested that a moderate level of relational capital achieves the highest alliance performance. Son et al. (2016) recently supported this notion and extended Villena et al.'s (2011) study of the dark side of relational and structural capital. More specifically, Son et al. (2016) maintained using, a dyadic perspective, that not only high level of relational and structural capital increase both strategic and operational performance to a certain level, but also cognitive capital. Moreover, Son et al. (2016) suggest that high dissonance in the level of cognitive capital is associated with a lower level of strategic and operational performance.

A few empirical investigations suggest that social capital dimensions have different impacts on different aspects of the specific relationship outcome, and that impact varies under different conditions. For example, Krause et al. (2007) claimed, based on 392 buyers' views in multiple US industries, that the three dimensions of social capital have unique effects on different buyer operational performance outcomes. Specifically, while relational capital was important in achieving costs saving, cognitive and structural capital were vital in achieving improvements in quality, delivery and flexibility. Similarly, in an attempt to understand the boundary conditions (i.e. contexts) of the social capital effect, Avery et al. (2014) replicated Krause et al.'s (2007) study by collecting data from China (n=178) and US (n=352). Their results indicate that while relational capital had a positive impact on buyer operational performance in both countries, structural capital had no impact on buyer performance in either country. Moreover, they found that shared values were positively associated

with buyer performance in the US but no in China. Similarly, in their study of 163 buyers in the UK, Carey et al. (2011) found that relational capital directly improves buyer's cost and innovation performance, and that impact of relational capital increases when the relationship governed is by legal bonds. On the other hand, Carey et al. (2011) revealed that cognitive and structural capital contribute to performance indirectly via enhancing relational capital. More recently, Zhang et al. (2017), using 276 manufacturers' perspectives in multiple industries in China, found that social capital was positively related to operational performance.

The extant empirical work that has sought the supplier's perspective suggests that social capital has a positive impact on the suppliers' performance. Using 91 suppliers from Finland, Kohtamäki et al. (2013) uncovered the dual effect of relational capital on supplier's profit performance. The authors found that relational capital directly leads to an increase in supplier's profit and indirectly through increasing the effectiveness (i.e. facilitating resource and information exchange) of supplier's R&D services. In another study from suppliers' perspective, Lee (2015) found that green supply chain management (GSCM) practices leverage both relational and structural capital, which in turn increases suppliers' environmental and operational performance. More recently, Gelderman et al. (2016) examined the impact of the three dimensions of social capital and revealed that only cognitive capital improved strategic performance, using data from 88 suppliers across Europe. This result ran counter to the extant literature (e.g. Villena et al., 2011; Son et al., 2016) that has demonstrated a positive effect of relational and structural capital on performance.

Indirect outcomes. The development of social capital in supply chain relationship has been shown to contribute to supply chain relationship by enhancing a variety of less direct outcomes. Research has demonstrated the impact of social capital dimensions on outcomes other than performance or on variables that serve as antecedents to performance. However, this important to note emphasize these additional benefits of social capital are not necessarily unrelated to performance outcomes.

A number of scholars have examined how different social capital dimensions affect partner's exchange of information and knowledge. In their examination of 82 buyers in electronic manufacturing services, Kim et al. (2012) uncovered that social capital (trust) facilitates knowledge exchange between buyer and supplier. However, under

conditions of high knowledge complementarities between partners, social capital instead negatively affect knowledge exchange, while under conditions of low knowledge complementarities, social capital had no influence on knowledge exchange. Similarly, Hung et al. (2014) found that among the three dimensions of social capital that cognitive capital facilitates both knowledge inflow and outflow, while structural capital facilitates only knowledge inflow. Surprisingly, relational capital had no influence on knowledge inflow and outflow. In another study, Li et al. (2014) found that that only relational and cognitive capital improves the information sharing in terms of content and quality. However, structural capital facilitates information sharing indirectly through developing relational and cognitive capital.

The impact of social capital on knowledge in supply chain relationship goes beyond exchange, and also to facilitate the acquisition and the use of it. Zhang et al. (2017) found, using data from 276 manufacturers in China, that social capital (operationalised as a single concept) fosters knowledge acquisition (i.e. the ability to identify and obtain knowledge that is crucial to partner's operations from its partner) and knowledge combination (i.e. the ability to synthesise current and acquired knowledge). Similarly, Wang and Li (2016) provided more insight by explicating which social capital dimensions lead to the development of which type of absorptive capacity. Using 297 suppliers' perspective, Wang and Li (2016) revealed that that relational capital is positively related to both the development of potential absorptive capacity (PAC) (knowledge acquisition and assimilation) and realised absorptive capacity (RAC) (knowledge transformation and exploitation), whilst structural capital is only positively related to the development of supplier PAC. Surprisingly, Wang and Li (2016) found that cognitive capital has no impact on enhancing either capability. However, Unal and Donthu (2014), using a dyadic perspective, found that, among other factors, outsourcing partners' cognitive capital led to the development of absorptive capabilities and subsequently partnership performance.

Social capital supply chain research has also shown that the development of a higher level of social capital in the relationship is positively associated with relationship learning. In one of the first examinations of social capital in the supply chain, Chang and Gotcher (2007) reported based on 118 suppliers' perspectives in multiple industries in Taiwan that relational capital enhances buyer-supplier relationship

learning which leads to enhancing joint capability. Similarly, Kohtamäki and Bourlakis's (2012) investigation of 195 customer-supplier relationships revealed that social capital facilitates relationship learning. Likewise, Huikkola et al. (2013) explored the role of relational structures, relational capital and relational investment on joint learning (i.e. knowledge sharing, joint sense-making and knowledge integration) in R&D buyer-supplier collaboration. Their findings suggested that relational capital enables knowledge sharing and effective collaboration, opens dialog and provides agreement between partners and creates commitment to knowledge implementation and integration. Li (2010) extended those studies by linking different social capital dimensions to a variety of learning capabilities (exploitative and exploratory learnings). Li's (2010) survey of 411 suppliers in the electronic industry in China found that relational capital (competence-based trust) and cognitive capital (strategic consensus) enhanced both exploitative and exploratory learning, with relational capital having more impact on exploratory learning and cognitive capital on exploitative learning. However, structural capital (extra-industry ties) had a positive effect on exploratory learning but no effect on exploitative learning.

Social capital dimensions have also been shown to contribute to supply chain relationships by generating others indirect outcomes including facilitating supply chain integration (Yim and Leem, 2013), increasing supply chain resilience (Johnson et al., 2013), responsiveness (Grawe et al., 2012) customer knowledge development (Tsai et al., 2013), commitment to innovation (Tsai et al., 2013), innovation capability (Kulangara et al., 2016) and technological capability (Tseng and Chen, 2014), and reducing opportunism (Wang et al., 2013; Lioliou and Zimmermann, 2015).

Table 2.10 chronologically summaries the extant recent empirical work on the role of social capital in supply chain relationships by explicating the social capital dimension examined, the type of supply chain relationship examined, the supply chain partner perspective considered, the research method, the research context (i.e. country and industry), the relevant findings and outcomes derived.

Table 2.10: An analysis of key research on social capital in supply chain relationships

No	Author(s)	Dimensions			Type of SC relationship	SC partner perspective	Method	Industry	Country	Relevant findings	Relationship outcomes
		R	C	S							
1	Cousins et al. (2006)	✓			Buyer-supplier	111 buyers	Survey	Multiple industries	UK	Informal socialisation leads to the development of relational capital, which in turn improves supplier relationship outcomes. Formal socialisations facilitates informal socialisation that leads to the development of relational capital.	Supplier relationship outcomes (product design, process design and lead time)
2	Chang & Gotcher (2007)	✓			Buyer-supplier	118 suppliers	Survey	Multiple industries	Taiwan	Relational capital enhances supply chain relationship learning. Relation capital positively moderates the relationship between relationship-specific investment and relationship learning.	Relationship learning
3	Krause et al. (2007)	✓	✓	✓	Buyer-supplier	392 buyers	Survey	Multiple industries	US	The three dimensions of social capital have unique effects on different performance outcomes. Cognitive capital is positively associated with both buyer's cost performance and QDF performance. Relation capital (supplier and buyer dependencies) is important in achieving costs saving. Structural capital (only supplier development) is positively associated with only QDF performance.	Buyer's cost performance and QDF performance
4	Lawson et al. (2008)	✓	✓		Buyer-supplier	111 buyers	Survey	Multiple industries	UK	Supplier integration and supplier closeness creates relational capital, which in turn leads to performance improvements. Moreover, structural capital is positively associated with performance improvements.	Buyer performance
5	Yang (2009)	✓			Buyer-supplier	173 buyers	Survey	Multiple industries	China	The results indicate a curvilinear relationship between relational capital and alliance performance in supply chain. A moderated level of relational capital achieves the highest alliance performance.	Performance
6	Berndardes (2010)	✓	✓		Buyer-supplier	204 buyers	Survey	Multiple industries	US	Strategic supply chain function contributes to the development of relational and cognitive capital, which leads to increase customer responsiveness. Relational capital leads to increase customers responsiveness indirectly though creates cognitive capital.	Customer responsiveness
7	Li (2010)	✓	✓	✓	Supplier-agent	411 suppliers	Survey	Electronic industry	China	Relational and cognitive capitals facilitate both exploitative and exploratory learning, while structural capital enhances only exploratory learning. Both types of learning mediate the relationship between social capital and relationship value.	Exploitative and exploratory learnings
8	Carey et al. (2011)	✓	✓	✓	Buyer-supplier	163 buyers	Survey	Multiple industries	UK	Cognitive and structural capitals are positively related to the development of relational capital, which in leads to cost and innovation improvements. Legal bonds (as formal governance) increase the impact of relational capital on both buyer innovation and cost improvements.	Buyer cost improvement and buyer innovation improvement
9	Villena et al. (2011)	✓	✓	✓	Buyer-supplier	132 buyers	Survey	Multiple industries	Spain	The three dimensions of social capital are positively related to both types of performance. An inverted curvilinear relationship between relational and structural capital, and performance. The curvilinear relationship was significant between relation capital and both operational and strategic performance while structural was only significant for operational performance.	Buyer operational and strategic performance
10	Chang et al. (2012)	✓			Buyer-supplier	104 buyers	Survey	Multiple industries	Taiwan	The authors examined the impact of social capital (trust and commitment) on performance through innovation and adaptation. Trust facilitates innovation and adaptation and commitment facilitates adaptation, which in turn leads to improve performance.	Innovation and adaptation
11	Grawe et al. (2012)	✓			Logistics provider-customer	81 dyadic	Survey	Multiple industries	NS	The results indicated that organisational implantation (on-site representative) enhances customers' commitment towards LSP through leveraging relational capital, which in turn increases responsiveness.	Responsiveness

(Continued on next page)

Table: 2.4 (continued)

No	Author(s)	Dimensions	Type of SC relationship	SC partner perspective	Method	Industry	Country	Relevant findings	Relationship outcomes
12	Kim et al. (2012)	✓	Buyer-supplier	82 buyers	Survey	Electronic Manufacturing Services	NS	Social capital (trust) facilitates knowledge exchange between SC partners. However, with high knowledge complementarities between partners, social capital negatively affects knowledge exchange. With low knowledge complementarities, social capital has no influence on knowledge exchange.	Knowledge exchange
13	Kohtamäki et al. (2012)	✓	Subcontractor–customer	248 subcontractors	Survey	Multiple industries	Finland	Relational capital and relationship-specific investment are positively associated with relationship performance. Relational capital positively moderates the relationship between relationship structures and relationship performance.	Relationship operational performance
14	Kohtamäki and Bourlakis (2012)	✓	Customer-supplier	195 customers	Survey	Metal and electronics industries	Finland	The authors examined the impact of relational practices, social capital (trust) and supplier's specific investment on relationship learning. Their results indicated that social capital facilitates relationship learning.	Relationship learning
15	Blonska et al. (2013)	✓	Buyer-supplier	185 suppliers	Survey	Multiple industries	Across countries	Supplier development (both supplier governance and capability development) lead to build of relational capital, which in turn increases both buyer and supplier benefits. Relational capital positively moderates the relationship between supplier governance and capability development and supplier benefits, while only moderates the relationship between supplier governance and buyer benefits.	Supplier benefits and buyer benefits
16	Huikkola et al. (2013)	✓	Supplier-customer	Dyadic	Multiple case studies	R&D services	Finland	Relational capital enables joint learning in R&D collaboration by facilitating knowledge sharing and effective collaboration, opening dialogue and providing agreement between partners and by creating a commitment to knowledge integration.	Joint learning (knowledge sharing, joint sense-making and knowledge integration)
17	Johnson et al. (2013)	✓ ✓ ✓	Buyer-supplier	Multiple supply chain parties	Single Case study	Railway	UK	Social capital dimensions facilitate and enable supply chain resilience capabilities (flexibility, velocity, visibility and collaboration). Relational capital facilitates rapid and timely access to information and resources. Cognitive capital reduces the costs of communication and help in setting explicit rules of coordination. Structural capital increases the speed of information transfer.	SC resilience capabilities
18	Kohtamäki et al. (2013)	✓	Customer-supplier	91 suppliers	Survey	Multiple industries	Finland	Relational capital is positively associated with supplier's profit performance and positively moderates the relationship between supplier's R&D services and supplier's profit performance.	Supplier's profit performance
19	Tsai et al., (2013)	✓ ✓ ✓	Buyer-seller	302 sellers	Survey	Information Technology	Taiwan	Trust increases seller's commitment to innovation. Shared norms are positively related to both commitment to innovation and customer knowledge development. Social interaction facilitates customer knowledge development, which in turn increases innovation performance.	Commitment to innovation and customer knowledge development
20	Wang et al. (2013)	✓ ✓ ✓	Buyer-supplier	400 buyers	Survey	Multiple industries	China	All social capital dimensions directly reduce partner's opportunism. However, a higher level of relational capital magnifies the negative impact of behavioural uncertainty on partner's opportunism. Structural capital reduces the impact of relationship-specific investment and behavioural uncertainty on partner's opportunism. Cognitive capital reduces the impact of behavioural uncertainty on opportunism.	Opportunism
21	Yim & Leem (2013)	✓ ✓ ✓	Buyer-supplier	420 buyers	Survey	Multiple industries	South Korea	All social capital dimensions facilitate supply chain integration (information sharing, collaboration and resource exchange), which leads to improve firm performance. Both relational and cognitive capital directly increases firm performance.	SC integration and firm performance
22	Hung et al. (2014)	✓ ✓ ✓	Buyer-supplier	160 buyers	Survey	Multiple industries	Taiwan	Cognitive capital facilitates both knowledge inflow and outflow of green supply chain, while structural capital enables only knowledge inflow, which in turn leads to improve green management performance. Relational capital has no effect on both knowledge inflow and outflow.	Knowledge inflow and outflow

(Continued on next page)

Table: 2.4 (continued)

No	Author(s)	Dimensions	Type of SC relationship	SC partner perspective	Method	Industry	Country	Relevant findings	Relationship outcomes
23	Li et al. (2014)	✓ ✓ ✓	Buyer-supplier	272 buyers	Survey	Multiple industries	China	Only relational and cognitive capital improves the information sharing in term of content and quality, which in turn leads to improves both efficiency and responsiveness performance. Structural capital facilities information sharing directly through developing relational and cognitive capital.	Information sharing content and quality
24	Tseng and Chen (2014)	✓	Buyer-supplier	84 buyers	Survey	Multiple industries	Across countries	Relational capital is positively related to the development of buyer's technological capability. Moreover, as the buyer's international experience increases, the impact of relational capital on buyer's technological capability increases.	Buyer's technological capability
25	Unal and Donthu (2014)	✓	Buyer-supplier	60 dyadic	Survey	Consumer packaged goods	NS	The authors examined the impact of both outsourcing partners' cognitive capital on the development of absorptive capabilities and subsequently partnership performance. Their results indicate that cognitive capital is positively related to the development of absorptive capabilities.	Absorptive capabilities
26	Lee (2015)	✓ ✓	Buyer-supplier	248 Suppliers	Survey	Multiple industries	South Korea	Green supply chain management practices create relational and structural capital, which in turn improves supplier's operational and environmental performance.	Supplier's operational and environmental performance
27	Lioliou and Zimmermann 2015	✓ ✓ ✓	Buyer-supplier	Dyadic	Multiple case studies	Financial service industry	Across countries	Social capital dimensions play different roles in mitigating opportunism. Relational capital reduces opportunism through reducing behaviour uncertainty between partners. Cognitive capital reduces opportunism through reducing internal uncertainties. Structural capital, however, has no direct impact but helps in building both relational and cognitive.	Reduce uncertainty in environment, internal and behaviour, opportunistic behaviour
28	Whipple et al. (2015) ^a		Buyer-supplier	105 dyadic	Survey	Multiple industries	US	Internal process collaborative competencies facilitates the development of social capital, which in turn improves operational performance.	Operational performance
29	Gelderman et al. (2016)	✓ ✓ ✓	Buyer-supplier	88 suppliers	Survey	Multiple industries	Across countries	The authors examined the impact of social capital dimensions on supplier's strategic performance and the moderating effect of technological uncertainty on these links. Only cognitive capital is positively associated with supplier's strategic performance. No moderating effect of technological uncertainty.	Supplier's strategic performance
30	Kulangara et al. 2016	✓ ✓	Buyer-supplier	357 buyers	Survey	Multiple industries	US	Relational capital (trust) and structural capital (social socialisation and information sharing) have a positive impact on buyer's innovation capability. Structural capital (business socialisation) enhances innovation capability indirectly through increasing trust.	Buyer's innovation capability
31	Son et al. (2016)	✓ ✓ ✓	Retailer-supplier	Dyadic (12 retailers and 70 suppliers)	Survey	Fast-moving consumer goods	Korea	Three social capital configurations with a varied level of relational, cognitive and structural capital. Higher level of social capital increases both strategic and operational performance to a certain level, suggesting a curvilinear relationship. High dissonance in the level of cognitive capital is associated with lower level of strategic and operational performance	Strategic and operational performance
32	Wang and Li (2016)	✓ ✓ ✓	Buyer-supplier	297 Suppliers	Survey	Multiple industries	China	Relational capital is positively related to the development of both supplier's potential absorptive capacity (PAC) and realised absorptive capacity (RAC), while structural capital is only positively related to the development of supplier's PAC.	PAC and RAC
33	Zhang et al. (2017) ^a		Buyer-supplier	276 buyers	Survey	Multiple industries	China	Social capital positively associated with knowledge acquisition, knowledge combination and operational performance. For servitised firms, social capital directly and indirectly through knowledge combination enhances operational performance. In the traditional manufacturing firms, social capital indirectly improves operational performance through facilitating knowledge acquisition.	Knowledge acquisition, knowledge combination and operational performance

Note: ^a Social capital conceptualised as a single construct; R = Relational; C = Cognitive; S = Structural; NS = Not Specified.

Source: Developed by the author

2.12 Summary

This chapter has provided a critical analysis of the current literature on socially SSCM with a particular focus on the social dimension of sustainability. The review has identified four broad themes of socially SSCM research, namely the adoption of socially SSCM, the implementation of socially SSCM, performance measurement and performance outcomes of socially SSCM. The first theme was analysed under two subthemes: driving forces and factors (enabling and impeding) of the adoption. The second research theme was discussed under two subthemes: internal practices (capability development and supplier selection) and external practices (i.e. transactional and collaboration). The third theme (performance measurement) discussed the research that has examined the measurement of social performance. The last theme pertains to the research that has focused on the outcomes of socially SSCM which was discussed under two streams: socially SSCM (environmental and social) and performance and socially SSCM (social dimension only) and performance.

Having identified the research gap and the importance of social capital in this context, the chapter has also introduced the concept of social capital before reviewing the applications of social capital theory in SCM research. The focus of the current literature is mainly directed to examine the antecedents and outcomes of social capital. The antecedents were grouped and discussed into three main types, namely: supply chain structure-related, supply chain practices-related and supply chain relational-related antecedents. The outcomes were also discussed along two categories: performance and indirect outcomes.

Chapter 3

THEORETICAL FRAMEWORK

3.1 Introduction

In the previous chapter, a critical analysis of the relevant literature on socially sustainable supply chain management was provided highlighting a number of current gaps and identifying the gaps that the present research addresses. This chapter draws on three theoretical perspectives to develop a conceptual framework of the implementation of socially sustainable supply chains. This chapter is structured as follows. The next section introduces the conceptual framework and defines its associated constructs. Section 3.3 presents an overview of the theoretical perspectives that set the foundation for the conceptual framework, before the research hypotheses are developed in section 3.4. A summary of the chapter is provided in section 3.5.

3.2 Conceptual framework

The proposed conceptual framework establishes the relationship between socially sustainable transactional practices (SSTPs), socially sustainable collaboration practices (SSCPs), social capital (i.e. relational, cognitive and structural capital), supplier's internal social performance and buyer's operational performance (see Figure 3.1). The model suggests that the implementation SSTPs and SSCP has a positive impact on supplier's internal social performance and buyer's operational performance. However, the joint implementation of SSTPs and SSCP is proposed to negatively affect supplier's internal social performance. Moreover, the model predicts that social capital dimensions embedded in the buyer-supplier relationship enhance the effectiveness of the implementation of SSTPs and SSCP on supplier's internal social performance. More specifically, the model examines the moderating effect of the social capital dimensions on the relationship among SSTPs, SSCP and supplier's internal social performance. Additionally, the model posits a positive relationship between supplier's internal social performance and buyer's operational performance. Finally, the model controls for variables due to their possible associations with supplier's internal social performance and buyer's operational performance. Table 3.1 summaries the hypotheses developed in this study.

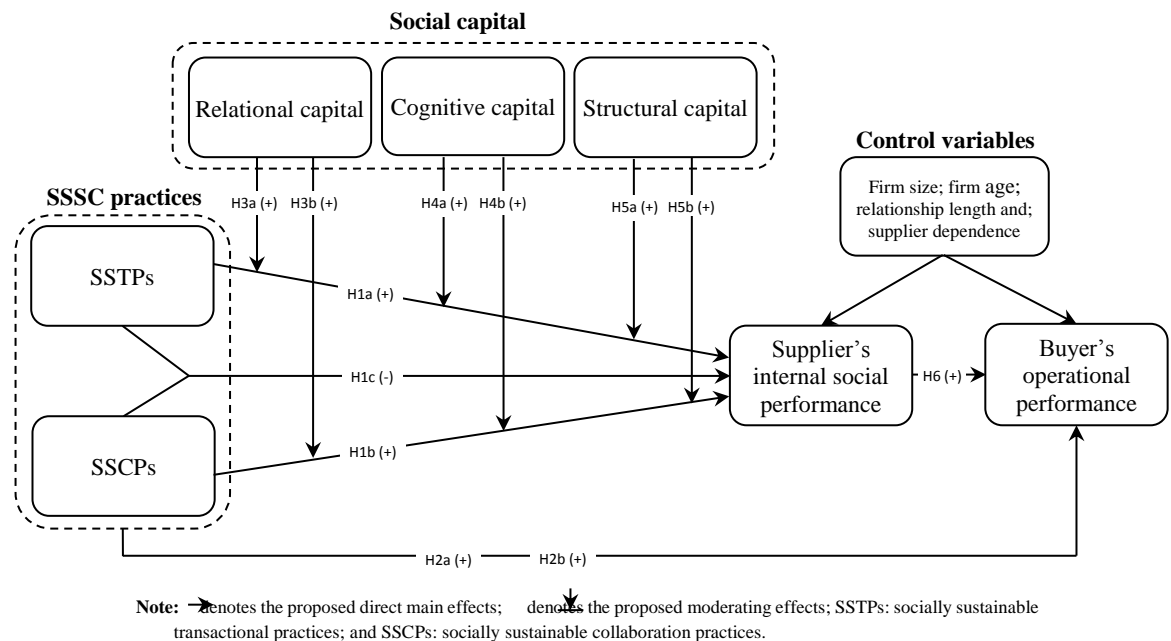


Figure 3.1: Conceptual model

Source: Developed by the author

Table 3.1: List of the research hypotheses

No.	Hypothesis
H1a	SSTPs positively influence supplier's internal social performance.
H1b	SSCPs positively influence supplier's internal social performance.
H1c	The joint implementation of SSTPs and SSCPs is negatively related to supplier's internal social performance.
H2a	SSTPs positively influence buyer's operational performance.
H2b	SSCPs positively influence buyer's operational performance.
H3a	Relational capital strengthens the relationship between SSTPs and supplier's internal social performance.
H3b	Relational capital strengthens the relationship between SSCPs and supplier's internal social performance.
H4a	Cognitive capital strengthens the relationship between SSTPs and supplier's internal social performance.
H4b	Cognitive capital strengthens the relationship between SSCPs and supplier's internal social performance.
H5a	Structural capital strengthens the relationship between SSTPs and supplier's internal social performance.
H5b	Structural capital strengthens the relationship between SSCPs and supplier's internal social performance.
H6	Supplier's social internal performance positively influences buyer's operational performance.

In the following subsections, the constructs outlined above in the conceptual model are identified and defined before their inter-relationships (hypotheses) are developed in section 3.4.

3.2.1 Socially sustainable supply chain practices

SSSC practices can broadly be defined as the mechanisms, methods and activities by which a buying firm can seek to enhance suppliers' social performance (Gimenez et al., 2012; Huq et al., 2016). In line with previous research, SSSC practices can be classified into two distinct sets of practices: transactional and collaboration (e.g. Klassen and Vereecke, 2012; Marshall et al., 2015a; Sancha et al., 2016).

Socially sustainable transactional practices (SSTPs) refer to the practices through which a buying firm assesses, monitors, audits and control supplier's internal behaviour and conduct relating to the working conditions, employees welfare and the elimination of the use of child labour (Jiang 2009a; Klassen and Vereecke, 2012;

Marshall et al., 2015a; Huq et al., 2016; Sancha et al., 2016; Gualandris and Kalchschmidt, 2016). The assessment process is undertaken to evaluate the extent to which suppliers conform to the societal expectations formulated in buyer's criteria (i.e. codes of conduct), stipulated in regulations and/or pre-specified in international standards (e.g. SA8000) (Mamic, 2005; Ciliberti et al., 2009; Klassen and Vereecke, 2012). Thus, the process is concerned with ensuring alignment between policy and practice (Grosvold et al., 2014). This requires selecting and formulating the assessment criteria and the collection and processing of information from suppliers and other involved parties (Gallea et al., 2012; Klassen and Vereecke, 2012). The latter can be completed by sending suppliers key performance indicator questionnaires and/or risk assessment forms of the existing social and working conditions to fill in (Grosvold et al., 2014; Sancha et al., 2016) or by asking them to perform an audit of their sites/operations using a domestic independent third-party auditor (Huq et al., 2016). However, the authenticity of information reported by suppliers (Leire and Mont, 2010) or by local auditors and government officials regarding the social conditions is questioned in light of prevalent corruption (Jiang 2009a; Huq et al., 2014). Alternatively, therefore, buyers carry out the assessment process by visiting and inspecting suppliers' facilities using their own teams or by hiring their trusted third-party auditor (Huq et al., 2016). To ensure adherence, buying firms may adopt arm's length measures by imposing direct sanctions on violating suppliers (Pedersen and Andersen, 2006), or offering incentives to compliant suppliers in the form of longer-term contracts and/or increased order volumes (Porteous et al., 2015). In addition, to ensure supplier behaviour is in accordance with the standards, auditing and monitoring enable the buying firm to establish legitimacy by signalling its commitment towards social sustainability to a variety of stakeholders (Boyd et al., 2007; Vurro et al., 2009). However, it is also widely agreed that codes of conduct and other standards tend to be broad, are accompanied by a lack of involvement of the suppliers in planning and setting the associated sustainability goals (Yawar and Seuring, 2017), and can ignore the culture context in which suppliers operate (Ciliberti et al., 2009).

Socially sustainable collaboration practices (SSCPs) involve the adoption of more visible and cooperative efforts and investments to address supplier's social deficiencies. Collaboration practices can broadly be defined as the activities and

processes by which buyers, suppliers and other stakeholders (e.g. customers and NGOs) work together to improve supplier's social performance (Klassen and Vereecke, 2012; Rodriguez et al., 2016). The collaboration builds a bridge by opening two-way dialogue and interaction routines between buyer and suppliers to jointly address social issues (Jiang, 2009a; Klassen and Vereecke, 2012; Gualandris and Kalchschmidt, 2016). Unlike the transactional approach, the collaborative approach emphasises a longer-term view by enhancing and cumulatively building suppliers' capabilities to manage social issues (Klassen and Vereecke, 2012). Such collaboration on sustainability issues between buyer and supplier can take place at a variety of levels including operational, structural and strategic (Klassen and Vereecke, 2012; Huq et al., 2016). At the operational level, the collaboration focuses on enhancing the efficiency of transactions and information exchange, whilst at the structural level, the collaboration places emphasis on process integration through standardised systems. At the strategic level, the collaboration aims to develop and achieve shared objectives, and, in many cases, develop a partnership. SSCPs typically incorporate setting supplier development and education programmes, sharing knowledge with suppliers, organizing meetings and conferences, awarding suppliers subsidies to obtain third-party certification and jointly developing new products or processes that increase the health and safety of the employees (Jiang, 2009a; Marshall et al., 2015b; Porteous et al., 2015; Sancha et al., 2016). To increase the efficiency and effectiveness of the implementation of such practices, buying firms extend the collaboration circle beyond suppliers to include other stakeholders such as civil societies and NGOs (Tencati et al., 2008). The resources typically provided by NGOs take the form of bespoke (e.g. situation-specific) knowledge for tailoring supplier development programmes to match supplier needs and bridge capability gaps, and complement buying firm resources to increase the effectiveness of the implementation of SSSC initiatives (Rodriguez et al., 2016a).

3.2.2 Social capital dimensions

Social capital is "the sum of the actual and potential resources embedded within, available through and derived from the network of relationships possessed by an individual or social unit" (Nahapiet and Ghoshal, 1998, p. 243). Since its inception, the concept of social capital has been subject to considerable theoretical debate and refinement over the years, that has identified it as a multidimensional concept

consisting of relational, cognitive, and structural components (Nahapiet and Ghoshal, 1998). As mentioned previously, relational capital refers to the goodwill that exists between actors, leveraged through a history of repeated interactions (Granovetter, 1992; Burt, 2000). Relational capital is a multi-faceted concept, and includes trust, obligation, identification, respect and friendship, that present in the relationships between partners (Nahapiet and Ghoshal, 1998; Kale et al., 2000).

Cognitive capital refers to “those resources providing shared representations, interpretations, and systems of meaning among parties” (Nahapiet and Ghoshal, 1998; p. 244). Cognitive capital manifests when supply chain parties have shared language and codes (Nahapiet and Ghoshal, 1998) and aligned organizational culture, business philosophy, goals and vision (Villena et al., 2011). It reflects a mutuality of expectations and similar perceptions that enable supply chain partners to identify common procedures for the achievement of mutual goals and tasks (Son et al., 2016; Roden and Lawson, 2014).

Structural capital refers to the overall pattern of connections between supply chain partners (Nahapiet and Ghoshal, 1998). Structural capital reflects the presence, frequency and strength of social interactions between partners (Tsai and Ghoshal, 1998). Social interaction ties in the supply chain refer to “the extent of social processes and activities implemented between a buyer and supplier to coordinate and structurally embed the relationship” (Roden and Lawson, 2014, P. 91).

3.2.3 Social and operational performance

Suppliers’ misconduct can have a detrimental impact on their employees’ safety and welfare, which can also extend to affect their local communities (Klassen and Vereecke, 2012). Accordingly, supplier’s social performance encompasses two dimensions; an internal and an external dimension (Huq et al., 2016; Yawar and Seuring, 2017). Suppliers’ external social performance relates to the general welfare of local communities in which they operate (Huq et al., 2016). Suppliers’ internal social performance is associated with the working conditions, safety and health, forced labour, working hours, payment rate, disciplinary practices and child employment within their premises (Sancha et al., 2015; Zorzini et al., 2015; Yawar and Seuring, 2017). In this research, we focus on the internal performance for two primary reasons. First, alongside macro factors related to the suppliers’ environment, social

responsibility deteriorations at suppliers' workplace are partly driven by buyer's unfair buying practices (e.g. cost pressure and shortening lead times) (Jiang, 2009a). Second, buying firms are more likely to implement SSSC practices to improve the suppliers' internal social performance as poor internal social performance might affect supplier's internal operations and hence cause costly supply chain disruptions (Pullman et al., 2008; Rodriguez et al., 2016).

Operational performance refers to the level of improvements in cost, delivery, flexibility and quality. These four operational performance dimensions represent a commonly agreed list of operations competitive priorities (Ward et al., 1998; Krause et al., 2007; Devaraj et al., 2007; Wong et al., 2011) and the main performance objectives for suppliers among Operations and SCM scholars (Monczka et al., 1998; Krause et al., 2000; Liker and Wu, 2000).

3.2.4 Control variables

It was essential to include control variables in the present research owing to their possible associations with the two dependent variables, namely: supplier's internal social performance and buyer's operational performance. The firm size, firm age, relationship length and supplier dependence were included as control variables. The size of firm may affect the company's ability and resources to invest in socially sustainable supply chain practices, which would impact its supplier's social performance and its operational performance (Krause et al., 2007; Walker et al., 2012; Porteous et al., 2015). Moreover, firm age can affect the firm's overall performance. The current literature suggests that older firms have more developed experience in running business as opposed to younger firms (Majumdar, 1997; Coad et al., 2013). As a result, the knowledge, capabilities and skills over the years put them in a better position to run their operations more efficiently than less experienced firms leading to higher productivity (Capasso et al., 2015; Rossi, 2016). Relationship length was controlled for as long-term relationship can develop processes and routines that facilitate achieving relationships outcomes (Villena et al., 2011). Finally, supplier dependence was also included as highly dependent suppliers on buyers (a high portion of their sales is purchased by those buyers) are more willing to invest in social sustainability, which in turn, might affect their social performance (Hoejmose et al., 2013b). Table 3.2 provides the definitions of the conceptual model's constructs.

Table 3.2: Definitions of the conceptual model's constructs

Construct	Definition	Facets	References
SSTPs	Refers to the practices by which buying firm assess, monitor, audit and control supplier's internal behaviours and conducts related to the working conditions, employees' welfare and using child labour within their facilities.	Code of conduct, audits of the health and safety, health and safety questionnaires, certification programme, established guidelines and procedures provide our supplier with feedback.	Klassen and Vereecke (2012); Huq et al. (2016); Sancha et al. (2015); Marshall et al. (2015a)
SSCPs	Refers to the practices, activities, processes and capabilities by which buyers, suppliers and other stakeholders (e.g. customers and NGOs) work together to improve supplier's social performance.	Financial incentives, supplier' facilities visits, training for the supplier and developed new product/processes with our supplier.	Gualandris and Kalchschmidt, (2016); Huq et al. (2016)
Relational capital	Indicates the goodwill that exists between actors and leveraged through a history of repeated interactions.	Trust, obligation, identification, respect and friendship.	Nahapiet and Ghoshal (1998); Villena et al. (2011).
Cognitive capital	"those resources providing shared representations, interpretations, and systems of meaning among parties" (Nahapiet and Ghoshal, 1998).	Shared language and codes and aligned organizational culture, business philosophy, goals and vision.	Villena et al. (2011)
Structural capital	The overall pattern of connections between supply chain partners (Nahapiet and Ghoshal, 1998).	Social interactions ties.	Tsai and Ghoshal (1998); Roden and Lawson (2014)
Supplier's internal social performance	Refers to the working conditions, human rights compliance and the use of child labour in the suppliers' premises.	Working conditions; child labour and human rights.	Sancha et al. (2015); Yawar and Seuring (2015).
Buyer's operational performance	The level of improvements in cost, delivery, flexibility and quality buyer has achieved as a result of implementing socially sustainable supply chain practices with suppliers.	Cost, delivery, flexibility and quality.	Krause et al. (2007)

Source: Compiled by the author

3.3 Theoretical foundations

The current study draws on three well-established theoretical perspectives to address the research questions, namely: Transaction Cost Economics, the Relational View and Social Capital Theory. The following subsections provide an overview of, and the rationale for, adopting these theoretical foundations.

3.3.1 Transaction Cost Economics

The idea of "transaction costs" was first discussed in Coase's (1937) work, *The Nature of the Firm*, in which the author provided an initial thought on the conditions that favour internal and/or external (outsourcing) accomplishment of a firm's economic activities. Subsequently, this drove several scholarly works, and in particular, the work of Williamson (1975, 1979) has made a major contribution to the development and study of Transactions Costs Economics (TCE) theory. According to this theory, hierarchical structure refers to performing an economic activity within the organisation, whilst market structure indicates when a transaction is performed by an external provider (Geyskens et al., 2006). While these structures represent the two

common modes of performing an economic activity, a hybrid mode (a mixture of both) can also be used (Williamson, 1991). The core tenet of TCE is that due to information asymmetry, uncertainty, bounded rationality and opportunistic behaviours of human actors, carrying out an economic (transaction) activity with an external partner might generate additional costs (Rindfleisch and Heide, 1997; Grover and Malhotra, 2003). The greater these conditions, the higher will be the costs associated with organising a transaction with an external provider. As a result, performing the economic activity in-house (hierarchy) is more efficient than seeking an external outsourcer (market). TCE has been criticised for neglecting the role of social relations and norms embedded in the exchange relationship which can curb partner's opportunism and hence reduce transaction costs (Dyer and Singh, 1998). Nevertheless, the broad applicability of TCE to study a variety of exchange relationships has led to the increasing use of this theory in different fields including Operations and SCM (Grover and Malhotra, 2003; Geyskens et al., 2006; Williamson, 2008).

This study prediction of the positive impact of SSTPs on supplier's internal social performance is consistent with the reasoning of TCE theory. Based on TCE, firms craft contracts and establish monitoring in order to reduce opportunism and ensure compliance with agreements (Grover and Malhotra, 2003). Simply put, opportunism is 'self-interest seeking with guile' (Williamson, 1985; p. 47). In inter-organisational relationships, opportunism refers to "the act or behaviour performed by one party to seek its unilateral gains at the expense of the other by breaking implicit or explicit contracts, abusing power, withholding or distorting information, withdrawing commitments or promises, shirking obligations, or grafting joint earnings" (Luo et al., 2015; p. 609). Recent research has shown that suppliers may increasingly transfer the continual cost pressure from buyers to workers by eroding workers' welfare, reducing investments in working condition improvements and employing children in their facilities (Jiang, 2009a; Alwaysheh and Klassen, 2010; Sancha et al., 2016). These violations of the social obligations and expectations specified by buyers represent forms of supplier's opportunistic behaviours (Jiang, 2009a; Huq et al., 2014; Sancha et al., 2016). Therefore, buyers can employ different SSTPs to prevent suppliers from behaving opportunistically. SSTPs reflect heavy monitoring and contract specifications (i.e. code of conduct), which arguably lead to less violation and thus improved supplier's internal social performance.

3.3.2 Relational view

The Relational View (RV) was introduced in a seminal article by Dyer and Singh (1998) and has been later extended by Lavie (2006). The recognised limitation of the alternative existing models (industry structure and resource-based views) to explain the source of competitive advantage related to inter-organisational arrangements has led to the emergence of the RV. While the industry structure view explains firm's abnormal performance in an industry with specific structural attributes (Porter, 1980), and the resource-based view (Barney, 1991) explains firm's superior returns with resources heterogeneity, the RV contends that idiosyncratic inter-organisational linkages are a source of relational rents. Relational rent is "a supernormal profit jointly generated in an exchange relationship that cannot be generated by either firm in isolation and can only be created through the joint idiosyncratic contributions of the specific alliance partners" (Dyer and Singh 1998, p. 662). Dyer and Singh (1998) argue that relational rent from an interfirm relationship stems from: (1) relationship-specific assets; (2) knowledge-sharing routines; (3) complementary resources/capabilities; and (4) effective governance. Given its focus on an inter-organisational level of analysis, RV is now gaining momentum in a variety of management fields including strategic management, international business, marketing and SCM. In particular, RV has become a focal theoretical perspective in studying a variety of inter-organisational relationships including strategic alliances (e.g. Leischnig et al., 2014), joint ventures (e.g. Steier, 2001), distribution channels (e.g. Skarmeas et al., 2016) and buyer-supplier relationships (e.g. Whipple et al., 2015).

The RV was found to be a suitable theoretical perspective since the current study aims to examine a phenomenon at an inter-organizational level. Moreover, the argument of the positive impact of SSCTs on both supplier's internal social performance and buyer's operational performance is in line with the logic of the RV. Specifically, the RV argues that superior performance can be obtained in an inter-organisational relationship, if partners commit relationship-specific assets, establish knowledge sharing routines and provide complementary resources/capabilities. SSCPs represent interaction routines established between buyer and supplier that foster mutual learning, resource sharing and knowledge exchange, enabling suppliers to build specific capabilities to improve their social performance (Gualandris and Kalchschmidt, 2016). Therefore, it reasonable to argue that SSCPs can lead to increase

in supplier's internal social and buyer's operational performance as a result of their inter-organisational collaboration.

3.3.3 Social capital theory

Social capital theory (SCT) has been explored within different settings including interpersonal relationships (Coleman, 1988), communities (Pretty, 2003), inter-organisational units (Tsai and Ghoshal, 1998) and inter-organizational networks (Wang, 2013). The broad applicability of SCT to multiple levels of analysis has led to increasing use of the theory to examine inter-organisational relationships in a variety of disciplines including SCM. It is only relatively recently that SCT has begun to receive growing interest at the inter-organisational level, including at the level of the supply chain (Krause et al., 2007; Pillai et al., 2017). The core logic of SCT is that networks of relationships and connections represent important resources that facilitate the conduct of social affairs between actors (Uzzi, 1996; Burt, 1997; Nahapiet and Ghoshal, 1998; Portes, 1998). SCT is an important theoretical lens, which is useful for examining relationships between buyers and suppliers (Roh et al., 2013). Across the SCM field, there is growing recognition of the importance of SCT when examining the buyer-supplier relationship. SCT provides an opportunity for increased understanding of supply chain relationship complexities (Krause et al., 2007; Lawson et al., 2008; Carey et al., 2011), their dynamic nature (Roden and Lawson, 2014; Petersen et al., 2008; Wanger, 2011) and associated uncertainty (Wang, 2013; Elfenbein and Zenger, 2014).

At the supply chain level, recent research has started to emerge highlighting the role and outcomes of social capital in supply chain relationships. It has been suggested that the accumulation of different dimensions of social capital in buyer-supplier relationship can facilitate different aspects and events in the relationship. Relational capital has been shown to reduce opportunism (Wang et al., 2013; Lioliou and Zimmermann 2015) facilitate relationship learning (Chang and Gotcher, 2007; Huikkola et al., 2013), knowledge sharing (Li et al., 2014) and the development of absorptive capacity (Wang and Li, 2016). Cognitive capital has been shown to be positively associated with strategic (Villena et al., 2011; Gelderman et al., 2016) and operational performance (Krause et al., 2007). It also fosters the development of absorptive capabilities (Unal and Donthu, 2014) and increases buyer responsiveness

to meet customers need (Bernardes, 2010). Higher levels of structural capital between supply chain partners has been shown to reduce opportunism (Wang et al., 2013; Lioliou and Zimmermann, 2015) and enhances knowledge sharing (Hung et al., 2014), supply chain integration (Yim and Leem, 2013), supply chain resilience capabilities (Johnson et al., 2013) and innovation capability (Kulangara et al., 2016).

These findings of the research summarised above provide support for the application of SCT to buyer-supplier relationship in the context of socially SSCM implementation. That is to say, that social capital dimensions stimulate frequent communication and knowledge sharing facilitates joint activities and can increase resource commitment within the relationship – all of which are key aspects of being able to successfully implement SSSC practices. Therefore, it is reasonable to argue that social capital dimensions facilitate the implementation of socially sustainable supply chain practices (SSTPs and SSCPs). More specifically, social capital dimensions (i.e. relational, cognitive and structural) moderate the relationship among SSTPs, SSCPs and supplier's internal social performance.

3.4 Hypotheses development

The relationships set out in the conceptual model are developed in four sections. The first section associates SSSC practices (SSTPs and SSCPs) with supplier's internal social performance. The second section develops the relationship between SSSC practices (SSTPs and SSCPs) and buyer's operational performance. The third section establishes the proposed moderating effects of the social capital dimensions on the relationship among SSTPs, SSCPs and supplier's internal social performance. The final section links supplier's internal social performance to buyer's operational performance.

3.4.1 SSSC practices and supplier's internal social performance

In SSTPs, objectives are specified, performance is audited, feedback is provided, progress is monitored, and rewards and punishments are administered to align suppliers' behaviour with buyers' social criteria (Klassen and Vereecke, 2012; Porteous et al., 2015). The growing literature on the social dimensions along with significant anecdotal evidence suggests that SSTPs (i.e. the compliance paradigm) towards sustainability is less likely to lead to observable progress. In an analysis of social and green supply chain practices, Hollos et al. (2012) found that the social

practices (certification and compliance) had no effect on cost reduction and operational performance of suppliers. This outcome was recently also observed by Marshall et al. (2016) who found that the use of process-based practices (monitoring and auditing) had no influence on supplier's performance. Yu (2008) examined the impact of the implementation of a code of conduct on supporting labour standards (i.e. low-wage payment, freedom of association and collective bargaining) at Reebok's suppliers in China. Their findings from semi-structured interviews demonstrated that corporate social responsibility (CSR) policy and the code of conduct were ineffective in addressing the social issues, and had even been related to an increase in the overall level of violations by suppliers. Huq et al. (2014) observed that buyer's monitoring and enforcement of a code of conduct can drive suppliers to hide workplace violations and pursue instead mock compliance behaviours. Similarly, using data from non-compliant and compliant Chinese apparel and textile suppliers, Jing (2009a) revealed that buyer-to-supplier governance (i.e. auditing and monitoring) has no effect on supplier compliance to codes of conduct. More recently, in what appears to be the first dedicated examination of supplier's social performance, Sancha et al. (2015) found that the use of assessment practices by buying firm was not effective in enhancing supplier's social performance. Taking the supplier's perspective, Lee (2016) found that responsible supply chain social practices (i.e. auditing and code of conduct) lead to improve supplier's social performance. Likewise, Zhang et al. (2017) found that using standard operating procedures and auditing (indirect supplier development practices) does improve supplier social responsibility. However, due to conflicting results and limited empirical studies, and in line with TCE theory, the study proposes that:

***H1a.** SSTPs positively influence supplier's internal social performance.*

Unlike SSTPs, SSCPs aim to reverse deteriorations in supplier's social performance by investing in enhancing their capabilities and opening up new market opportunities by developing new product and services (Marshall et al., 2015a; Huq et al., 2016). In addition to their positive impact on the economic performance of supply chain partners (Klassen and Vereecke, 2012), SSCPs have also been shown to drive social improvements in suppliers' employee welfare (Sancha et al., 2016), providing clear support for the effectiveness of the collaborative paradigm, as opposed to the

compliance paradigm. Collaboration facilitates the formation of interaction routines enabling the exchange of assets and knowledge towards tangible and effective improvement of environmental and social performance throughout the supply chain (Gualandris and Kalchschmidt, 2016). Based on the resource-based view, Sancha et al. (2015) found that buyer-supplier social sustainability joint-efforts and training sessions promote mutual learning and knowledge exchange, enabling suppliers to build specific capabilities to improve their social performance. Likewise, Jiang (2009b) found that close collaboration between buyer and supplier through training and incentives increases supplier's compliance with codes of conduct. Sancha et al. (2016) found evidence that buyers' direct collaborative involvement and sustainability investment in suppliers increased their compliance with human rights, reduced child labour employment and improved safety and labour conditions. In their longitudinal study of multinational buyers and their developing countries suppliers, Huq et al. (2016) discovered that buyers establish the foundation for improved social conditions, and hence supplier's internal and external social performance, by collaborating with suppliers rather than using third-party auditors. Training for suppliers is strongly associated with a reduction in supplier's environmental and social violations (Porteous et al., 2015). Based on the above this study proposed the following:

H1b. SSCPs positively influence supplier's internal social performance.

3.4.2 The joint effect of SSTPs and SSCPs on performance

In addition to the individual impact of SSTPs and SSCPs, the conceptual model further examines the interaction effect of the joint implementation of SSTPs and SSCPs on supplier's internal social performance. Here, the argument is that a buyer should implement either SSTP or SSCP practices with supplier and should not implement these practices simultaneously.

The assessment practices of supplier's social compliance have been found to be antecedents to the collaboration practices (Sancha et al., 2016). Buying firms can use evaluation and assessment activities to identify suppliers' deficiencies and improvement needs before they subsequently direct their collaborative investments (e.g. training) to improve suppliers' green performance (Gimenez and Sierra, 2013). Thus, SSTPs provides buyer information that helps to reveal failures of suppliers at an early stage before corresponding corrective actions are initiated (Akamp and Müller,

2013). Supplier sustainability risk assessment determines subsequent sustainability risk mitigation actions and supplier development needs (Foerstl et al., 2010). Similarly, in supplier development economic literature, indirect supplier development practices were found to be enablers to and precedes the direct practices improving supplier performance (e.g. Giunipero, 1990; Krause et al., 2000; Modi and Mabert, 2007). For example, Modi and Mabert (2007) found that supplier's evaluation and certification efforts are supplier development prerequisites, and should be used before undertaking operational knowledge transfer activities such as site visits and supplier education and training. Likewise, Krause et al. (2000) pointed out that firms should use supplier assessments and incentives strategies as key enablers of supplier direct development efforts. Similarly, Wagner (2010) found a detrimental effect of applying the indirect and direct supplier development activities simultaneously on supplier's operational performance and capabilities improvement. Wagner (2010) argued that when firms move from indirect supplier development activities to more direct involvement, the goals of development programmes become less clear, equivocal and unmeasurable, therefore, when buyers implement both direct and indirect activities at the same time, the process and motivation of supplier toward meeting buyer's goals will be affected as these goals become fuzzy. Based on the above discussion this study proposes the following:

H1c. *The joint implementation of SSTPs and SSCPs is negatively related to supplier's internal social performance.*

3.4.3 SSSC practices and buyer's operational performance

SSTPs are essential tools to assess supplier's performance and identify areas for corrective actions and improvement (Zhang et al., 2017). The assessment process is undertaken to evaluate the extent to which suppliers conform to the societal expectations formulated in buyer's criteria (i.e. codes of conduct), stipulated in regulations or pre-specified in international standards (Mamic, 2005; Ciliberti et al., 2009; Klassen and Vereecke, 2012). This process involves the exchange of information and inputs from both buyer and supplier (Grosvold et al., 2014; Sancha et al., 2016). Using assessment activities to promote social awareness among suppliers by the company increases its employees' satisfaction as it signals its commitment of social responsibility (Sancha et al., 2016). Others have argued (e.g. Lim and Phillis,

2008; Eltantawy et al., 2009) that CSR compliance would benefit the entire supply chain by enhancing the global image of the focal company. Moreover, using third-party audit onsite can lead to the identification and reporting of safety and quality issues in order to improve any of the manufacturing processes of the suppliers (Klassen and Vereecke, 2012). Based on the above discussion it posited that:

***H2a.** SSTPs positively influence buyer's operational performance.*

SSCPs build a bridge by opening two-way dialogue and interaction routines between buyer and suppliers to jointly address social issues (Jiang 2009a; Klassen and Vereecke, 2012; Gualandris and Kalchschmidt, 2016). Social sustainability joint-efforts and training sessions promote reciprocal learning and knowledge exchange between buyer and supplier (Sancha et al. 2015). Capability development improves the efficiency of processes through the achievement of performance targets such as reduced costs, better quality and flexibility and shorter lead times (Krause et al., 2007). Joint actions through cooperation between buyer and supplier lead to increase operational effectiveness of the buyer in the form of lower cost and increased quality (Li et al., 2007). Engaging in social responsibility practices with suppliers can lead to an increase in revenues through reduced supply chain costs (Joo et al., 2010; Klassen and Vereecke, 2012). In their study of Spanish manufacturing companies, Sancha et al. (2016) found that supplier social development practices in the form of training and collaboration were positively related to buyer's operational performance because such observable and significant efforts towards social responsibility firm increases employees' motivation and productivity. Carter and Jennings (2002a) conducted semi-structured interviews with logistics managers and found that organisations can get several positive outcomes from implementing Logistics Social Responsibility including improved employee's job satisfaction and motivation. This, in turn, can result in higher employee retention and thus improve the productivity of the overall company. Marshall et al. (2016) revealed that market-based practices (collaboration) implemented by first-tier suppliers (the focal company) with their second-tier suppliers can generate performance benefits. Based on the above findings, and in line with the argument of the RV, it is hypothesised that:

***H2b.** SSCPs positively influence buyer's operational performance.*

3.4.4 The moderating effect of social capital

The conceptual model incorporates a moderating effect of social capital dimensions (i.e. relational, cognitive and structural capital) on the relationship between SSSC practices (SSTPs and SSCPs) and supplier's internal social performance. In other words, the model posits that social capital supports and hence generates an efficient implementation of SSSC practices. More specifically, the ability of SSSC practices to increase supplier compliance and subsequently increase performance is affected by the level of social capital embedded in the buyer-supplier relationship. This line of reasoning is consistent with the complement view of relational governance. However, the extant literature on relation governance is primarily limited to trust and social norms (Cao and Lumineau, 2015). The study suggests that social capital provides a more holistic social governance mechanism and complements SSSC practices in driving suppliers to comply, while simultaneously improving relationship outcomes.

Two conflicting views have emerged on the role of relational and formal governance and their interrelationship in governing inter-organisational exchange. Based on social and relational exchange theories, the substitution view argues that inter-organisational trust and norms can act as a self-enforcement mechanism that rules out the use of costly formal governance mechanisms (Gulati, 1995; Dyer and Singh 1998; Wuyts and Geyskens, 2005). On the other hand, the complement view essentially contends that the best outcomes of any exchange relationship can only be achieved by a simultaneous emphasis on using formal governance arrangements and relational governance (Poppo and Zenger, 2002; Gulati and Nickerson, 2008; Liu et al., 2009). The logic behind the complement view holds that relational and formal governance are both deficient on their own. As a result, the proponents of this view suggest a positive reciprocity relationship between relational governance (i.e. trust and norms) and formal governance mechanisms (Poppo and Zenger, 2002). That is, relational governance overcomes the deficiency of transactional contracts, and vice versa (Liu et al., 2009).

3.4.4.1 The moderating effect of relational capital

In this study, it is posited that relational capital is likely to strengthen the relationship between SSSC practices and supplier's internal social performance. SSTPs involve measuring and monitoring supplier's performance that requires the exchange of

information and inputs from both buyer and supplier (Grosvold et al., 2014; Sancha et al., 2016). Building relational capital fosters the exchange and transfer of information and know-how (Kale et al., 2000). It also increases the accuracy, adequacy and credibility of the exchange of information in buyer-supplier relationships (Li et al., 2014). Likewise, trust and expectations can ensure rapid and timely access to information and resources (Johnson et al., 2013; Adler and Kwon, 2002). Relational capital reduces uncertainty in the relationship (Poppo and Zenger, 2002; Lioliou and Zimmermann, 2015), which leads to a more efficient performance evaluation process for relationships with partners (Wuyts and Geyskens, 2005). Building trust makes parties more inclined to openly communicate and display transparent practices (Kale et al., 2002; Villena et al., 2011), which reduce the likelihood of opportunistic acts (Ciliberti et al., 2009). Norms represent critical social control in a buyer-supplier exchange where goals are not well-defined and include subjective performance (Cannon et al., 2000). Moreover, relational capital enables joint sense-making between supply chain partners, which can develop a shared understanding and fit between their expectations and requirements (Huikkola et al., 2013). The continuity and cooperation encouraged by the trust may generate contractual enhancements that pave the way for even more cooperation (Poppo and Zenger, 2002) and reduces coordination costs (Nahapiet and Ghoshal, 1998). Transaction costs and opportunism are at a minimum when trust and relational norms operate in conjunction with formal governance (Gulati and Nickerson, 2008; Liu et al., 2009). Based on the above, the study proposed the following:

***H3a.** Relational capital moderates the relationship between SSTPs and supplier's internal social performance in such a fashion that the positive effect of SSTPs on supplier's internal social performance is stronger when buyer-supplier relationship has higher levels of relational capital.*

One of the critical challenges in implementing socially responsible practices with suppliers is the ability of buyers to solve problems quickly (Klasesn and Vereecke, 2012). When unexpected events come to the surface, relational norms help both buyer and supplier resolve issues faster and achieve their performance targets (Liu et al., 2009). Initiating capability development and training programmes on social issues requires conducting joint activities with suppliers (Klasesn and Vereecke, 2012).

Trust between buyer and supplier contributes to the efficiency of joint operational activities and on-site supplier visits (Liao et al., 2012; Blonska et al., 2013). Moreover, mutual trust can help focal companies to improve collaboration with suppliers (Lawson et al., 2008) and facilitates collective actions (Coleman, 1990). Furthermore, relational capital decreases heterogeneity among supply chain partners and generates a mutual understanding of the value of capability development (Blonska et al., 2013). SSCPs require the exchange of, and investment in, resources and technical skills (Klasesn and Vereecke, 2012). Trust and close interaction with supply chain partners can lead to relationship learning (Chang and Gotcher, 2007) and enables the institutionalisation of knowledge in relationship structures and working procedures (Huikkola et al., 2013). Moreover, relational capital enhances the exchange of tangible and intangible resources among supply chain partners (Yim and Leem, 2013) and can increase their motivation and commitment in the relationship (Kohtamäki et al., 2012). Furthermore, relational capital reduces the risk associated with investments in supplier capability development (Blonska et al., 2013) and provides the confidence to make such investments (Chang and Gotcher, 2007). Trust also reduces governance costs by facilitating the necessary adaptations in supply chain relationships (Gulati and Nickerson, 2008). In the context of sustainable supply chains, Gualandris and Kalchschmidt (2016) found strong evidence of the role of trust in governing relationships and enhancing supplier's sustainability performance. In sum, relational capital will not only facilitate the transfer of information and resources, but also reduces governance costs associated with implementing SSSC practices. Therefore, the study proposed the following:

***H3b.** Relational capital moderates the relationship between SSCPs and supplier's internal social performance in such a fashion that the positive effect of SSCPs on supplier's internal social performance is stronger when buyer-supplier relationship has higher levels of relational capital.*

3.4.4.2 The moderating effect of cognitive capital

Cognitive capital, represented by shared goals, representations, interpretations and systems of meaning among supply chain parties (Nahapiet and Ghoshal, 1998) is expected to strengthen the relationships between SSSC practices and supplier's internal social performance. The establishment of goal congruence between buyers

and suppliers is an efficient mechanism to drive suppliers to comply with social sustainability standards (Pedersen and Andersen, 2006). The process of supplier's social monitoring and auditing entails buyers to collect and process information from suppliers and set objectives for suppliers to achieve (Klasesn and Vereecke, 2012; Huq et al., 2016). Shared vision creates a comparable understating between supply chain partners of how they should interact with one another (Inkpen and Tsang, 2005). A common language facilitates communication and helps in setting explicit rules of coordination in supply chain relationships (Hughes and Perrons, 2011; Johnson et al., 2013). Moreover, the supplier's ability to receive and interpret the requirements from the focal company is one of the key aspects of successfully implementing social responsibility (Andersen and Skjoett-Larsen, 2009). Shared goals and cognition provide a common understanding for supply chain members of what would represent improvements and how they can be achieved (Krause et al., 2007; Carey et al., 2011) as it enables partners to develop an understanding of each others' operations and processes (Lioliou and Zimmermann, 2015). Moreover, shared values and a common language and values facilitate the process for buyers to assess partner's activities (Wang et al., 2013) and monitor performance (Lioliou and Zimmermann, 2015). According to Klasesn and Vereecke (2012), when SC partners have a similar culture and understanding, this will lead to less monitoring and more precise reporting of supplier's social performance. Likewise, a similar culture and shared norms can enable a procedural justice that reduces the need for heavy monitoring and leads to better supplier compliance (Boyd et al., 2007). Therefore, the study proposes:

***H4a.** Cognitive capital moderates the relationship between SSTPs and supplier's internal social performance in such a fashion that the positive effect of SSTPs on supplier's internal social performance is stronger when buyer-supplier relationship has higher levels of cognitive capital.*

Social capital provides direction for organisations to build supply chain capabilities (Matthews and Marzec, 2012). The implementation of CSR best practices with suppliers entails organisations in improving the depth of knowledge sharing and the embeddedness of jointly valuable practices (Gallear et al., 2012). A shared vision can help network members to integrate knowledge (Inkpen and Tsang, 2005) and exchange resources (Tsai and Ghoshal, 1998; Pinheiro et al., 2016). Moreover, shared

vision increases the quality and accuracy of the shared information between buyer and supplier (Li et al., 2014). Cognitive capital through common goals and expectations was found positively related to the development of absorptive capabilities between exchange partners (Unal and Donthu, 2014). A common understanding and approach to the achievement of relationship tasks enhance the collaboration capability of SC partners (Johnson et al., 2013; Lioliou and Zimmermann, 2015). Initiating capability development and training programmes require conducting joint activities with suppliers (Klasesn and Vereecke, 2012). Shared cognition can result in more efficient and effective processes (Bernardes, 2010) and facilitates collective actions of partners (Coleman, 1990). Cognitive capital reflects a mutual commitment and agreed norms which can serve to support supply chain relationship and increase the willingness of partners to jointly improve performance (Son et al., 2016). Buyer-supplier collaboration on sustainability issues requires the exchange of, and investment in, resources and technical skills (Klasesn and Vereecke, 2012). When a high level of shared values is manifested in the relationship; a supplier will be unlikely to take advantage of a buyer (Wang et al., 2013; Lioliou and Zimmermann, 2015). As a result, supply chain partners will be willing to commit resources and investment to the relationship. The spread of socially responsible practices among supply chain partners will be smoother when they share compatible goals (Gallear et al., 2012). Based on the above the study proposes:

***H4b.** Cognitive capital moderates the relationship between SSCPs and supplier's internal social performance in such a fashion that the positive effect of SSCPs on supplier's internal social performance is stronger when buyer-supplier relationship has higher levels of cognitive capital.*

3.4.4.3 The moderating effect of structural capital

This study also posits that structural capital, which is supported by social interactions, will exert a moderating effect on the relationship between SSSC practices (SSTPs and SSCPs) and supplier's internal social performance. In SSTPs, objectives are put in place, progress is monitored, performance is audited, feedback is provided and rewards and punishments are administered to align suppliers' behaviour with buyers' criteria (Klasesn and Vereecke, 2012; Porteous et al., 2015; Sancha et al., 2015). This process, therefore, requires the gathering and processing of information from both

buyers and suppliers (Grosvold et al., 2014). Information asymmetries between buyer and supplier can present an obstacle to implementing socially responsible supply chains (Ciliberti et al., 2009). Social interactions offer a context for buyers and suppliers to share information and identify gaps that may exist in current work practices (Carey et al., 2011). Moreover, the supplier's ability to receive and interpret the requirements from the focal company is one of the key aspects of successfully implementing social responsibility (Andersen and Skjoett-Larsen, 2009). Social interaction reduces uncertainty in the relationship by increasing the buyer's opportunities to evaluate the partner (Wang et al., 2013). Moreover, establishing open communication with suppliers encourages compliance with social codes of conduct (Jiang, 2009b). Structural capital is argued to improve communication between supply chain partners and fosters a better understanding of each other's key processes and operations (Son et al., 2016). Maintaining high levels of structural capital enables supply chain partners to clarify the objectives of their arrangements, and explain the expectations and obligations of each partner (Lioliou and Zimmermann, 2015). Moreover, social interactions provide more possibilities and conduits to exchange information and resources with partners (Tsai and Ghoshal, 1998) and increase the opportunities for connection (Wang et al., 2013). Furthermore, social interaction ties can increase the speed and content of information transfer between supply chain members (Johnson et al., 2013; Li et al., 2014) thereby increasing the efficiency of gathering information (Nahapiet and Ghoshal, 1998). Based on the above, the study proposes:

***H5a.** Structural capital moderates the relationship between SSTPs and supplier's internal social performance in such a fashion that the relationship becomes significant and positive buyer-supplier relationship has higher levels of structural capital.*

SSCPs specifically require the exchange of resources and investments between buyer and supplier (Klassen and Vereecke, 2012; Sancha et al., 2015). Intensive social interactions reduce the risk associated with investments in supply chain relationships by deterring partner's opportunism and increasing partners' willingness to allocate resources (Wang et al., 2013). SSCPs also require buyers and suppliers to exchange knowledge on new product development and process redesign helps to guarantee

health and safety for employees (Klassen and Vereecke, 2012; Marshall et al., 2015a), which can efficiently be achieved by absorptive and innovative capabilities. Moreover, engaging in supplier capability development programmes requires the exchange of tacit and complex knowledge between buyer and supplier (Blonska et al., 2013; Krause et al., 2007). Structural capital increases transformation and exploitation capabilities of the new external knowledge (Wang and Li, 2016). Kulangara et al. (2016), similarly, found that structural capital with supply chain partner improves process design and the capability of developing new products. The critical challenges in implementing social responsibility practices with suppliers include the ability of buyers to reduce uncertainty (Klassen and Vereecke, 2012). Initiating capability development and training programmes require conducting joint activities with suppliers (Klassen and Vereecke, 2012). Structural capital strengthens the relationships between buyer and supplier by creating solidarity (Adler and Kwon, 2002), which in turn facilitates a mutual approach to problem-solving and commitment to joint actions (Poppo and Zenger, 2002). Conversely, a lack of social interaction ties makes the acquisition of essential information costly and in some cases impossible (Villena et al., 2011). Furthermore, social disconnections can reduce information diffusion, weaken norms of reciprocity and create a fertile context of competition rather than collaboration (Hughes and Perrons, 2011). Therefore, the study proposes the following:

***H5b.** Structural capital moderates the relationship between SSCPs and supplier's internal social performance in such a fashion that the positive effect of SSCPs on supplier's internal social performance is stronger when buyer-supplier relationship has higher levels of structural capital.*

3.4.5 Supplier's internal social performance and buyer's operational performance

The negative impact of supplier's poor social performance goes beyond impacting the buying firm's reputation and sales by creating potential disruptions in all sourcing process activities, potentially harming their operational performance (Sancha et al., 2015). Supplier's social deteriorations in the form of health and safety violations can affect supplier's internal operations resulting, in extremely circumstances, in factory closure (Porteous et al., 2015; Pullman et al., 2008; Rodriguez et al., 2016). Enhancing

working conditions and safety procedures in the supplier's facilities can, conversely, result in a reduction of potential accidents and thus fewer interruptions in the supply process and fewer delays in product delivery (Freire and Alarcon, 2002; Sancha et al., 2015). Moreover, if the working conditions and welfare of the supplier's workers are enhanced, the quality of the supplied product can improve due to increased employee motivation and retention (Pagell et al., 2010; Huq et al., 2014). The supplier's improved social performance can contribute to the competitive advantage of the supply chain partners and to reduced costs (Klassen and Vereecke, 2012; Sancha et al., 2015; Lee et al., 2017). Cooperation with suppliers on social targets has been found to lead to supplier performance improvements in their product costs, quality and delivery (Akamp and Muller, 2013). Based on the above discussion, it is hypothesised that:

***H6.** Supplier's internal social performance positively influences buyer's operational performance.*

3.5 Summary

This chapter has drawn on TCE, RV and SCT perspectives to set the theoretical foundations for the development of the proposed conceptual framework. The framework suggested a direct individually positive effect of SSTPs and SSCPs on supplier's internal social and buyer's operational performance based on the logic of TCE and RV. It goes further by arguing a detrimental negative effect of the joint implementation of both SSTPs and SSCPs on supplier's internal social performance. Moreover, the framework posits a moderation effect of social capital dimensions (i.e. relational, cognitive and structural) on the relationship between SSSC practices (SSTPs and SSCPs) and supplier's internal social performance which is also supported by the complement view of transactional and relational governance. Furthermore, supplier's internal social performance was argued to have a positive effect on buyer's operational performance.

Chapter 4

RESEARCH METHODOLOGY

4.1 Introduction

This chapter explains the methodology that was used to empirically test the proposed conceptual framework. This chapter begins by highlighting the different research paradigms and the rationale for adopting positivism (section 4.2) before outlining the research reasoning approaches and the rationale for following the deductive approach (section 4.3). It proceeds by presenting the cross-sectional and longitudinal research designs (section 4.4). The chapter continues by discussing the data collection methods (section 4.5). The chapter turns by presenting the study target population and the sampling technique in sections 4.6 and 4.7, respectively. The chapter goes further by presenting the survey development and administration processes in sections 4.8 and 4.9, respectively. Section 4.10 presents the measurement model. Section 4.11 discusses the data analysis techniques employed. The chapter ends by highlighting the ethical considerations that were taken during data collection and providing a brief summary in sections 4.12 and 4.13, respectively.

4.2 Research paradigm

Research paradigm is a “set of interrelated assumptions about the social world which provides a philosophical and conceptual framework for the organized study of that world” (Filstead, 1979, p. 34). The view of the world can be explained from fundamental interconnected ontological, epistemological and methodological assumptions (Guba and Lincoln, 1994). Ontology is concerned with the fundamental nature of reality and being (Neuman, 2011). That is, what is the form and nature of reality and what can be known about that reality? (Ponterotto, 2005). Epistemology, on the other hand, is concerned with the method of acquiring the reality or knowledge and what constitutes an acceptable knowledge (Saunders et al., 2015; Blumberg et al., 2014). That is, how knowledge can be acquired and what is the nature of the relationship between the participant and the researcher? (Ponterotto, 2005; Guba and Lincoln, 1994). Finally, methodology is concerned with how do we know the world or gain knowledge of it? (Guba and Lincoln, 1994). The paradigm guides the scholar in the philosophical assumptions about the inquiry and in the selection of tools, participants, and methods to be used in the research (Denzin and Lincoln, 2000).

The two main competing paradigms that can inform and guide a scientific investigation are interpretivism and positivism (Hudson and Ozanne, 1988; Guba and Lincoln, 1994). The next section briefly explains the two paradigms, discusses their underlying ontological and epistemological assumptions and provides the rationale for adopting the positivist paradigm to guide the current study.

4.2.1 Positivism vs interpretivism

Ontologically, positivists argue that there is one true single social reality that exists independently of what humans perceive (Neuman, 2011), and therefore it is identifiable and measurable (Ponterotto, 2005) by natural sciences laws and principles (Bryan and Bell, 2015). The primary aim of the positivistic inquiry is an explanation by establishing a systematic association of variables underlying a social reality, which enables the prediction and control of that reality (Hudson and Ozanne, 1988). The interpretivists, on the other hand, hold that there are multiple and constructed realities rather than an externally singular reality (Guba and Lincoln, 1994). In other words, the interpretivists contend that there are multiple meanings of reality (phenomenon) in the minds of individuals who experience it (Ponterotto, 2005) because they construct

reality and give it meaning based on context (Hudson and Ozanne, 1988). The main purpose of interpretive research is to understand behaviour and reconstruct the social phenomenon (Guba and Lincoln, 1994). Therefore, in order to fully understand reality, it is essential for researchers to grasp the shared meanings of the context in which was constructed.

Table 4.1: The assumptions of the positivist and interpretivist paradigm

Assumption	Positivist	Interpretivist
Ontological		
Nature of reality	Objective, tangible single fragmentable divisible	Socially constructed Multiple holistic contextual
Nature of social beings	Deterministic reactive	Voluntaristic proactive
Axiological		
Overriding goal	Explanation" via subsumption under general laws, prediction	"Understanding" based on Verstehen
Epistemological		
Knowledge generated	Nomothetic generated Time-free Context- independent	Idiographic Time-bound Context-dependent
View of causality	Real cause exist	Multiple, simultaneous shaping
Research relationship	Dualism, separation Privileged point of observation	Interactive, cooperative No privileged point of observation

Source: Hudson and Ozanne (1988, P. 509)

With respect to the epistemological assumption, the positivist paradigm seeks to identify time- and context-free generalizations based on casual effects (Hudson and Ozanne, 1988). Moreover, the positivists emphasise a dualism and objectivism position (Guba and Lincoln, 1994). Specifically, the researcher and the research participant are assumed to be independent of one another, and by following rigorous, standard procedures, the participant and phenomenon can be studied by the researcher without bias (Saunders et al., 2015). Furthermore, the positivists argue that the reductionist and deterministic approaches are essential to avoid the two-way influence between the researcher and participant (Ponterotto, 2005). In contrast, the interpretivist paradigm strives to study a specific phenomenon in a particular time and context (Hudson and Ozanne, 1988). Therefore, interpretivists promote a transactional and subjectivist position as they claim that reality is socially and experientially constructed (Guba and Lincoln, 1994). Accordingly, the dynamic role of the researcher as a facilitator and his/her interaction with the participant is essential to capture and observe the complex experience of the participant (Ponterotto, 2005). Table 4.1 compares the philosophical assumptions of the positivist and interpretivist paradigms.

4.2.2 The adoption of the positivism paradigm

Having reviewed the philosophical assumptions and the aims underlying the main research paradigms, the positivism paradigm was identified as the most appropriate approach to guide the current study. The decision was mainly driven by the nature of the phenomenon being examined, and it was also shaped by the researcher's ontological and epistemological assumptions.

The positivist paradigm is adopted as the study aims to *explain* and *predict* the impact of SSSC practices (i.e. SSTPs and SSCPs) on supplier's internal social performance and buyer's operational performance. Moreover, the study seeks to examine the moderating impact of social capital dimensions (i.e. relational, cognitive and structural) on the relationship among SSTPs, SSCPs and supplier's internal social performance.

From an ontological stance, the researcher, as a positivist, argues that the implementation of socially SSCM practices exists independently of what humans perceive and, therefore, it is apprehendable, identifiable and measurable by natural sciences laws and principles to predict the causal relationships among the variables identified in the conceptual framework.

From an epistemological position, the researcher believes that being detached from the participants in the current study will lead to reliable conclusions by reducing the bias that may arise directly from the participant (i.e. social desirability) and researcher's (e.g. own perception and interpretation of the informants' answers) interactions as can be the case with the interpretivist approach (Hudson and Ozanne, 1988).

4.3 Research approaches (deductive vs inductive)

Deductive and inductive reasoning are the main scientific approaches by which management researchers use to bridge the gap between assumptions and conclusions (Mantere and Ketokivi, 2013). The deductive reasoning approach, with its roots in the natural sciences, was developed based on the contributions of deductive theory testing (Whewell, 1840; Popper, 1959;) and particularly Hempel's (1965) formulation of the hypothetico-deductive method. In the deduction approach, a conclusion is validly inferred from a set of premises, and must be true if those premises are true

(Malhotra et al., 2012; p. 501). In this approach, the researcher starts the scientific inquiry by developing a theory in the form of a hypothesis that could be verified or falsified by a test on observable data, which could lead to revise the theory (Bryman and Bell, 2015; Saunders et al., 2015). The conclusion must necessarily follow from the premises given (Blumberg et al., 2014).

The inductive reasoning approach, on the other hand, is “an approach to developing (or confirming) a theory that begins with concrete empirical evidence and works toward more abstract concepts and theoretical relationships” (Neuman, 2011; p. 70). Thus, following this approach, the researcher proceeds from data (observations) to conclusions (hypothesis) to theory (Blumberg et al., 2014). Research adopting the inductive approach is likely to be particularly concerned with the context in which the phenomenon being investigated was developed (Saunders et al., 2012). Table 4.2 illustrates the main differences between the deductive and inductive reasoning approaches.

Table 4.2: The major differences between the deductive and inductive approaches

Deduction approach	Induction approach
Scientific principles	Gaining understanding of the meanings humans attach to events
Moving from theory to data	A close understanding of the research context
The need to explain causal relationships between variables	The collection of qualitative data
The collection of quantitative data	A more flexible structure to permit changes of research emphasis as the research progresses
The applications of controls to ensure validity of data	A realisation the researcher is part of the research process
The operationalisation of concepts to ensure clarity of definitions	Less concern with the need to generalise
A highly structured approach	
Researcher independence of what is being researched	
The necessity to select samples of sufficient size in order to generalise conclusions	

Source: Saunders et al. (2009, p. 127)

Based on the evaluation of the merits of the two reasoning approaches and consistent with the positivist paradigm, this study adopted the deductive reasoning approach. As a result, a theoretical framework and a set of hypotheses (theory) have been developed aimed at explaining the different causal relationships among SSSC practices (i.e. SSTPs and SSCPs), social capital dimensions (i.e. relational, cognitive and structural),

supplier's internal social performance and buyer's operational performance. All the concepts were operationalised and the collection of data from a large sample was carried out following a structured approach independent of the researcher. Statistical data analysis was performed to verify the proposed relationships that led to a logical conclusion. Thus, unlike the inductive approach, the deductive reasoning approach adopted in this study enabled the establishment of the foundation of two important goals of any empirical science, namely generalization and prediction (Ketokivi and Mantere, 2010). Moreover, the deductive reasoning approach eliminated the potential bias that may arise from direct researcher involvement in data collection.

4.4 Time horizon (cross-sectional vs longitudinal design)

An integral part of designing scientific research is deciding whether to perform cross-sectional or longitudinal research. The cross-sectional design involves the process of collecting quantitative data on two or more variables from any given sample at a single point in time (Sekaran and Bogie, 2014). On the other hand, the longitudinal design entails the collection of data at two or more points in time (Malhotra et al., 2012; Sekaran and Bogie, 2014; Bryman and Bell, 2015).

Despite the relative advantage of longitudinal design in enhancing casual relationships inference and reducing common method variance, some theoretical and practical issues limit its application in business and management research (Rindfleisch et al., 2008; Bryman and Bell, 2015). Firstly, multiple administration of the questionnaire can pose large additional expenditure particularly in terms of time and cost (Blumberg et al., 2014; Bryman and Bell, 2015). Secondly, carrying out multiple data collection can reinforce social desirability and acquiescence biases (Steenkamp and Baumgartner, 1998; Rindfleisch et al., 2008). Thirdly, collecting data at the second point becomes very difficult due to intervening events (Rindfleisch et al., 2008) and sample attrition through respondent job changes, organisations going out of business and respondents choosing to drop out at later stages of the research (Malhotra et al., 2012; Brayman and Bell, 2015). As a result, the sample representation can largely be affected as those who left the study may differ significantly in some important characteristics from those who remained (Rindfleisch et al., 2008). Finally, the use of longitudinal design is challenging as the start and end dates of some phenomenon are

difficult to determine (Rindfleisch et al., 2008). Table 4.3 summarises the conditions under which both cross-sectional and longitudinal are preferable.

The cross-sectional design has been adopted in this study for several reasons. Firstly, the cross-sectional design is associated with less time and cost (Blumberg et al., 2014). Secondly, the current study examines an inter-firm relationship phenomenon where data is sought from highly educated respondents that are most likely to generate an acquiescence bias (Rindfleisch et al., 2008). Thirdly, the current study examines social capital (i.e. trust) that involves ongoing interactions between organisations, which it makes more difficult to mark clearly with a defined end date (Rindfleisch et al., 2008). Finally, the study employs a different array of measurement scales with various endpoints that help in reducing common method bias (Rindfleisch et al., 2008).

Table 4.3: Guidelines for selecting a survey research approach

Guideline	Cross-sectional survey design	Longitudinal survey design
1. Nature of the key constructs	Concrete and externally oriented	Abstract and internally oriented
2. Likelihood of response biases	Low	High
3. Measurement format and scales	Heterogeneous	Homogeneous
4. Start and end dates	Unclear	Clear
5. Theoretical foundation	Well-developed	Nascent
6. Likelihood of intervening events	High	Low
7. Likelihood of alternative explanations	Low	High
8. Nature of the argument	Between subjects	Within-subjects

Source: Rindfleisch et al. (2008, p. 274)

4.5 Data collection methods

Data can be divided into two types: secondary and primary. Secondary data refer to that information has already been gathered by, and readily available from, other researchers or organisations (Bryman and Bell, 2015). There are different sources of secondary data such as periodicals, government publications, companies' annual reports, census data and the media (Sekaran and Bogie, 2014). On the other hand, primary data refer to information collected first-hand on the aspects of interest for the purpose of the study (Sekaran and Bogie, 2014). The main methods for collecting primary data are interview, observation and survey (Saunders et al., 2012).

4.5.1 Interview

Interview is a method of data collection in which interviewees are asked questions by the researcher (or another person) to obtain information on the issues of interest (Collis

and Hussy, 2014). There are three types of interviews, namely structured interview, semi-structured interview and unstructured interview which can be conducted face-to-face, by telephone or video conferencing (Saunders et al., 2012; Sekaran and Bogie, 2014). In the structured interviews, the interviewer has a set of predetermined questions (interview protocol) to be asked to all selected participants in the same way (Sekaran and Bogie, 2014). In contrast, in the unstructured interviews, the researcher has no prepared questions, but they evolve during the course of the interview (Collis and Hussy, 2014). The purpose of this type of interview is to explore in-depth the phenomenon under investigation (Saunders et al., 2012). In the semi-structured interviews, the interviewer has set of themes and questions to be asked, but additional questions may arise during the interview to elaborate on or explain answers (Saunders et al., 2012).

Although interviews are flexible in terms of adjusting, adapting and changing the questions, several issues hinder its effectiveness as a data collection method. Firstly, interviews are time-consuming and costly to conduct especially when interviewers need to be trained (Sekaran and Bogie, 2014). As a result, interviews are less likely to be used in large-scale studies. Secondly, the lack of anonymity and the unitisation of audio recording may inhibit participant's responses to some questions (Bryman and Bell, 2015; Sekaran and Bogie, 2014). Finally, the interviewer's comments and facial expression during the interview may lead to biased answers by the interviewee (Saunders et al., 2012).

4.5.2 Observations

Observation is a process of monitoring, recording, describing, analysing and interpreting individual(s) activities and behaviours in a natural environment or in a lab setting (Saunders et al., 2012; Sekaran and Bogie, 2014). This process can be structured or unstructured. In structured observations, the researcher uses formulated rules of what behaviours to observe and how they should be recorded (Bryman and Bell, 2015). The aim of the formulated rules is to ensure that each individual's action is systemically recorded to aggregate the action of all participating individuals with regards to each type of action being observed (Bryman and Bell, 2015). In the unstructured observations, on the other hand, the observer has no particular and definite activities or aspects to observe, rather he/she tries to record all actions

(Sekaran and Bogie, 2014). The researcher can observe either through being within or without a part of the setting. In the non-participant observations, the researcher observes individuals' actions without participating in the actions or being involved in the setting where actions take place (Bryman and Bell, 2015). In contrast, in the participant observation, the observer acts as a member of the group setting and records their behaviours.

4.5.3 Data collection method adopted (Survey)

A questionnaire is “a pre-formulated written set of questions to which respondents record their answers” (Sekaran and Bogie, 2014, p. 197). The questionnaire can be administered by telephone, online, face-to-face or mail (Saunders et al., 2012).

The survey has been adopted as the data collection method in this study given the disadvantages associated with interviews and observations methods discussed in the previous sections. In particular, mail survey was found to be the most appropriate method to collect data from the targeted population. The study seeks information from top management staff in large manufacturing companies over all the UK. The main advantage of mail questionnaire is that wide geographical area could be covered in the survey (Saunders et al., 2012). Moreover, using mail survey allows contact with otherwise inaccessible respondents (e.g. CEOs) (Blumberg et al., 2014). Furthermore, a mail survey allows greater anonymity of the respondents than other methods, which helps in reducing bias and enhancing response rate (Zikmund et al., 2013). Additionally, mail survey allows respondents to think, collect facts and consultate with others to answer questions which improves response quality (Blumberg et al., 2014). Finally, mail survey is less expensive compared to face-to-face and telephone (Blumberg et al., 2014).

4.6 Study population

A study population represents the universe of elements from which the sample is to be chosen (Malhotra et al., 2012; Bryman and Bell, 2015). The population elements may include people, events, nations, regions or firms (Sekaran and Bogie, 2014; Bryman and Bell, 2015). The targeted population of this study includes all the large manufacturing companies (>250 employees) with operations based in the UK. The rationale for choosing large manufacturing companies was that they were more capable of investing and implementing socially responsible practices (Wang and

Sarkis, 2013) and they are more likely to generate stronger social and environmental impacts (Gualandris and Kalchschmidt, 2016). The list of all companies in the population from which the sample will be drawn represents the sampling frame (Bryman and Bell, 2015). The Financial Analysis Made Easy (FAME) database served as a sampling frame to obtain the listing of all companies in the population.

4.7 Study sampling and unit of analysis

The complete surveying of every element in the study's population is extremely impractical due to cost, time and access restrictions (Saunders et al., 2012; Sekaran and Bogie, 2014). Moreover, surveying all the population can greatly increase non-sampling error to the point that these errors exceed the sampling errors of a sample (Malhotra et al., 2012; Sekaran and Bogie, 2014). Furthermore, surveying all the population can increase errors and reduce overall accuracy (Barnett, 2002). Thus, given these considerations, surveying a part of the population from which generalisations can be made to the large population is preferable (Burns, 2000).

Deciding on the sampling strategy affects the generalisability of findings and the type of statistical analysis employed (Bryman and Bell, 2015). Therefore, considerable attention should be given to the sampling techniques to be adopted. Sampling techniques are divided into two groups: probability and non-probability techniques which are broken down into different techniques (Malhotra et al., 2012) (see Figure 4.1).

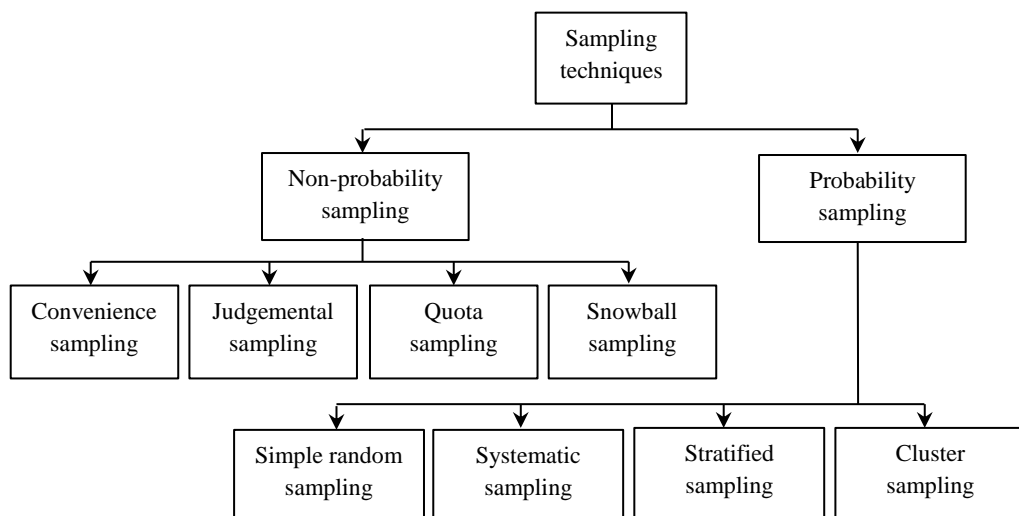


Figure 4.1: A classification of sampling techniques

Source: Malhotra et al. (2012; p. 501)

The non-probability sampling is a subjective selection process in which the chance of including each population element in the sample is unknown (Blumberg et al., 2014). The selection is usually based on the accessibility, certain criteria and categories of the elements (Sekaran and Bogie, 2014). This implies that some elements of the population have more chance to be chosen than others (Bryman and Bell, 2015). Non-probability sampling is more appropriate when the sampling frame is indeterminate and cost and time restrictions are presented (Blumberg et al., 2014). However, the non-probability sampling is widely believed to have more propensity to generate biased sample (Malhotra et al., 2012; Saunder et al., 2012; Bryman and Bell, 2015). Thus, probability sampling design is often recommended as a solution to this limitation.

The core principle of probability sampling is that each element in the population has a known non-zero chance or fixed probability of being selected for the sample (Malhotra et al., 2012; Sekaran and Bogie, 2014). This enables researchers to make statistical inferences (i.e. generalisations) from the sample being studied to the targeted population (Blumberg et al., 2014) and to exert greater control over sampling error (Bryman and Bell, 2015). However, this strategy of sampling is possible when the sampling frame is clearly defined, accurate and up to date (Saunders et al., 2012). Four different alternatives are available under probability sampling as depicted previously in Figure 4.1.

Based on the above assessment of the relative virtues of probability versus non-probability sampling in terms of generalisability and sampling bias, it is clearly indicated that the former is superior to the latter. Therefore, since the generalisability is of critical importance to the current study and the sampling frame is available, probability sampling was adopted. More specifically, stratified random sampling is more appropriate as it provides more detailed information and representation of the targeted population (Saunders et al., 2012; Sekaran and Bogie, 2014).

Stratified random sampling involves a process of stratification or segregation of the population elements by meaningful levels (strata), followed by proportional random or systematic selection of elements from each stratum (Sekaran and Bogie, 2014). However, the stratum should be mutually exclusive and collectively exhaustive in the sense that every population element should be allocated to only one stratum and no population elements should be omitted (Malhotra et al., 2012). Stratification is usually

more efficient statistically than random sampling (Blumberg et al., 2014). Dividing the population into series of relevant strata means that the sample is more likely to be representative and distributed, as you can ensure that each of the strata is represented proportionally within your sample (Saunders et al., 2012; Bryman and Bell, 2015).

Table 4.4: Study sampling

Industry	Population^a	%	Sample^b
Primary Sector (agriculture, mining, etc.)	210	0.092	115
Food, beverages and tobacco	412	0.180	226
Textiles, wearing apparel and leather	84	0.036	48
Wood, cork and paper	86	0.037	47
Chemicals, rubber, plastics, non-metallic products	384	0.168	210
Metals & metal products	272	0.119	149
Machinery, equipment, furniture and recycling	831	0.364	455
Total	2279	100	1250

Note: ^aPopulation in FAME database as of 1 October, 2015; ^bSome of the numbers converted to obtain a whole number.

The stratified random sampling for the current study was performed in six steps. In the first step, all the large manufacturing companies (>250 employees) with full contact details were searched in FAME database. In total, 2279 companies were identified in this step. In the second step, the companies were divided into 7 strata (main industries) using FAME database classification feature as illustrated in Table 4.4. The companies fall into the UK Standard Industrial Classification (SIC) (2007) codes 01-33, 41 and 56. In the third step, the companies in each industry were carefully imported into an Excel sheet and were numbered. The companies were checked several times against the list in FAME database, as an incomplete and inaccurate list can increase coverage error and affect the representation of the study's population (Saunders et al., 2012; Blumberg et al., 2014). In the fourth step, the percentage of each industry in the total population was calculated by dividing the number of companies by the total population (2279). In the fifth step, the number of the required sample from each industry was calculated by multiplying its percentage by the number of the targeted sample (1250). Finally, the required sample from each industry was randomly selected using random numbers generated by online software.

The unit of analysis indicates “the level at which the research is performed and which objects are researched” (Blumberg et al., 2014; p. 172) and subsequently the level of aggregation of the data collected during the data analysis stage (Sekaran and Bogie, 2014). The common levels of analysis in business research are societies, organisations, groups and individuals usually known as SOGI model (Bryman and Bell, 2015) and

at a lower level can be management decisions, transactions or contracts (Blumberg et al., 2014). However, in operations management research they can be individuals, plant, division, or companies a primary product line or a buyer-supplier relationship (Flynn et al., 1990; Rungtusanatham et al., 2003). The unit of analysis in this study is buyer-supplier relationship.

4.8 Survey development

Survey development is a critical step in the research process as it affects the response rate and the quality (reliability and validity) of the collected data (Saunders et al., 2012; Collis and Hussy, 2014). The survey of this study was developed in four stages as depicted in Figure 4.2. In the first stage, a thorough literature review of SSCM, social capital theory and supply chain performance was carried out to select and inform the development of the measurement model (see Section 4.10). In the second stage, the selected measurement items were slightly adapted/adopted to fit the context of the current study. In the third stage, the survey design, all the aspects related to the questionnaire's general appearance, flow and layout, type and format of the questions, cover letter and instructions were carefully considered (Dillman, 2000; Saunders et al., 2012; Bryman and Bell, 2015). In the final stage, an initial draft of the survey was evaluated by experts and pilot tested. The following subsections provide more details on each stage.

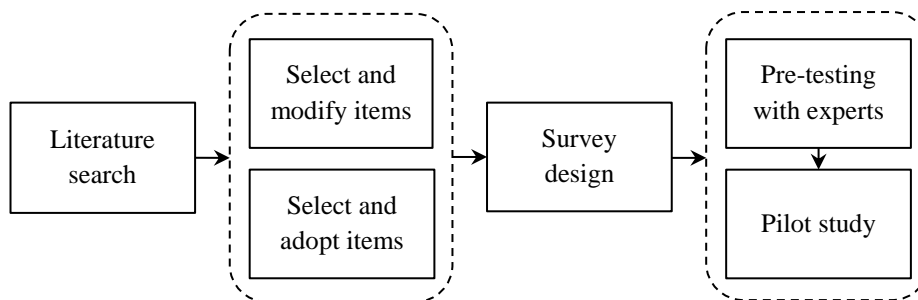


Figure 4.2: The survey development process

Source: Developed by the author

4.8.1 Questionnaire design

The questionnaire was structured into two parts (see Appendix B). Part one provided instructions on how to complete the survey. It also contained questions related to respondent and company general information. Specifically, this part sought information on respondent's job title, experience, industry sector, firm size, firm age

and buyer-supplier relationship length. Part two covered the research model's constructs and was organised into three sections. Section A includes questions related to the level of the implementation of specific SSTPs and SSCPs with a key supplier. Section B incorporated questions regarding the level of social capital (relational, cognitive and structural capital) embedded in the buyer-supplier relationship. Finally, Section C sought the level of supplier's internal social performance and buyer's operational performance.

4.8.1.1 Question type and format

All the survey questions including rating and categorical questions were close-ended questions with a set of fixed alternatives (answers) from which respondents had to select an appropriate one (Saunders et al., 2012). The adoption of close-ended questions was based on several rationales. Firstly, unlike open-ended questions, closed-ended questions are easy for the respondents to complete, which arguably can increase the response rate. Secondly, close-ended questions improve the comparability of answers, which enables the researcher to identify the relationship between variables and to make comparisons between respondents. Finally, the availability of the fixed scales in the close-ended questions helps to clarify the meaning of questions for participants (Bryman and Bell, 2015).

To ensure reliable responses, double-barrelled, leading, general, recall-dependent, long, loaded and ambiguous questions were avoided in the survey (Saunders et al., 2012; Sekaran and Bogie, 2014; Bryman and Bell, 2015).

4.8.1.2 The order and flow of questions

An appropriate sequence of the questions can ensure a respondent friendly-questionnaire (Dillman, 2007). The Funnel Approach suggested by Festinger and Katz (1966) was adopted for positioning the survey questions, which facilitates an easy and smooth progress of the respondent through the questions (Sekaran and Bogie, 2014). Following this approach, the general questions pertaining to the company (e.g. size and age) and respondents (e.g. job title and experience) were placed first after which the specific questions regarding the implementation of SSSPs, social capital and supplier's internal social performance and the buyer's operational performance were positioned. Moreover, the questions were also ordered from those that are relatively

easy to answer to those that are progressively more difficult (or need more cognitive effort).

4.8.1.3 Survey layout

An attractive and well-presented self-completion questionnaire motivates respondents to participate and complete it (Sekaran and Bogie, 2014). Moreover, a simple visual appearance of the questionnaire helps in obtaining valid responses (Dillman, 2007). To ensure a well-presentation and appearance, the questionnaire was printed on a coloured Brunel University headed paper with each specific set of questions having a distinctive colour (see Appendix B). Moreover, the questions were well arranged and aligned (Sekaran and Bogie, 2014). Furthermore, the questionnaire was kept short at five pages length including the cover letter, which considers an acceptable length for within-organisation self-completion questionnaire (Saunders et al., 2012). In addition, at the end of the questionnaire appreciation was stated and a contact name and telephone number were provided (Saunders et al., 2012). It also stated the expected date of completing the study, and asked the respondents to indicate whether s/he would like to receive a brief summary of the study results.

4.8.1.4 Cover letter

The design and content of the cover letter are considered as essential aspects of the survey administration since they play a crucial role in enhancing the response rate (Dillman, 2000; Frohlich, 2002). A one-page letter printed on Brunel University London headed paper, personally addressed and dated with a real signature in contrasting ink was prepared (Dillamn, 2000) (see Appendix B). To ensure an informative letter, different aspects related to the study and respondents were included. Firstly, the letter introduced the questionnaire and highlighted the purpose and usefulness of the study to practice. Secondly, the letter clarified to the participants how they were identified (e.g. source of their contacts details) and that their participation was completely voluntary. Thirdly, the letter pointed out that their responses would be strictly confidential and would be destroyed after completing the data analysis part. Fourthly, the letter offered a brief summary of the study's findings upon respondent's request. Finally, the letter indicated that a prepaid return addressed envelope was enclosed with the questionnaire.

4.8.2 Pilot study

Pre-test and pilot testing are essential parts of the self-completion questionnaire development (Flynn et al., 1990; Bryman and Bell, 2015). The process allows the researcher to determine the adequacy of instructions included in survey to respondents (Bryman and Bell, 2015). It also ensures that the questions are understood by the participants and there is no ambiguity in the questions (Saunders et al., 2012). Furthermore, the pilot study allows quantitative estimates to be made for response rates, item nonresponse and variable distributions (Dillman, 2007).

The survey was pre-tested in two sequential stages (Saunders et al., 2012). In the first stage, an initial version of the survey was evaluated by three academics in the field of Operations and SCM to ensure an acceptable level of face validity. They were asked to comment on the overall appearance, representativeness and suitability of the survey questions. The comments provided enhanced the wording and position of some questions and resulted in adding more information in the cover letter. In the second stage, the revised version was administered online to a small group of typical respondents using a convenience sample from the same population (Flynn et al., 1990). The sample was selected after the main study sample has been chosen. This is particularly important to avoid undermining each company's probability of being selected in the sample when adopting the probability sampling technique (Bryman and Bell, 2015). The respondent's contact email addresses were obtained from FAME database. An email explaining the purpose of the study and a link to the survey was sent to 50 respondents of which 13 filled out the survey. The participants were asked to answer the questions and provide feedback on the general appearance, comprehension and readability of the questionnaire. The process led to the inclusion a definition for social capital construct and to amend the wording of a few questions.

4.9 Survey administration

Studies conducted at the organizational level seeking information from top management representatives are likely to face lower response rate (Baruch and Holtom, 2008). It is the case for scholars in Operations Management field as most of the phenomena being examined are at the firm or the supply chain level (Peng and Lai, 2012). In order to improve the response rate, a number of actions were taken before and during the administration of the survey as follows:

- 1 The questionnaire was printed in colour. A meta-analysis by (Fox et al., 1988) revealed an overall significant increase in response rate associated with a green questionnaire.
- 2 The questionnaire was printed on Brunel University London headed paper and explicitly indicated that the study was being undertaken at the respective university. Research suggests that university sponsorship of the questionnaire may increase the response rate because of the past benefits that the respondents may have received from the university (Dillman, 1978; Presser et al., 1998; Frohlich, 2002). Moreover, Greer and Lohtia (1994) found that mean response rates for a university or academic honour society are significantly higher than those for a marketing research firm or an unidentified sponsor.
- 3 The cover letter accompanying the questionnaire was personally addressed to the relevant respondents. Personalisation may increase response rate by increasing the respondent's feeling that his/her answers are unique and important (Dillman, 1978; Bryman and Bell, 2015).
- 4 The significant importance of the study to the respondents and practice, in general, was clearly established and stated in the cover letter. Respondents' understandings of the importance of their opinions and participation help in increasing the likelihood of survey completion (Rogelberg and Stanton, 2007; Bryman and Bell, 2015).
- 5 Clear instructions, well-written items and attractive layout were carefully organised. Format and physical design of the survey has an effect on the response rate (Fox et al., 1988; Frohlich, 2002; Rogelberg and Stanton, 2007).
- 6 All respondents were promised a brief summary of the results. Research suggests that a promised brief summary of the results can increase response rate (Yammarino et al., 1991; Frohlich, 2002).
- 7 Respondents were assured their anonymity and the confidentiality of their answers. Establishing the anonymity of the respondents can be a useful way to increase response rate in Operations Management research (Flynn et al., 1990).
- 8 A reminder was sent one week after the despatch of the questionnaire to respondents. Rogelberg and Stanton (2007) argue that sending reminder notes to potential respondents beginning 3 to 7 days after survey distribution can increase response rate.

The Tailored Design Method (Dillman, 2000), an updated version of the Total Design Method (TDM) suggested by Dillman (1978), was adopted in administering the questionnaire. Based on research of social exchange principles, TDM provides step-by-step detailed procedures for conducting mail survey. The procedures are for both designing and implementing mail surveys, including from how to order and position questions in the questionnaire to how to fold and address each mailing. Dillman (2007) argued that the considerations and procedures of the communication process have a greater capability effect on enhancing response rate than survey design does.

The TDM suggests five elements for effective administration of the mail survey, namely respondent-friendly questionnaire, five timely contacts, a stamped return envelope, personalization of correspondence and token financial incentives. However, financial incentive was not used as it violates the Research Ethics Code of Brunel University London and it might also violate the ethics of business organisations (Dillman, 2007). Therefore, financial incentive was replaced with a promised brief summary of the study's results. The process by which the survey was implemented is summarised in the following points:

- 1 A brief pre-notice email was sent three days ahead of the despatch of the questionnaire. The purpose of this initial contact was to provide a positive and timely notice that the participant will be receiving a request to help with an important survey. A pre-notice letter enhances response rate (Yammarino et al., 1991) and provides an opportunity to build interest, anticipation and reciprocity (Gupta et al., 2000; Dillman, 2007).
- 2 The questionnaire package has been despatched. This mailing package contained a cover letter, the questionnaire and a pre-paid addressed return envelope.
- 3 A reminder email was sent two weeks later to all participants. The purpose of this gentle reminder was to express appreciation for taking part in the study, remind the respondents that a survey had been sent and to ask if the survey had completed and sent back.
- 4 A follow-up email was sent three weeks later to those who did not complete the survey. Prior experimental studies have indicated that multiple contacts have a more silent role in boosting response rate than other techniques (e.g. Linsky 1975; Dillman, 1991; Schaefer and Dillman, 1998).

4.10 The measurement model

The proposed conceptual model comprises of SSSPs (SSTPs and SSCPs) as independent variables, social capital dimensions (i.e. relational, cognitive and structural) as moderating variables and supplier's internal social performance and buyer's operational performance as dependent variables. A substantial literature advocated the use of existing scales to capture the study's constructs (e.g. Flynn et al., 1990; Frohlich, 2002). The rationale behind adopting prior scales is that their reliability and validity have already been demonstrated (Flynn et al., 1990; Frohlich, 2002; Bryman and Bell, 2015). Moreover, using existing measurements allow the researcher to verify the findings of previous studies and to build on the work of other researchers (Sekaran and Bogie, 2014). Furthermore, selecting scales with established reliability and validity will make the findings more reliable (Flynn et al., 1990). Accordingly, an extensive systematic review of the extant literature on socially sustainable supply chain, social capital and supply chain performance was carried out. Despite the preference of adopting the same measures, a few measurements were slightly adapted to fit the context of the current research.

A critical issue related to the measurement model development process is the specification of the research constructs. The specification of the research constructs is deciding whether to model the construct as formative or reflective. Before discussing the measurement items, the following subsection explains the main differences between formative and reflective constructs, their specification guiding criteria and the consequences of model misspecification.

4.10.1 Formative vs reflective construct

Proper specification of the measurement model is an indispensable step before meaning can be assigned to the analysis of the structural model (Anderson and Gerbing, 1982). Reflective and formative constructs can be differentiated based on three aspects. Firstly, the direction of the causal relationship between the construct and its measures (Bollen, 1989). In the reflective construct, the effect of causality flows from the construct to the indicators (Diamantopoulos and Winklhofer, 2001). Thus, changes in the underlying construct are assumed to cause changes in the measures (Jarvis et al., 2003). In contrast, the formative construct is being caused by the measures (Bollen and Lennox, 1991). In other words, the direction of causality stems

from the measures to the construct. Thus, the measures are assumed to cause changes in the underlying construct (Bollen 1989; Jarvis et al., 2003).

Secondly, reflective and formative constructs can also be differentiated based on the interchangeability of their indicators. Whilst reflective indicators are interchangeable, formative indicators are not (Bollen and Lennox, 1991; Diamantopoulos and Winklhofer, 2001; Jarvis et al., 2003). As a result, discarding one of the formative indicators can substantially change the conceptual domain of the construct (Bollen and Lennox, 1991; MacKenzie et al., 2005). Unlike the reflective indicators, the formative indicators do not covary with each other. Covariation among the formative indicators is not necessary, but covariation among the reflective indicators is a necessary condition (Jarvis et al., 2003). This is due to the fact that reflective indicators are a representative sample of all the potential measures available within the conceptual domain of the construct, while the formative indicators capture different aspects of the construct's domain (Hair et al., 2014b).

Finally, reflective and formative constructs can also be distinguished based on whether their indicators have the same antecedents and consequences or not (Jarvis et al., 2003). Since all of the reflective indicators mirror the same underlying latent construct, they all have the same antecedents and consequences. Contrary, as formative indicators do not necessarily capture the same facets of the construct's domain, a different set of antecedents will impact the indicators to different levels and the indicators are expected to lead to different consequences (MacKenzie et al., 2005). In their study, Jarvis et al. (2003) developed a comprehensive set of conceptual criteria that can be used to model the construct as formative or reflective reported in Table 4.5.

Measurement model misspecification can lead to distorted conclusions regarding the hypothesised relationships. Measurement model misspecification occurs when a formative construct is incorrectly specified as a reflective construct (Jarvis et al., 2003). This leads to the inappropriate use of the classical test techniques (e.g., factor analysis and assessment of internal consistency) to assess the validity and reliability of formative constructs (Bollen and Lennox, 1991; Diamantopoulos and Winklhofer, 2001). This, in turn, can severely bias the structural model parameter estimates which leads to inaccurate inferences about the hypothesized relationships between constructs (Jarvis et al., 2003) and can potentially influence other relationships in the model that

do not involve this construct (Law and Wong, 1999). However, the level of this detrimental effect varies across the types of constructs being misspecified (MacKenzie et al., 2005). When the misspecified construct is an endogenous construct, the variance of the endogenous construct will be decreased, thus deflating the structural parameter estimate of the relationship between this construct and the exogenous construct, and as a result, inflating Type II error (MacKenzie et al., 2005) and Type I error (Petter et al., 2007).

Table 4.5: Decision rules for determining formative and reflective constructs

	Formative model	Reflective model
1. Direction of causality from construct to measure implied by the conceptual definition	Direction of causality is from items to construct	Direction of causality is from construct to items
Are the indicators (items) (a) defining characteristics or (b) manifestations of the construct?	Indicators are defining characteristics of the construct	Indicators are manifestations of the construct
Would changes in the indicators/items cause changes in the construct or not?	Changes in the indicators should cause changes in the construct	Changes in the indicator should not cause changes in the construct
Would changes in the construct cause changes in the indicators?	Changes in the construct do not cause changes in the indicators	Changes in the construct do cause changes in the indicators
2. Interchangeability of the indicators/items	Indicators need not be interchangeable	Indicators should be interchangeable
Should the indicators have the same or similar content?	Indicators need not have the same or similar content/indicators need not share a common theme	Indicators should have the same or similar content/indicators should share a common theme
Do the indicators share a common theme?	Indicators need not share a common theme	Indicators should share a common theme
Would dropping one of the indicators alter the conceptual domain of the construct?	Dropping an indicator may alter the conceptual domain of the construct	Dropping an indicator should not alter the conceptual domain of the construct
3. Covariation among the indicators	Not necessary for indicators to covary with each other	Indicators are expected to covary with each other
Should a change in one of the indicators be associated with changes in the other indicators?	Not necessarily	Yes
4. Nomological net of the construct indicators	Nomological net for the indicators may differ	Nomological net for the indicators should not differ
Are the indicators/items expected to have the same antecedents and consequences?	Indicators are not required to have the same antecedents and consequences	Indicators are required to have the same antecedents and consequences

Source: Jarvis et al. (2003; p. 203)

This research contains ten constructs as indicated in the conceptual model of which only the buyer's operational performance is modelled as a formative construct. In the following subsections, the measurements items of each construct and the rationale

behind specified buyer's operational performance as a formative construct are provided.

4.10.2 Measures of socially sustainable supply chain practices

Socially sustainable supply chain practices (SSSPs) have been classified into two main groups. The first group is termed as socially sustainable transactional practices (SSTPs), while the second group is labelled as socially sustainable collaboration practices (SSCPs). SSTPs and SSCP are first order reflective constructs. The respondents were asked to indicate the level of the implementation of SSSPs with a key supplier ranging from "not implemented=1" to "fully implemented=5". SSTPs were measured using six items based on the work of Marshall et al. (2014) and Lu et al. (2014). The respondents were requested to indicate the extent to which their companies have developed a code of conduct, conducted audits of the health and safety, used certification as an indication of supplier's responsible behaviour, assessed supplier's performance through formal evaluation and provided feedback to supplier.

SSCPs were measured using four items adopted from Jing (2009), Krause et al. (2000), Lu et al. (2014) and Marshall et al. (2014). The participants were asked to indicate the extent to which their companies offer financial incentives for complied suppliers, visit supplier's facilities, provide training and development for supplier and develop a new product that reduced health and safety hazards for employees.

4.10.3 Measures of social capital dimensions

In line with previous studies, all social capital dimensions (i.e. relational, cognitive and structural) are first order reflective constructs, and were measured on a 7-point Likert scale ranging from "strongly disagree =1" to strongly agree=7". Relational capital was measured using five items from Carey et al. (2011) which had been used in previous studies (e.g. Blonska et al., 2013). The participants were asked to indicate if their relationships with suppliers are characterized by close interaction, mutual trust, mutual respect, mutual friendship and mutual reciprocity at multiple levels. Cognitive capital was captured using four items adopted from Villena et al. (2011) to indicate the degree of similarity between buyer and supplier in term of organisational culture, philosophies, goals and vision. Finally, structural capital was measured based on the work of Carey et al. (2011), Li et al. (2014) and Villena et al. (2011). The participants

were asked to indicate if they communicate frequently, maintain personnel interaction and close social relationships and engage in social events with supplier.

4.10.4 Measures of supplier's internal social and buyer's operational performance

Supplier's internal social performance is a first order reflective construct was measured on a 7-point Likert scale ranging from "strongly disagree=1" to "strongly agree=5" using three items adopted from Sancha et al. (2015). It is important to note that Sancha et al. (2015), to the best of the author's knowledge, was the first empirical study to examine supplier's social performance. The respondents were asked to indicate the extent to which they have improved safety and labour conditions, compliance with human rights and child labour employment in the suppliers' facilities as result of implementing specific socially sustainable supply chain practices.

Buyer's operational performance is a first order formative construct, and was measured on a 7-point Likert scale ranging from "strongly disagree=1" to "strongly agree=5" using four items adapted from Krause et al. (2007). The respondents were asked to indicate the level of the improvement in cost, delivery, flexibility and quality as a result of implementing socially SSCM practices with a key supplier. These four operational performance dimensions represent a commonly agreed list of operations competitive priorities (Ward et al., 1998; Krause et al., 2007; Devaraj et al., 2007) and the main performance objectives among SCM scholars (Monczka et al., 1998; Krause et al., 2000; Liker and Wu, 2000).

Buyer's operational performance was specified as a formative construct following Peng and Lai's (2012) assertion that was built based on the four criteria guide provided by Jarvis et al. (2003). Peng and Lai (2012) suggest that operational performance is a multidimensional formative construct consisting of cost, quality, delivery and flexibility for several reasons. Firstly, Peng and Lai (2012) argue that in operational performance, the direction of causality flows from the indicators (cost, quality, delivery and flexibility) to the construct not vice versa. Secondly, they point out that the indicators of a particular operational performance facet (e.g. manufacturing flexibility) are not interchangeable with indicators capturing other performance facets (e.g. cost, quality, or delivery) and vice versa. Thirdly, they contend that operational performance's indicators do not covary with each other. In other words, a change in

one indicator is not necessarily associated with changes in other indicators. Finally, they maintain that different types of antecedents impact various operational performance facets to different levels and that these facets may lead to a different set of consequences.

4.10.5 Control variables

It was essential to include control variables in the research owing to their possible associations with the two dependent variables. We controlled for four sources of heterogeneity: firm size, firm age, relationship length and supplier dependency. Firm size was measured by asking the respondents the total the number of employees in their companies. Firm age was measured by the number of years the company has been in operation. Relationship length was measured by the numbers of years the company has been doing business with the supplier. Finally, supplier dependency, a reflective first order construct, was measured on a 7-point Likert scale ranging from “strongly disagree=1” to “strongly agree=5” using four items adopted from Jap and Ganesan (2000). The participants were asked to indicate to what extent their suppliers are dependent on them. Table 4.6 provides the measurement items of the research model’s constructs.

Table 4.6: Measurement items

Construct	Item No.	Quantitative items		Source
		Original measure	Adapted measure	
Socially sustainability transactional practices (SSTPs)	1	We developed an ethical code of conduct with our key supplier.	-	Marshall et al. (2014)
	2	You conducted audits of the health and safety of their employees.	We conducted audits of the health and safety of our supplier's employees	Marshall et al. (2014)
	3	We sent health and safety questionnaires to our suppliers in order to monitor their compliance.	-	Marshall et al. (2014)
	4	We use a certification programme to recognise the supplier's CSR capability.	-	Lu et al. (2014)
	5	We assess supplier's ethical performance through form evaluation.	-	Lu et al. (2014)
	6	We provide supplier with feedback about the results of such evaluation.	-	Lu et al. (2014)
Socially sustainability collaboration practices (SSCPs)	1	"If we comply with the SCC, we would get incentives from the buyer (e.g., extending or renewing contracts, increasing order volumes, financial rewards, etc.)".	We offer financial incentives for the suppliers if they improve commitment to SCC	Jing (2009)
	2	We visit our suppliers' facilities to help them improve their performance.	-	Krause et al. (2000)
	3	We provide Training /education of the supplier's personnel about CSR practices and the required skills.	-	Lu et al. (2014)
	4	We developed new product/processes with our supplier that reduced health and safety hazards for employees.	-	Marshall et al. (2014)
Relational capital (Rcap)	1	The relationship is characterized by close interaction at multiple levels.	-	Carey et al. (2011)
	2	The relationship is characterized by mutual trust at multiple levels.	-	
	3	The relationship is characterized by mutual respect at multiple levels.	-	
	4	The relationship is characterized by mutual friendship at multiple levels.	-	
	5	The relationship is characterized by high levels of reciprocity.	-	
Cognitive capital (Ccap)	1	We have similar organisational culture /values and management style with supplier	-	Villena et al. (2011)
	2	We have similar philosophies/approaches to business dealings	-	
	3	We have compatible goals and objectives with suppliers.	-	
	4	We have the same vision of business in the relationships	-	
Structural capital (Scap)	1	"To what extent do you engage in the following types of activities with this supplier? Organized social events, joint workshops, cross-functional teams, co-location, team building exercises"	We engage in and organise social events with our suppliers.	Carey et al. (2011)
	2	We have frequent communication with our major supplier	-	Li et al. (2014)
	3	We maintain a frequent and intensive interaction between personnel	-	Villena et al. (2011)
	4	We maintain close social relationships with our major suppliers	-	Li et al. (2014)

(Continued on next page)

Table 4.6 (continued)

Construct	Item No.	Items		Source
		Original measure	Adapted measure	
Supplier's internal Social performance (Sper)	1	We have improved compliance with human rights in the suppliers' facilities	-	Sancha et al. (2015)
	2	We have improved safety and labour conditions in the suppliers' facilities	-	
	3	We have improved compliance with child labour employment in the suppliers' facilities	-	
Buyer's operational performance (Oper)	1	"Our supplier improvement efforts with this supplier has helped reduce our product cost"	We have reduced our product cost.	Krause et al. (2007)
	2	"Our supplier improvement efforts with this supplier has helped improve our product quality"	We have improved our product quality.	
	3	"Our supplier improvement efforts with this supplier has helped shorten the delivery times of our products"	We have shortened our delivery times of our product.	
	4	"Our supplier improvement efforts with this supplier has helped improve our manufacturing flexibility"	We have improved our manufacturing flexibility.	
Supplier dependency	1	If we discontinued our relationship, it would have difficulty for this supplier making up the sales volume in our trading area.	-	Jap and Ganesan (2000)
	2	It would be difficult for this supplier to replace us.	-	
	3	This supplier is quite dependent on us.	-	
	4	This supplier does not have a good alternative to us in our trading area	-	

Source: Compiled by the Author

4.11 Data analysis process and techniques

This section briefly presents the data analysis stages employed and their associated statistical techniques. Data was analysed in four related stages, namely: sample description, data screening, evaluating the measurement model and testing the structural model (i.e. hypotheses testing). Table 4.7 displays the statistical techniques will be used for each stage.

4.11.2 Sample description

This study sought the participation of randomly selected large manufacturing companies based in the UK. To gain a better understanding of the nature of the sample, frequency and descriptive analyses were used. The analysis provides information on the job title of respondents (e.g. operations managers, supply chain managers etc.) and their work experience. Moreover, the analysis provides general information on the participating companies in terms of their size, age, industry sector and relationship length with supplier.

4.11.1 Techniques for screening and evaluating the properties of data

In the data screening stage, missing data was identified and handled, outliers were detected and managed, non-response bias was checked, common method variance was scrutinised and the assumptions of multivariate analysis (i.e. normality, linearity, multicollinearity and homoscedasticity) were examined.

To examine the amount and pattern of missing data, Missing Values Analysis (MVA) was adopted and potential missing data was replaced with the mean values of the same variable that were obtained from valid responses. To spot and handle outliers, the Z-score of the variables were obtained and any value out of the range of ± 3.29 (Tabachnick and Fidell, 2014) was used as an indication of an outlier. To examine potential non-response bias, T-test was used (Armstrong and Overton, 1977). Harman's (1967) single-factor test was applied to check a potential common method variance. Finally, to examine the assumptions of multivariate analysis, kurtosis and skewness were employed to examine normality, while Pearson's correlation, Variance Inflation Factor (VIF) and scatterplots was utilised to assess the linearity, multicollinearity and homoscedasticity, respectively. Specifically, kurtosis and skewness of the study variables within the range of ± 2.58 were considered as an indication of normally distributed data (Tabachnick and Fidell, 2014).

Table 4.7: Data analysis techniques

Data analysis stage and purpose		Type	Technique(s)	Thresholds values	Source(s)
1. Sample description	Handling Missing data	Frequency	Frequency analysis	-	Pallant (2013)
		Pattern of missing	Missing Values Analysis (MVA)	$p \geq 0.5$	Hair et al. (2014a)
		Size of missing data	Frequency analysis	10%	Hair et al. (2014a)
		Replacement method	Mean replacement	-	Hair et al. (2014a)
		Identification of outliers	Univariate	z-score	± 3.29
2. Data preparation	Non-response bias	-	T test	$p \geq 0.5$	Armstrong and Overton (1977)
		Common method bias	-	Harman's single-factor test	Harman (1976)
	Examining the assumptions of multivariate analysis	Normality	Skewness and kurtosis	± 2.58	Tabachnick and Fidell (2014)
		Linearity	Correlations matrix	≥ 0.4	Tabachnick and Fidell (2014)
		Multicollinearity	Variance Inflation Factor (VIF)	≥ 0.5	Hair et al. (2014b)
		Homoscedasticity	Scatterplot	Subjective	Tabachnick and Fidell (2014)
		Reliability	Internal consistency	Cronbach's alpha	≥ 0.7
	Composite reliability			≥ 0.7	Hair et al. (2014a)
	AVE			≥ 0.5	Fornell and Larcker (1981)
	3. Evaluating the measurement model	Validity	Convergent	Standard loadings	≥ 0.7
Fornell and Larcker's criterion				$\sqrt{AVE} > R$	Fornell and Larcker (1981)
Discriminant			Heterotrait-monotrait (HTMT) ratio	≤ 0.85	Henseler et al. (2015)
			Through literature review	Subjective	Flynn et al. (1990)
			Experts' opinions	Subjective	Flynn et al. (1990)
Quality		Multicollinearity	Variance Inflation Factor (VIF)	≥ 0.5	Hair et al. (2014b)
			Outer weights	Multiple regression	$t \geq 1.96$
		Outer loadings	Single regression	$p \geq 0.5$	Hair et al. (2014b)
			Through literature review	Subjective	Flynn et al. (1990)
			Experts' opinions	Subjective	Flynn et al. (1990)
4. Testing the structural model	The model predictive capability, relevancy and effect size.	Capability	R^2	Subjective	Hair et al. (2014b)
		Relevancy	Q^2	$Q^2 > zero$	Geisser (1974); Stone (1974)
		Effect size	f^2	0.02; 0.15; and 0.35 large	Cohen (1988)
	The hypothesised relationships	Direct effects	Multiple regression	$p \geq 0.5$	Hair et al. (2014b)
		Moderation effects	Product-term approach	$p \geq 0.5$	Chin (1998)

Source: Developed by the author

A Pearson's correlation value of >0.4 among the variables was used as evidence for the presence of linearity (Tabachnick and Fidell, 2014). To detect multicollinearity, a VIF value of ≥ 0.5 was utilised as a threshold value (Hair et al., 2014). Homoscedasticity was evaluated using scatterplots where an oval shape of the data was used as an indication of the non-existence of homoscedasticity (Tabachnick and Fidell, 2014).

4.11.2 Assessing the measurement model

Evaluating the measurement model is concerned with the nature of the relationship between the construct and its indicators (Hair et al., 2014b). The measurement model in the present study includes formative and reflective constructs each of which has distinctive characteristics as discussed previously in section 4.10.1. The existing methodological literature has emphasized that the classical test theory (i.e. Cronbach's alpha and factor analysis) for examining the validity and reliability of reflective constructs is inappropriate for formative constructs and alternative techniques should, therefore, be employed to evaluate their quality (Bollen and Lennox, 1991; Diamantopoulos and Winklhofer, 2001; Jarvis et al., 2003; MacKenzie et al., 2005; Petter et al., 2007).

4.11.2.1 Evaluating the reflective measurement model

The quality of the reflective measurement model was assessed in terms of the reliability and validity. Reliability indicates "how" a given construct should be measured, whilst validity represents "what" should be measured (Hair et al., 2014a). Reliability in terms of the internal consistency of the constructs' indicators was examined using Cronbach's α coefficient (Cronbach, 1951) and composite reliability (Werts et al., 1974). A Cronbach's α and composite reliability of 0.7 was used as an acceptable level of internal consistency in confirmatory studies (e.g. Hair et al., 2014a; Nunnally, 1978).

As for validity, three types were assessed, namely: content, convergent and discriminant validity. Content validity was established based on a thorough and systematic review of the relevant literature on the relevant construct to ensure an informed and robust development of the measurement model. Subsequently, the proposed survey was evaluated with experienced academics in the field of Operations and SCM. Convergent validity was examined using standardised factor loadings of the

indicators and the Average Variance Extracted (AVE) of the construct (Hair et al., 2014a). A loading size of 0.7 and AVE of 0.5 indicate a convergent validity (Fornell and Larcker, 1981; Hulland, 1999) were adopted as threshold values. Finally, discriminant validity was assessed using Fornell and Larcker's (1981) criterion and the Heterotrait-monotrait (HTMT) ratio (Henseler et al., 2015). Based on Fornell and Larcker's criterion, a construct can establish discriminant validity when the square root of its AVE value is higher than its bivariate correlation with any other construct (Fornell and Larcker, 1981). On the other hand, according to HTMT ratio method, any ratio exceeding 0.85 among the constructs indicates a lack of discriminant validity (Henseler et al., 2015).

4.11.2.2 Evaluating the formative measurement model

The quality of the formative measurement model was assessed by establishing the content validity, examining the indicators' multicollinearity and the relative and absolute importance of the indicators to their respective constructs (Chin, 1998; Hair et al., 2014b). Similar to the reflective measurement model, the content validity of the formative measurement model was established based on a thorough literature review of the relevant construct to capture all the aspects of the domain of the respective construct. Subsequently, the proposed survey was evaluated with experienced academics in the field of Operations and SCM. The indicators' multicollinearity was assessed using VIF with a value of ≥ 0.5 suggesting non-existence of multicollinearity. The indicators' relative importance was evaluated by examining the size and significance of their outer weights, whilst their absolute importance was assessed by the size of their outer loadings.

4.11.3 Testing the structural model

The previous section described the first step in data analysis by discussing the techniques adopted for evaluating the quality of the measurement model. This section presents the statistical techniques that were used for testing the structural model (i.e. hypothesised relationships). The hypotheses developed in the current study comprise direct effects and interaction effects hypotheses.

4.11.3.1 Testing the direct effects hypotheses

Testing the structural model involved examining the model's predictive capabilities (i.e. accuracy, relevancy and size) and the individual hypothesised relationships (Hair

et al., 2014b). The model's predictive accuracy and relevance was assessed using the coefficient of determination (R^2 value) and Stone-Geisser's Q^2 value (Geisser, 1974; Stone, 1974), respectively. Moreover, the effect size of the model was examined using f^2 (Cohen, 1988). The R^2 value varies from 0 to 1 with higher values suggesting higher levels of predictive accuracy. A Q^2 value larger than zero indicates predictive relevance of the dependent variables (Hair et al., 2014b). Finally, an f^2 of 0.02 is interpreted as a small size, while 0.15 as moderate and 0.35 as large (Cohen, 1988). To test the significance of the hypothesised relationships, p -value and t -value were used as indicators. A p -value of $\leq .05$ and t -value of ≤ 1.96 suggests a significant path relationship (Hair et al., 2014a).

2.11.3.1 Testing the moderation effects hypotheses

To test the interaction effect of social capital dimensions (i.e. relational, cognitive and structural) on the relationship between both SSTPs and SSCPs on supplier's social performance under PLS, this study adopted the product indicator approach (Chin et al., 2003). Kenny and Judd (1984) introduced the product terms between the indicators of the independent variable and the indicators of the moderators variable as an approach for testing the interaction effect in structural equation models. This approach was transferred to PLS-SEM by Chin et al. (1998, 2003) who suggest that a new latent variable representing the interaction term ($X \times Z$) should be created by multiplying the indicators of the independent variable X with the indicators of the moderator variable Z as depicted in Figure 4.3.

As building the interaction term from the indicators of both the independent and moderator variables can lead to a multicollinearity issue (Aiken and West, 1991; Dawson, 2014), the indicators should be either standardised or mean-centred. Standardise an indicator means deducting the mean from the score of the indicator then dividing it by the standard deviation, so that it has a mean of zero and a standard deviation of 1 (Dawson, 2014). On the other hand, mean-centring an indicator refers to the deduction of the mean from the score of the indicator so that it has a mean of zero. Both methods have been suggested for transforming the values of the independent and moderator before computing the interaction term. However, both methods produce similar results, and therefore, the decision of choosing one over the

other is a personal preference (Dawson, 2014). The standardisation method was used in this study.

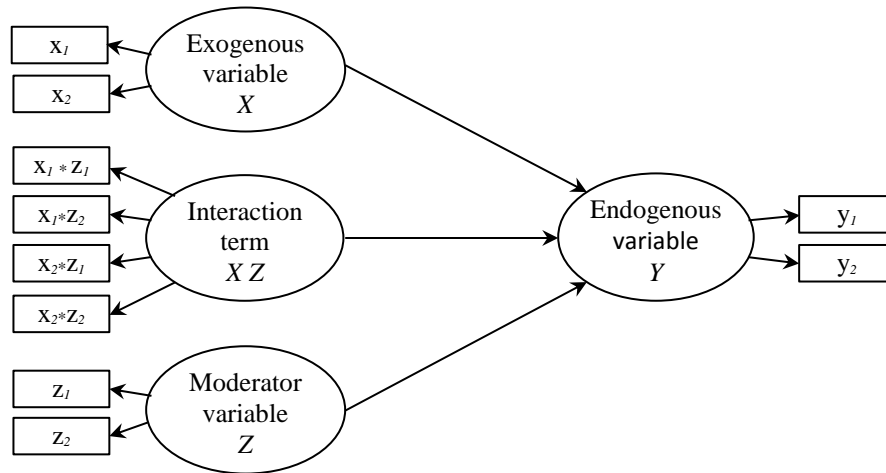


Figure 4.3: The product indicator approach

Source: Henseler and Chin (2010, p. 85)

To test the significance of the hypothesised interaction relationships, p -value and t -value were used as indicators. As noted previously, p -value of $\leq .05$ and t -value of ≤ 1.96 suggests a significant path relationship (Hair et al., 2014a).

4.11.4 Structural Equation Modelling

Structural equation modelling (SEM) has received rapid growing attention from social science scholars in the last decade driven by its ability to overcome the limitation of the first generation statistical techniques such as multiple regression, cluster analysis, analysis of variance and logistics regression. The first generation statistical techniques examine only a single relationship at a time (Hair et al., 2014a). SEM as a second generation technique not only can examine the relationship among multiple independent and dependent variables, but can also test a series of dependence relationships simultaneously that involve a variable that is hypothesised as independent and dependent within the same model (Chin, 1998; Hair et al., 2014a). Moreover, SEM enables the assessment of the quality of the measurement model through confirmatory factor analysis (CFA) and the test of the structural model in one technique (Hair et al., 2014a). Furthermore, SEM has the ability to represent unobserved concepts in the hypothesised relationships and account for measurement error in the estimation process (Chin, 1998).

There are two main types of SEM: covariance-based SEM (CB-SEM) and partial least square SEM (PLS-SEM). The application of the latter has expanded dramatically recently due to its ability to perform well under certain conditions compared to the latter. This study adopted PLS-SEM for data analysis. The following subsections provide an overview of PLS-SEM and the rationale for adopting it in the current study.

4.11.4.1 An overview of PLS-SEM

PLS was first introduced by Herman Wold (1966, 1982) as a soft technique that has superior flexibility in handling different modelling issues and conditions that are difficult or impossible to meet using the traditional multivariate statistics such as CB-SEM (Vinzi et al., 2010; Peng and Lai, 2012). As a result, the use of PLS has gained momentum in many different fields including strategic management, management information systems, organizational behaviour and marketing (Henseler et al., 2009). More recently, PLS has received growing but steady attention in the Operations Management field (Peng and Lai, 2012).

PLS-SEM is a nonparametric statistical method. The estimation procedure for PLS-SEM is an ordinary least square regression-based method, whilst the estimation procedure for CB-SEM is maximum likelihood. PLS-SEM estimates the path relationships in the model with the purpose of minimizing the error terms (i.e. the residual variance) of the dependent constructs. In other words, PLS-SEM estimates coefficients (i.e. path model relationships) that maximise the dependent latent variables' explained variance (Hair et al., 2014b). Specifically, PLS-SEM's algorithm estimates partial regression models in two sequential stages. In the first stage, the latent variables scores are estimated. In the second stage, the final estimates of the outer weights and loadings and path coefficients along with the R^2 of the endogenous constructs are calculated (Henseler et al., 2012). PLS employs resampling procedures such as bootstrap and jackknife to estimate parameters instead of a classical parametric inferential framework (Peng and Lai, 2012). Bootstrapping is a resampling procedure in which a large number of subsamples from the original sample are drawn randomly (Hair et al., 2014b). Table 4.8 provides key characteristics of PLS-SEM.

Table 4.8: Key characteristics of PLS-SEM

Data characteristics		Model characteristics	
Sample size	No identification issues with small sample sizes. Generally achieves high levels of statistical power with small samples sizes. Larger samples sizes increase the precision of PLS-SEM estimations.	Number of items in each construct	Handles constructs measured with single and multi-item measures.
Distribution	No distributional assumptions; PLS-SEM is a nonparametric method.	Relationships between constructs and their indicators	Easily incorporates reflective and formative measurement models.
Missing values	Highly robust as long as missing values are below a reasonable level.	Model complexity	Handles complex models with many structural model relations. Larger number of indicators are helpful reducing the PLS-SEM bias.
Scale of measurement	Works with metric data, quasi-metric (ordinal) scaled data, and binary coded variables (with certain restrictions).	Model setup	No causal loops allowed in the structural model (only recursive models).
PLS-SEM Algorithm properties		Model Evaluation Issues	
Objective	Minimise the amount of unexplained variance (i.e. maximise the R^2 values).	Evolution of the overall model	No global goodness of fit criterion.
Efficiency	Converges after a few iterations to the optimum solution; efficient algorithm.	Evaluation of the measurement models	Reflective measurement models: reliability and validity assessments by multiple criteria. Formative measurement models: validity assessment, significance and relevance of indicator weight, indicator of collinearity.
Constructs scores	Estimated as linear combinations of their indicators. Used for predictive purposes. Can be used as input for subsequent analysis. Not affected by data inadequacies.	Evaluation of the structural model	Collinearity among sets of constructs, significance path coefficients, coefficient of determination (R^2), effect size (f^2), predictive relevance (Q^2 and q^2 effect size).
Parameter estimates	Structural and Measurement models relationships are generally underestimated (PLS-SEM bias). Consistency at large. High levels of statistical power.		

Source: Hair et al. (2014b, p. 16)

4.11.4.1 Rationale for using PLS-SEM

Although CB-SEM is perceived as a robust multivariate approach to data analysis, CB-SEM is not universally applicable to all research situations and contexts (Peng and Lai, 2012; Hair et al., 2014b). In general, PLS-SEM has a greater statistical power that enables more efficient parameter estimation than that of CB-SEM (Hair et al., 2014b). PLS-SEM provides a superior data analysis approach over CB-SEM in certain conditions several of which are relevant in this study. Firstly, unlike CB-SEM, PLS-SEM can handle both formative and reflective constructs within the same research model (Peng and Lai, 2012; Vinzi et al., 2010). The measurement model of the current study contains both reflective and formative constructs.

Secondly, PLS produces more accurate estimates of interaction effects than other SEM techniques (Chin et al., 2003; Qureshi and Compeau, 2009; Helm et al., 2010) and solve the problem of model identification and convergence problems when testing complex models using CB-SEM (Peng and Lai, 2012). Testing moderation effect under SEM is usually completed through a new construct that uses measures computed by cross-multiplying the standardized items of each construct in the moderation effect (Chin et al., 2003). Consequently, this cross-multiplying can potentially produce a large number of measures, thereby increasing the model complexity (Peng and Lai, 2012). The current study examines the interaction effect of SSTPs and SSCPs on supplier's internal performance and the moderation effect of social capital dimensions (i.e. relational, cognitive and structural) on the SSSC practices-performance link. That creates seven new interaction terms, which arguably increases further the complexity of the model.

Thirdly, PLS-SEM is useful when a research model is posited in a domain where theory is less well-developed (Wold, 1985; Hair et al., 2014b). Given that the area of SSCM, and particularly the social dimension is lacking a well-developed theory (Beske-Janssen et al., 2015; Zorzini et al., 2015; Yawar and Seuring, 2017) and there have been very few empirical studies that examine the relationship between socially sustainable supply chains and supplier's social performance (e.g. Sancha et al., 2015; Sancha et al., 2016), PLS was therefore deemed to be highly appropriate.

Finally, PLS has the ability to estimate models with a small sample size that can be as low as 30 observations or less (Reinartz et al., 2009; Hair et al., 2010). The sample size (119) of the present study was relatively small, hence indicating the appropriateness of PLS-SEM.

4.12 Research ethical considerations

Despite the fact that social science research is generally regarded to be considerably less potentially physically and psychologically harmful to human participants compared to other sciences, social science studies still have the potential to cause distress to participants (Bell and Bryman, 2007). Potential harm in social science research can include harm to participant's development, career prospects or future employment (Diener and Grandall, 1978). Therefore, measures should be taken to protect the participants' and their organisations anonymity and confidentiality. In their content analysis of nine ethics codes formulated by different social scientific associations, Bell and Bryman (2007) have made a clear distinction between confidentiality and anonymity in management research. Confidentiality "relates to the protection of information supplied by research participants from other parties whereas anonymity involves protecting the identity of an individual or organization by concealing their names or other identifying information" (Bell and Bryman, 2007; p.69).

As the current study sought information about individuals (e.g. job title) and their organisations (e.g. number of employees), a number of actions were taken to ensure the participants' anonymity and confidentiality throughout the data collection process. A cover letter (see Appendix B) highlighting the purpose and importance of the study was enclosed in the questionnaire, clarifying to the research participants how they had been identified and the source of their contacts details. The letter also emphasised that their participation was completely voluntary, and their answers would strictly confidential, in accordance with the procedures of Brunel University London's Code of Research Ethics. Moreover, the letter pointed out that their answers would only be used for research purposes and it would be destroyed after completing the data analysis part. Furthermore, the letter illustrates that the research findings would reported only at an aggregate level (i.e. industry level) and no information at a company level would

be revealed by any means. Ethical approval of the study was received from Brunel University London through a BREO application prior to data collection (see Appendix A).

4.13 Summary

This chapter has detailed the research methodology that was employed to test the proposed conceptual framework. The positivist research paradigm was adopted after carefully examining its philosophical assumptions (i.e. ontological and epistemological) and those of its counterpart the interpretive paradigm. Consequently, the deductive reasoning approach was followed.

A stratified random sample of 1250 large manufacturing companies in a variety of industrial sectors in the UK was established using the FAME database as a sampling frame. Survey as a data collection method was selected given the limitations associated with the observations and interviews methods in relation to the overall aim of the current study. Accordingly, a thorough review of the relevant literature was carried out to inform the robust development and design of a user- friendly questionnaire. The measurement model including the formative and reflective indicators was adopted and/or adapted from previous studies. The survey was pre-tested by academics in the Operations and SCM field before being pilot-tested with resemblance respondents to the targeted population. The survey was finally administrated by mail after carefully considering the advantages and disadvantages of the other delivering approaches (e.g. phone, face-to-face and online).

The statistical analysis techniques were selected for each of the four data analysis stages. The rationale for choosing PLS-SEM for data analysis was mainly established based on its appropriateness for testing models that include formative and reflective constructs and its ability to overcome the identification problem associated with testing complex models using CB-SEM.

Chapter 5

DATA ANALYSIS & RESULTS

5.1 Introduction

This study aimed to examine the individual and combined effects of SSTPs and SSCPs on supplier's internal social performance and their individual effects on buyer's operational performance. The study also aimed to examine the contingent effect of social capital on the relationships among SSTPs, SSCPs and supplier's internal social performance. To achieve this, the preceding chapter detailed the methodology that was used to collect data. This chapter presents the results of data analysis.

The chapter is structured as follows. Section 5.2 describes the study sample in terms of firm size, firm age and industrial sector. Section 5.3 explains the process of screening and examining data for missing values, potential outliers, non-response bias, common method variance and its appropriateness for multivariate analysis. Section 5.4 evaluates the reflective and formative measurement models. Section 5.5 provides descriptive statistics of the research's model variables. Section 5.6 presents the process

of testing the structural model. Section 5.7 reports the analysis of variance. Finally, section 5.8 provides a brief summary of the chapter.

5.2 Sample description

This study sought the participation of randomly selected 1,250 large manufacturing companies based in the UK. Out of the 1,250 questionnaires administered, 132 questionnaires were received of which 119 were usable for analysis. Although this response rate is relatively low compared to other management studies, some recently published articles on socially sustainable supply chain management have reported comparable returns (e.g. Sancha et al., 2015, 2016; Marshall et al., 2016). Possible explanations for the response rate include the lack of monetary incentives for participants, the accuracy of the mailing list obtained from the FAME database, company policy and the confidential nature of the information requested (i.e. supplier's internal social performance).

To gain a better understanding of the nature of the sample, frequency and descriptive analyses were used. Tables 5.1 to 5.5 provide a profile of the sample in terms of respondent's position, firm size, firm age, industry sector and supplier relationship length. The firms involved in this study varied in size, age, industry and relationship length with suppliers.

The survey was mainly directed to chief executive officers (CEOs), supply chain, procurement, operations, purchasing and logistics managers. Table 5.1 reports the job titles of the respondents and associated frequencies. The highest number of responses ($n = 27$, representing 22.7%) were provided by operations managers. This is followed by the responses received from CEOs ($n = 24$, 20.2%) and procurement managers ($n = 24$, 20.2%), then purchasing managers ($n = 19$, 16%), supply chain managers ($n = 17$, 14.3%) and logistic managers ($n = 5$, 4.2%). As was instructed in the questionnaire cover letter to direct the survey to the most knowledgeable individual (other than the job categories provided), three responses (2.5%) were received from two sustainability directors and one response from a head of environment and quality system, which are classified under the "others" category as shown in Table 5.1. Despite the small number of this category, it indicates a growing commitment of firms toward investment in sustainability by establishing specific units and allocating personnel to address

sustainability issues. The titles held by the majority of respondents are directly related to sustainability, which indicates that they are suitable sources of information.

Table 5.1: Position of respondents

No.	Position	Frequency	%
1	Operations Manager	27	22.7
2	President/CEO	24	20.2
3	Procurement manager	24	20.2
4	Purchasing Manager	19	16.0
5	Supply Chain Manager	17	14.3
6	Logistics Manager	5	4.2
7	Others	3	2.5
Total		119	100

In term of industry sector, the participating firms were distributed among 10 different manufacturing industries as illustrated in Table 5.2. The highest number of the participating companies ($n = 20$, representing 16.8%) work in chemicals, plastics and non-metallic products. This is followed by firms operating in the metals and metal products ($n = 17$, 14.3%) and then in the automotive and transportation equipment industry ($n = 15$, 12.6%) Firms that work in electricity, electronics and semiconductor and machinery and industrial equipment were equally represented in the sample ($n = 14$ each, 11.8%). The remaining industries with their frequencies and percentages are presented in Table 5.2.

Table 5.2: Industry type of the participated firms

No.	Industry	Frequency	%
1	Chemicals, plastics and non-metallic products	20	16.8
2	Metals and metal products	17	14.3
3	Automotive and transportation equipment	15	12.6
4	Electricity, electronics and semiconductor	14	11.8
5	Machinery and industry equipment	14	11.8
6	Food, beverages and tobacco	12	10.1
7	Textiles and apparel	8	6.7
8	Wood, cork and paper	6	5.0
9	Furniture	5	4.2
10	Pharmaceutical	4	3.4
11	Others	4	3.4
Total		119	100

In terms of size, measured by the number of employees, firms are grouped into four categories as shown in Table 5.3. The vast majority of firms ($n = 47$, representing 37.6%) have between 250 and 500 employees. This is followed by those firms who have a total number of employees between 501 – 1000 ($n = 31$, 28.4%) and then those

with employees of 1001 to 1500 ($n = 18$, 16.5%). Only 19 firms (17.4%) had more than 1500 employees.

Table 5.3: Size of the participated firms

No.	Firm Size (No. of employees)	Frequency	%
1	250 - 500	47	37.6
2	501 - 1000	31	28.4
3	1001- 1500	18	16.5
4	>1500	19	17.4
Total		119	100

In terms of age, measured by the number of years in business, the firms are distributed among four categories as shown in Table 5.4. The vast majority of the firms ($n = 74$, representing 62.2%) have been in business for more than 10 years. This is followed by those firms who have been in business for 7 to 10 years ($n = 35$, 29.4%) and then those aged between 3 to 6 years ($n = 9$, 7.6%). Only one firm (0.8%) had been in business for less than three years. Overall, it can be concluded that the firms in the current sample are well-established firms with operations going back several years.

Table 5.4: Age of the participated firms

No.	Firm Age (No. of years)	Frequency	%
1	<3	1	0.8
2	3 – 6	9	7.6
3	7 – 10	35	29.4
4	>10	74	62.2
Total		119	100

Finally, as for the relationship length, measured by number of years, the firms have different relationship lengths with their suppliers as reported in Table 5.5. The majority of the firms ($n = 42$, representing 35.3%) have relationships with their suppliers from 3 to 6 years. This is followed by those firms who have been working with their suppliers for more than 10 years ($n = 37$, 31.1%) and then those who have a relationship between 7 to 10 years ($n = 27$, 22.7%). Only 12 firms (10.1%) had a relationship with suppliers less than 3 years.

Table 5.5: Buyer-supplier relationship length

No.	Relationship Length (No. of years)	Frequency	%
1	<3	12	10.1
2	3 – 6	42	35.3
3	7 – 10	27	22.7
4	>10	37	31.1
Total		119	100

5.3 Data screening

To ensure a proper evaluation of the measurement model and robust testing of the structural model, six essential steps were followed: (1) data coding and cleaning; (2) identifying and handling missing data; (3) detecting and handling outliers, (4) checking for non-response bias; (5) examining common method bias and; (6) examining the assumptions of multivariate analysis (Hair et al., 2014a; Tabachnick and Fidell, 2013; Podsakoff et al., 2003).

5.3.1 Data coding and cleaning

To reassure the accuracy of the data file, three steps were followed. In the first step, a codebook was prepared to facilitate the process of transferring and entering the responses into the data window (Pallant, 2013). The preparation of the codebook involved defining and labelling each of the categorical and continuous variables and assigning numerical codes to the answers' options under each question of the survey (Pallant, 2013). In the second stage, the original data file was carefully matched with the computerized data file in the data window (Tabachnick and Fidell, 2014). Finally, all the observations on the study variables were scrutinised using frequencies and descriptive statistics (Tabachnick and Fidell, 2014).

5.3.2 Handling missing data

Missing data occurs when usable information or answers on one or more questions in the survey do not exist for analysis (Hair et al., 2014a). This can be attributed to data collection problems, data entry errors or refusal of respondents to provide answers (Hair et al., 2014a). Missing data can result in biased results, which subsequently affect the generalizability of findings (Hair et al., 2014a; Tabachnick and Fidell, 2014). Two issues related to missing data should be examined: the pattern and relationships underlying the missing data (i.e. the level of randomness) and the volume of missing values presented in a data set (Hair et al., 2014; Tabachnick and Fidell, 2014). When missing values are distributed randomly through a data set, it indicates less serious issues. However, when missing values are dispersed non-randomly, it may result in biasing the study results (Tabachnick and Fidell, 2014).

Table 5.6 provides descriptive statistics of the level of missing data per variable and observation. The analysis of the amount of missing data indicates that the maximum

number of missing data per variable is three (2.5%), which belong to Sper3. Moreover, the analysis reveals that out of the 119 observations only four observations (3.4%) had one missing data, while another four observations had two missing data.

Table 5.6: Descriptive statistics of missing data

Item	N	Mean	Std. deviation	Missing data	
				Number	Percent
SSTP2	118	2.77	1.208	1	.8
SSTP3	118	2.83	1.329	1	.8
SSTP5	118	2.98	1.267	1	.8
Rcap4	118	4.74	1.361	1	.8
Ccap4	117	4.62	1.407	2	1.7
Scap2	118	6.06	1.215	1	.8
Scap4	117	3.83	2.131	2	1.7
Sper3	116	4.05	1.973	3	2.5
Summary of observations					
Number of missing data per observation		Number of observations		Percent of sample	
0		111		%93.2	
1		4		%3.4	
2		4		%3.4	
Total		119		100%	

There is no a clear agreement in the literature on the acceptable percentage of missing values for drawing non-bias statistical inferences. While Schafer and Olsen (1998) and Tabachnick and Fidell (2014) claim that a missing rate of 5% or less is minor, Hair et al. (2010) argue that less than 10% of missing values on one observation can be ignored. More recently, Hair et al. (2014b) pointed out that an observation may have to be deleted when a high proportion of responses are missing for a single construct even if the missing data does not exceed 15%. Since the maximum percentage of missing data per observation is 4.8% (i.e. number of maximum missing data per variable to the total number of variables), which is less than the conservative value suggested in the literature (5%), it was decided to retain the observations with missing data.

To examine the pattern of missing data, Little's MCAR test has been adopted. This test diagnoses whether missing data values are missing completely at random (MCAR) or missing not at random (MNAR) (Rubin, 1976; Hair et al., 2014a). Whilst the former pose fewer problems and can be easily remedied, the latter can pose severe issues that require special methods to handle (Hair et al., 2014a). Little's MCAR test matches the actual pattern of missing data with what would be expected if the missing data were

totally randomly scattered (Hair et al., 2014a). If Little's MCAR test is significant ($p \leq 0.05$), we can conclude that the null hypothesis is incorrect and that the observed pattern of missing data is different from random pattern. On the other hand, if the test is insignificant ($p > 0.05$), we can conclude that the observed pattern of missing data does not differ from random pattern. Little's MCAR test of the data set revealed that the missing values ($p > .05$, $p = 0.42$) occurred completely at random. Consequently, any technique for treating missing values can be employed as all techniques generate comparable effects (Tabachnick and Fidell, 2014). The missing data values were handled by replacing them with the mean values of the same variable that had been obtained from valid responses (Hair et al., 2014a; Tabachnick and Fidell, 2014).

5.3.3 Identification of outliers

An outlier is an extreme observation that is substantially different from other observations (i.e. has an extreme value) on one or more variables (Hair et al., 2014a; Tabachnick and Fidell, 2014). Outliers can result in Type I and II errors, which subsequently lead to false and misleading conclusions regarding the hypothesised relationships (Tabachnick and Fidell, 2014). Since outliers can occur due to coding mistakes or data entry errors (Hair et al., 2014a) two preventive procedures were used as indicated previously in section 5.3.1. Specifically, a codebook was prepared to facilitate the process of transferring the responses into the SPSS window (Pallant, 2013) and the original data file was proofread against the computerised data file in the data window (Tabachnick and Fidell, 2014).

Table 5.7: Z-scores of the constructs

Construct	Number	z-score	
		Minimum	Maximum
Firm size	119	-.98	1.72
Firm age	119	-3.75	.69
Relationship length	119	-1.69	3.06
Supplier dependence	119	-2.62	1.78
SSTPs	119	-1.93	2.34
SSTPs	119	-1.45	2.62
Relational capital	119	-2.39	1.84
Cognitive capital	119	-3.19	1.94
Structural capital	119	-2.01	1.70
Supplier's social performance	119	-1.92	1.83
Buyer's operational performance	119	-3.52	1.60

To detect potential outliers, all raw data were transformed into standardised scores (data have a mean of 0 and a standard deviation of 1) (Hair et al., 2014a; Tabachnick and Fidell, 2014). According to Tabachnick and Fidell (2014), outliers are those observations with standardised scores of 3.29 or higher. Table 5.7 presents the z-scores of all variables. All z-scores for the variables were within the limit of ± 3.29 with the exception of firm age and buyer's operational performance but were only very slightly over it.

5.3.4 Non-response bias

Non-response bias refers to the bias that arises when the participating respondents (who have completed the questionnaire) and are different from those who have received the questionnaire but declined to participate (Collis and Hussy, 2014). Non-response bias could potentially affect the generalisability of findings to the population from which the study sample has been drawn (Bryan and Bell, 2015). Non-response bias was examined using the *successive waves* method suggested by Armstrong and Overton (1977). This method is suitable when the study receives a wave response generated by a stimulus. The assumption of this method is that participants who answered in later waves are presumed to have answered due to the increased stimulus and are expected to be similar to non-participants. Accordingly, since a follow-up email had been sent to the respondents, the answers of the late respondents were compared with those ones provided by early respondents based on the industry ($p=0.16$) and supplier relationship length ($p=0.72$), and the results suggested that non-response bias was not of a concern for the present study. Non-response bias was further examined by collecting demographic information from the FAME database on those respondents who had received the questionnaire but did not complete it. Specifically, firm size and firm turnover between the respondents and non-respondents were compared. The results of *t*-test indicated there were no statistically significant differences between participant and non-participant in firm size ($p=0.55$) and firm turnover ($p=0.39$), suggesting that non-response bias was not a concern. Taken together the findings of the current study can be generalized to large manufacturing companies in the UK.

5.3.5 Common method variance

Common method variance (or bias) indicates that the variance is associated with the measurement method itself rather than to the constructs the measures are capturing (Podsakoff et al., 2003). This can bias the observed relationships between measures of the different constructs (Campbell and Fiske, 1959; Podsakoff et al., 2003). Specifically, common method variance could inflate or deflate the observed relationships among constructs which lead to Type I and Type II errors (Crampton and Wagner, 1994). Common method variance can potentially emerge as a result of employing a self-administrated questionnaire to obtain data on all the study variables from a single respondent at one point in time (Podsakoff et al., 2003; Jap and Anderson, 2004), which was the case in the current study.

Common method bias can be addressed at the research design stage using preventive procedures and can be diagnosed later at the data analysis stage using statistical techniques (Podsakoff and Organ, 1986; Podsakoff et al., 2003). Ex-post statistical analyses can only be used to uncover common method bias but not to handle it (Podsakoff and Organ, 1986; Rindfleisch et al., 2008). Therefore, addressing common method bias at the research design stage is the most effective approach (Podsakoff and Organ, 1986; Rindfleisch et al., 2008; Guide and Ketokivi, 2015). Accordingly, different techniques were adopted in the process of designing the survey to avoid and to attenuate common method bias. Firstly, different endpoints for the independent and outcomes measures were used to reduce methods biases generated from homogeneity in scale endpoints (Crampton and Wagner, 1994; Podsakoff et al., 2003; Rindfleisch et al., 2008). For example, a 5 point Likert scale was utilised for SSSC practices with endpoints from “not implemented=1” to “fully implemented=5”, while a 7 point Likert scale with “strongly disagree=7” to “strongly agree=1” was used for social capital dimensions, supplier’s internal social performance and buyer’s operational performance (see Appendix B). This measurement separation increases the respondent’s cognitive processing, which encourages careful answering based on the item content (Rindfleisch et al., 2008). Secondly, respondent’s anonymity was ensured by sending a cover letter that explained the purpose of the study and that answers provided would be analysed at an aggregate level and no company level results would be revealed by any means (Podsakoff et al., 2003). Finally, ambiguous or unfamiliar

terms such as social capital were defined and explained in the questionnaire (Tourangeau et al., 2000; Podsakoff et al., 2003).

Despite all the procedures that were taken in the research stage design, providing all information on the predictors and criterion variables by a single respondent and at a single time point can raise the potential for common method bias (Podsakoff et al., 2003; Jap and Anderson, 2004; Richardson et al., 2009). To examine for potential common method bias, Harman's (1976) single-factor test was used. In this test, all the 34 measurement items were loaded into factor analysis and examined the unrotated factor solution to determine whether the majority of variance is caused by one factor (Podsakoff et al., 2003). The analysis indicated that the majority of variance explained in the model by a single factor (25.15%) is less than the threshold value of 50%, suggesting that common method bias was not a critical issue in the current study.

5.3.6 Examining the assumptions of multivariate analysis

An important step prior to data analysis is testing data for adherence to the statistical assumptions underlying the multivariate analysis techniques. Testing the statistical assumptions in multivariate analysis is critical for two reasons as explained by Hair et al. (2014a). First, the complexity of the relationships in multivariate analysis makes the potential distortions and biases more intense when the assumptions are not satisfied. Second, the complexity of the multivariate analyses also may conceal the signs of assumption violations that are clearly visible in the univariate analyses. The most fundamental assumptions underlying the multivariate analysis are normality, linearity, multicollinearity and homoscedasticity (Hair et al., 2014a; Tabachnick and Fidell, 2014). The following subsections report the results of examining these assumptions.

5.3.6.1 The normality assumption

Normal distribution (also known as Gaussian distribution) of data is the most essential and important assumption in multivariate analysis as a large violation of this assumption can result in invalid statistical tests (Hair et al., 2014a). Despite the fact that PLS-SEM performs very well with non-normally distributed data, it is important to examine data for severe non-normality as it may inflate standard errors obtained from the bootstrapping procedure (Henseler et al., 2009; Hair et al., 2014b).

The normality is that the data distribution in each variable and in all linear combination of variables is normally distributed (Tabachnick and Fidell, 2014). The normality assumption can be assessed at univariate level (distribution of scores at an item-level) and at multivariate level (distribution of scores within a combination of two or more items). According to Hair et al. (2014a), if the items achieve the assumption of multivariate normality, it indicates that the assumption of the univariate has also been achieved; however, the reverse is not necessarily true.

To examine the data for normality, skewness and kurtosis statistics were obtained using descriptive analysis function available in SPSS software (Hair et al., 2014a; Tabachnick and Fidell, 2014). Skewness related to the symmetry of distribution (i.e. the balance of distribution), whereas kurtosis corresponds to the peakedness of the distribution (i.e. the height of distribution) (Hair et al., 2014). A normally distributed data has a skewness and kurtosis values of zero. Therefore, any values of skewness and kurtosis below or above zero would suggest a deviation from normality (Hair et al., 2014a). Specifically, negative skewness value indicates a distribution shifted to the right, whilst a positive value implies a distribution shifted to the left. Similarly, negative kurtosis denotes a flatter distribution, whilst positive kurtosis suggests a peaked distribution (Tabachnick and Fidell, 2014). However, skewness and kurtosis values within the limit of ± 2.58 suggest an acceptable level of departure from normality (Hair et al., 2014a; Tabachnick and Fidell, 2014).

Table 5.8 reports the skewness and kurtosis values of the study variables. All the variables were negatively skewed with the exception of SSCPs which was positively skewed. The negative skewness values indicate a tendency towards higher values than the average point of the scale. The positive skewness value of SSCPs, on the other hand, suggests lower value than the average score of the scale. These observations can be clearly seen by examining the graphical representation of the distributions depicted in Figure 5.1. The figure illustrates that the distributions of all the variables are slightly shifted to the right, while SSCPs distribution is slightly shifted to the left.

Table 5.8: Normality test

Variables	Mean	Std. deviation	Skewness	Kurtosis
Supplier dependence	4.88	1.20	-.28	-.15
SSTPs	2.82	.90	-.16	-.20
SSCPs	2.26	.86	.40	-.61
Relational capital	5.34	.90	-.53	.03
Cognitive capital	4.65	1.17	-.39	.85
Structural capital	4.62	1.44	-.35	-.83
Supplier's internal social performance	4.08	1.62	-.33	-.54
Buyer's operational performance	5.10	1.19	-1.12	1.94

Table 5.8 also shows that all the variables have negative kurtosis values with the exception of relational capital, cognitive capital and buyer's operational performance. These negative kurtosis values indicate a slightly flatter distribution compared to the normal distribution (see Figure 5.1). In contrast, the positive kurtosis values of relational capital, cognitive capital and buyer's operational performance suggest a rather peaked distribution of the data (see Figure 5.1). Despite the slight negative and positive values of skewness and kurtosis of all the variables, these values are within the acceptable limit, suggesting that the present data is not severely non-normally distributed.

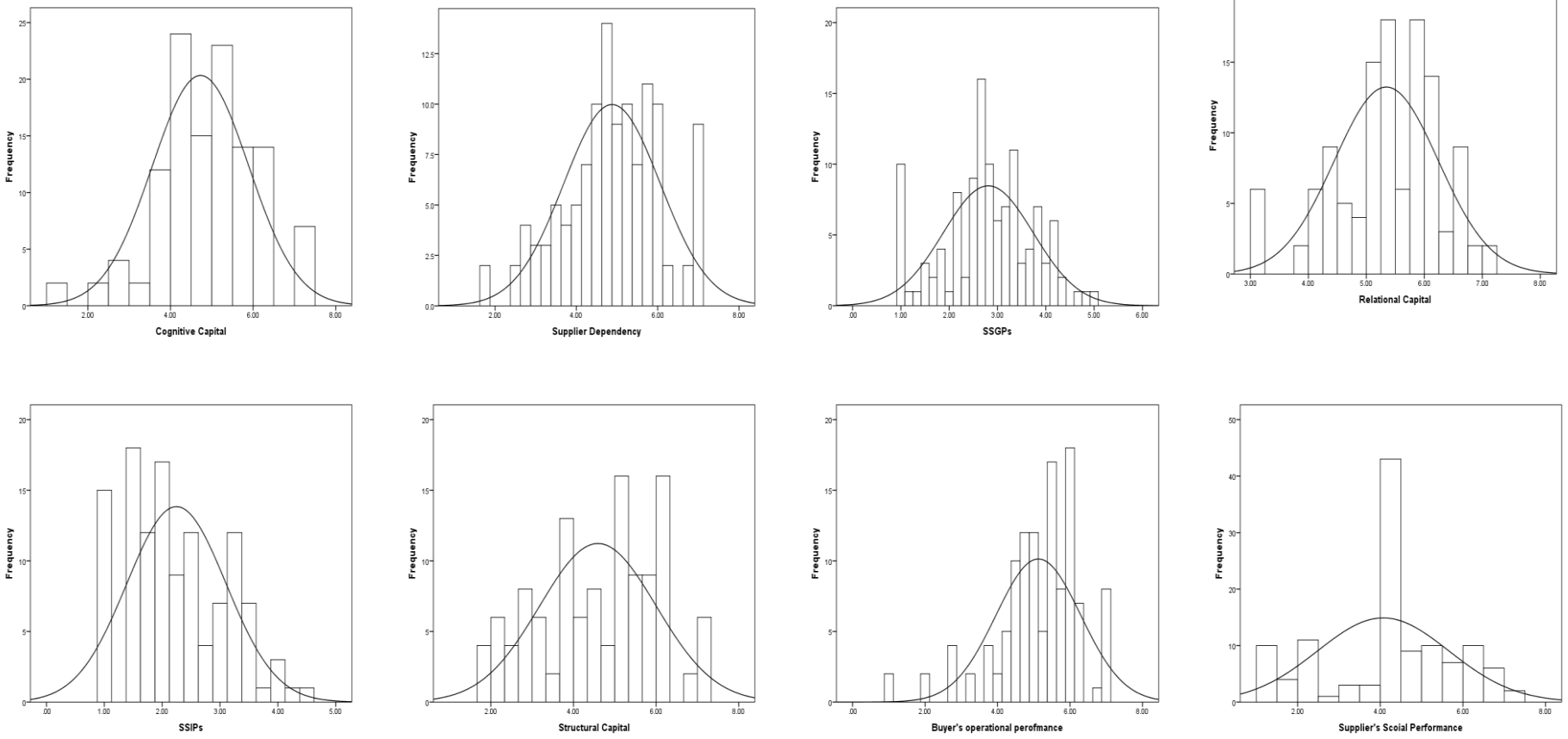


Figure 5.1: Frequency histograms of the variables

5.3.6.2 Linearity and multicollinearity assumptions

Linearity refers to the existence of a linear or straight-line relationship between two variables (Tabachnick and Fidell, 2014). Factor analysis and SEM techniques are based on the correlation between variables (Hair et al., 2014a). Therefore, it is important to examine for linearity between variables since correlations will not be estimated for extreme nonlinear relationships (Tabachnick and Fidell, 2014; Hair et al., 2014a). This exclusion of nonlinear relationship can lead to an underestimation of the true strength of the relationship (Hair et al., 2014a).

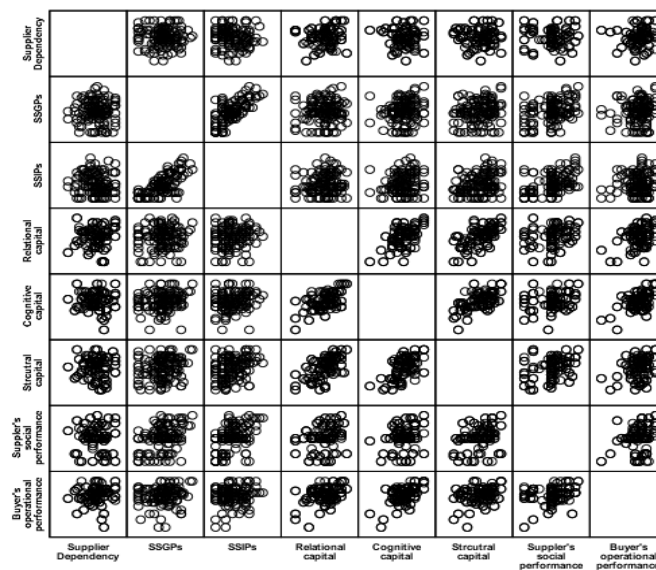


Figure 5.2: Scatterplots matrix of the variables

To examine for linearity among the variables, a scatterplots matrix of the variables was created (Hair et al., 2014a) (see Figure 5.2). The scatterplots matrix includes all the bivariate scatterplots for each variable with all other variables (Tabachnick and Fidell, 2014). A visual inspection of the scatterplots matrix shows that all bivariate scatterplots are relatively oval-shaped, indicating that all the relationships among the variables exhibit linearity (Tabachnick and Fidell, 2014).

Multicollinearity refers to the existing of extraordinary high correlations among the exogenous variables (Hair et al., 2014a). The presence of collinearity between two variables can inflate the size of standard errors for the regression coefficients and, therefore, reduce the ability to demonstrate significant coefficients (Tabachnick and Fidell, 2014).

To examine for potential multicollinearity among the variables, tolerance and variance inflation factor (VIF) values (Hair et al., 2014b) were examined. Tolerance value refers to the amount of variance of one exogenous variable not explained by other exogenous variables within the same model (Hair et al., 2014b). On the other hand, VIF indicates the amount of increase in the standard error as a result of collinearity between variables (Hair et al., 2014b). Table 5.9 reports the tolerance and VIF values of the variables. All the variables' VIF values are below the threshold value of 0.5 and their tolerance values are higher than 0.2, suggesting that collinearity was not an issue for the current research (Hair et al., 2014b).

Table 5.9: Multicollinearity assessment

Constructs	Multicollinearity measures	
	Tolerance	VIF
Supplier dependency	0.957	1.044
SSTPs	0.559	1.786
SSCPs	0.530	1.860
Relational capital	0.529	1.889
Cognitive capital	0.519	1.925
Structural capital	0.474	2.108
Supplier's internal social performance	0.693	1.443

5.3.6.3 Homoscedasticity and homogeneity of variance assumptions

Under the homoscedasticity assumption, the endogenous variable(s) should display comparable levels of variance across the range of the exogenous continuous variable(s) (Hair et al., 2014a). In the homogeneity of variance assumption, the endogenous variable(s) should display comparable levels of variance across the range of the categorical variable(s) (Tabachnick and Fidell, 2014). In other words, the variance of the endogenous variable being explained in the hypothesised relationship should not be accumulated in only a limited range of the exogenous values (Hair et al., 2014a). This concentration of the variance affects the standard errors and makes hypothesis testing either extremely strict or extremely insensitive (Hair et al., 2014a).

To examine for the homoscedasticity between the independent variables and the dependent variables, the bivariate scatterplots (Tabachnick and Fidell, 2014) were checked. The scatterplot matrix of the variables created previously in Figure 5.2 shows that each bivariate scatterplots between each independent variable and dependent

variable are approximately the same width all over with some bulging toward the middle, suggesting no violation of homoscedasticity (Tabachnick and Fidell, 2014).

To assess for homogeneity of variance of the dependent variables across the control variables, we used Levene’s test (Levene, 1960). Levene’s test indicates whether to accept or reject the null hypothesis that suggests that difference in variances in different groups is zero (Levene, 1960). The Levene’s test of homogeneity of variance will be presented and discussed in section 5.7.

5.4 Evaluating the measurement model

The measurement model includes both reflective and formative constructs (see Figure 5.3). All the constructs are reflective with the exception of buyer’s operational performance which is a formative construct. Since reflective and formative measurement models have distinct characteristics as outlined previously in section 4.10.1, different criteria were used to assess their quality in terms of reliability and validity (MacKenzie et al., 2005; Jarvis et al., 2003; Diamantopoulos and Winklhofer, 2001). The evaluation of the reflective and formative measurement models are presented and discussed in the following two separate subsections.

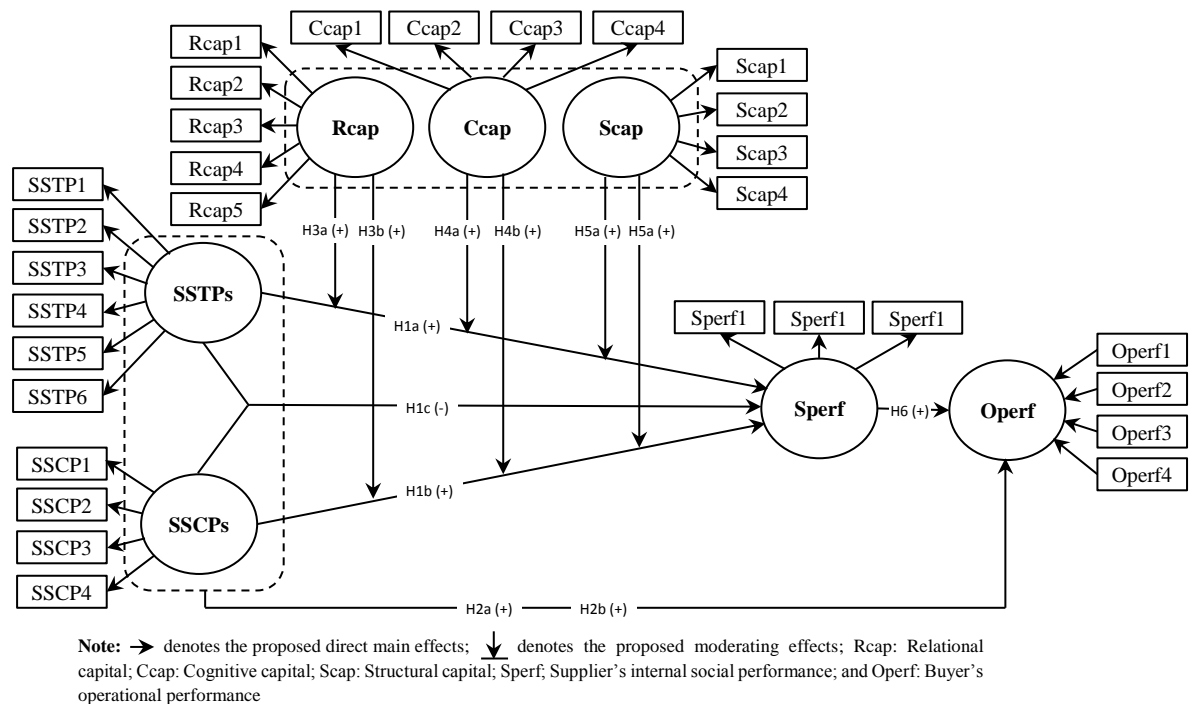


Figure 5.3: The research’s measurement and structural model

5.4.1 Evaluating the reflective measurement model

According to the classical test theory, the quality of the reflective measurement model can be assessed in terms of reliability and validity. The values of reliability and validity can be obtained through running a confirmatory factor analysis (CFA). CFA is a statistical technique to assess the extent to which the observed variables meet the expected factor structure (Hair et al., 2014a). To perform a factor analysis, a number of theoretical considerations and statistical assumptions should be considered and met (Hair et al., 2014a; Tabachnick and Fidell, 2014).

Two theoretical considerations should be considered ahead of conducting factor analysis. Firstly, ensuring the conceptual validity of the observed structure (Hair et al., 2014a) and the inclusion of a sufficient number of variables (indicators) to capture each expected factor (construct) (Tabachnick and Fidell, 2014). The relationship between the expected factors and their respective variables were established based on a thorough review of the relevant literature. The expected factors were captured by sufficient variables (at least three indicators). Secondly, ensuring the homogeneity of the study's sample (Hair et al., 2014a; Tabachnick and Fidell, 2014). A heterogeneous sample may show a different factor structure on the observed variables. Therefore, when subsamples are combined, the resulting factor structure will be a poor reflection of the distinctive structure of each sample (Hair et al., 2014a). Despite the inclusion of only large manufacturing companies (>250 employees), the homogeneity of the sample was checked. The sample of the present study exhibited homogeneity, as will be discussed in section 5.7.

Similarly, two essential related statistical assumptions should be met prior to performing factor analysis as emphasised by Hair et al. (2014a). Firstly, the availability of an adequate sample in order to generate a correlation matrix. Secondly, the existence of sufficient and sizable inter-correlations among the observed variables. It is noteworthy that these two assumptions should be examined sequentially (Hair et al., 2014a).

To examine the adequacy of the observed variables, Kaiser-Meyer-Olkin (KMO) (Kaiser, 1974) was applied. KMO indicates the total of squared correlations to the sum of squared correlations added to the sum of squared partial correlations (Tabachnick

and Fidell, 2014). KMO value ranges from 0 to 1, with higher values indicating the adequacy of the sample to run correlation matrix. Kaiser (1974) advocates that KMO of 0.50 or higher as a signal for the adequacy of the observed variables. Table 5.10 illustrates that KMO value is 0.88, suggesting that the observed variables are adequate to correlate. Therefore, we can proceed to the next step to test whether the inter-correlations among the observed variables are sizable and sufficient to perform factor analysis or not.

Table 5.10: KMO and Bartlett's Tests

Test	Value
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0.88
Approx. Chi-Square	1946.43
Bartlett's Test of Sphericity df	210
Sig.	.00

To examine whether a satisfactory level of inter-correlations exists among the observed variables for factor analysis, Bartlett's (1954) test of sphericity was examined (Hair et al., 2014a). Bartlett's test of sphericity is likely to be significant with large sample size even if correlations are very small (Tabachnick and Fidell, 2014). Therefore, it is recommended to use this test when there are less than five observations per variable (Tabachnick and Fidell, 2014), which makes it more appropriate for the present research. Bartlett's test of sphericity examines whether to accept or reject the null hypothesis which suggests that the observed variables are uncorrelated in the population. If Bartlett's test of sphericity is significant ($p \leq 0.05$), we can conclude that the null hypothesis is incorrect and the observed variables are correlated in the population. On the other hand, if the test is insignificant ($p > 0.05$), the observed variables are uncorrelated in the population. Table 5.10 highlights that p -value is (<0.05), suggesting the existence of an acceptable and sizable level of inter-correlations among the observed variables.

In sum, the discussion above suggests that both the theoretical and statistical assumptions of factor analysis are met, which lead to the conclusion that the study dataset was appropriate for factor analysis.

5.4.1.1 Reliability

Reliability indicates the consistency of indicators in their way of measuring a construct (Sekaran and Bogie, 2014). One important aspect of reliability is the internal consistency among a set of indicators capturing the same construct. Internal consistency refers to the degree to which a set of indicators are homogenous and uninformed (Bagozzi, 1981; Sekaran and Bogie, 2014). The internal consistency of the indicators' constructs was assessed by Cronbach's α (Cronbach, 1951) coefficient and composite reliability (Werts et al., 1974).

Cronbach's α coefficient represents the average inter-correlations among the indicators capturing the construct (Sekaran and Bogie, 2014). Cronbach's α varies from 0 to 1, with the closer it is to 1, the higher the internal consistency of the indicators (Sekaran and Bogie, 2014). Scholars suggest that Cronbach's α of 0.7 represents an acceptable level of internal consistency for confirmatory studies (e.g. Nunnally, 1978; Hair et al., 2014a). However, since Cronbach's α reflects the average inter-correlations of the indicators, its value might be inflated by including a large number of indicators. Therefore, researchers have proposed less conservative Cronbach's α values for exploratory studies (0.6) (Hair et al., 2014a) and for those measuring constructs with a small number of indicators (0.5) (Cortina, 1993). Table 5.11 reports Cronbach's α values for the research's constructs. All the values range from 0.72 to 0.89, suggesting a satisfactory level of internal consistency.

Composite reliability represents the ratio of the squared sum of the indicators' standardised loadings to the squared sum of the indicators' standardised loadings plus the sum of their variance of measurement error (Bagozzi and Yi, 1988). Unlike Cronbach's α , composite reliability does not assume equivalency among the indicators rather it prioritises indicators according to their weights (Bacon et al., 1995). Consequently, composite reliability is considered as less sensitive to the number of the indicators than Cronbach's α . Composite reliability value ranges from 0 to 1, with greater values indicating a higher level of internal consistency (Hair et al., 2014b). Scholars have suggested that a composite reliability of 0.7 represents an acceptable level of internal consistency for confirmatory studies (e.g. Nunnally, 1978; Hair et al., 2014a;). Table 5.11 shows composite reliability values for the research's constructs.

All the values range from 0.814 to 0.937, suggesting that the constructs have a satisfactory level of internal consistency.

Table 5.11: Reliability and Convergent Validity

Construct	Item	Standardised loadings	AVE	Composite reliability	Cronbach's Alpha
Supplier dependence	Sdepen1	0.67	0.60	0.85	0.87
	Sdepen2	0.66			
	Sdepen3	0.95			
	Sdepen4	0.77			
SSTPs	SSTP1	0.682	0.61	0.86	0.79
	SSTP2	0.768			
	SSTP3	0.704			
	SSTP4	0.467 ^a			
	SSTP5	0.848			
	SSTP6	0.821			
SSCPs	SSCP1	0.613	0.52	0.81	0.72
	SSCP2	0.767			
	SSCP3	0.792			
	SSCP4	0.721			
Relational capital	Rcap1	0.732	0.61	0.88	0.85
	Rcap2	0.853			
	Rcap3	0.739			
	Rcap4	0.752			
	Rcap5	0.838			
Cognitive capital	Ccap1	0.864	0.73	0.91	0.88
	Ccap2	0.847			
	Ccap3	0.828			
	Ccap4	0.928			
Structural capital	Scap1	0.774	0.61	0.86	0.79
	Scap2	0.669			
	Scap3	0.849			
	Scap4	0.822			
Supplier's internal social performance	Sperf1	0.934	0.83	0.93	0.89
	Sperf2	0.938			
	Sperf3	0.856			

Note: ^aItem dropped.

5.4.1.2 Validity

While reliability indicates “how” a given construct should be measured, validity represents “what” should be measured (Hair et al., 2014a). Validity refers to the extent to which indicators truly measure the constructs which they are intended to measure (Peter, 1981). Two types of validity should be established: content and construct validity. Construct validity is further divided into convergent and discriminant validity.

1. Content validity

Content validity (or face validity) refers to a subjective assessment of the degree to which a set of indicators capturing a construct are adequate and represent the theoretical domain of that specific construct (Hair et al., 2014a; Sekaran and Bogie, 2014). To establish the content validity of the research's constructs, two sequential steps were followed. In the first step, a thorough and systematic review of the relevant literature on socially SSCM, social capital and performance were carried out to ensure an informed and robust development of the measurement model. In the second step, the initial survey was pilot tested by administrating the survey to several experienced academics in the field of Operations and SCM.

2. Convergent validity

Convergent validity refers to the degree to which a measure correlates positively with alternative measures of the same construct (Hair et al., 2014a). Hence, convergent validity can be established when the measures of the same construct are highly inter-correlated among themselves and uniform (Bagozzi, 1981).

To examine the convergent validity of the indicators of each construct, standardised factor loadings of the indicators and the average variance extracted (AVE) of the construct were examined (Hair et al., 2014a). Factor standardised loadings indicate the correlations between the indicators and their respective construct (Hair et al., 2014a). Higher loadings of indicators on their associated construct suggest that the indicators share something in common, which is captured by the construct (Hair et al., 2014b). In the context of PLS-SEM, Hulland (1999) suggests that a loading size of 0.5 indicates convergent validity. Table 5.11 shows that the standardised loadings of the indicators on their associated constructs are higher than 0.5 (except SSTP4), which point towards convergent validity.

AVE represents the amount of variance explained in indicators by their respective construct in relation to the unexplained variance due to measurement error (Fornell and Larker, 1981). AVE can be calculated by dividing the sum of all squared standardised factor loadings on the number of indicators. Convergent validity can be established when the AVE is 0.5 or higher (Fornell and Larker, 1981). All the constructs' AVE values presented in Table 5.11 are greater than 0.5 suggesting that

the variances explained in the indicators by their associated constructs are greater than their measurement error variances. Thus, all the research constructs established convergent validity.

3. Discriminant validity

Discriminant validity indicates that a construct is empirically unique and represents a phenomenon of interest that is not captured by other constructs within the same measurement model (Hair et al., 2014a). Discriminant validity of constructs is established when their associated indicators “correlate at a level lower than that of the within-construct correlations” (Bagozzi 1981, p. 377).

To assess the discriminant validity of the constructs, we adopted Fornell and Larcker’s (1981) criterion and Heterotrait-monotrait (HTMT) ratio (Henseler et al., 2015). In their evaluation of the effectiveness of the most commonly used methods for assessing discriminant validity (i.e. constrained phi method, overlapping confidence intervals), Voorhees et al. (2016) found that Fornell and Larcker’s criterion and HTMT are the most efficient techniques, with HTMT showing superiority overall.

Based on Fornell and Larcker’s criterion, a construct can establish discriminant validity when the square root of its AVE value is higher than its bivariate correlation with any other construct (Fornell and Larcker, 1981). The rationale behind this criterion is that a construct shares more variance with its corresponding indicators than with any construct (Hair et al., 2014b). Table 5.12 presents the correlations between constructs in the non-diagonal elements with the squared roots of their AVE values in the diagonal line. As shown all the squared roots of the AVE values of the constructs are greater than any correlation between any construct with any other construct. Accordingly, the constructs have established discriminant validity.

For further assessing the discriminant validity of the constructs, the Heterotrait-monotrait (HTMT) ratio was adopted (Henseler et al., 2015). The HTMT method was primarily developed to assess discriminant validity in studies that use variance-based SEM. As a variance-based technique, PLS-SEM has a tendency to overestimate factor loadings that lead to an increase in AVE values, which affect the ability of Fornell and Larcker’s criterion to identify discriminant validity violations (Voorhees et al., 2016).

However, the HTMT method does not require a factor analysis to obtain factor loadings, nor does it require the estimation of construct scores (Henseler et al., 2015). This makes HTMT method more appropriate in detecting discriminant validity in the context of PLS-SEM and is an alternative method for studies that do not meet the factor analysis assumptions underlying CB-SEM (Voorhees et al., 2016).

Table 5.12: Discriminant validity analysis (Fornell and Larcker's criterion)

Construct	A	B	C	D	E	F	G	H
A Supplier dependency	.824							
B SSTPs	.010	.690						
C SSCPs	-.058	.658	.725					
D Relational capital	.157	.186	.149	.785				
E Cognitive capital	-.010	.257	.297	.603	.867			
F Structural capital	.024	.316	.246	.637	.640	.782		
G Supplier's social performance	.016	.432	.581	.407	.303	.356	.910	
H Buyer's operational performance ^a								

** Correlation is significant at the 0.01 level (2-tailed)

Figures in the diagonal line represent the \sqrt{AVE}

* Buyer's operational performance is formative construct

The HTMT method entails the calculation of a ratio of the average correlations of items across constructs to the geometric mean of the average correlations of items within the same construct (Henseler et al., 2015). Based on this method, a construct can establish discriminant validity if the relationships of the indicators within the same construct are stronger than those of the indicators across constructs. Henseler et al. (2015) suggest that HTMT ratios exceeding 0.85 indicates a lack of discriminant validity. Table 5.13 shows that the HTMT ratios of the constructs were all below the threshold value of 0.85, demonstrating discriminant validity.

Table 5.13: Discriminant validity analysis (HTMT method)

Construct	A	B	C	D	E	F	G	H
A Supplier dependency								
B SSTPs	.130							
C SSCPs	.158	.519						
D Relational capital	.179	.160	.185					
E Cognitive capital	.136	.224	.211	.678				
F Structural capital	.179	.233	.346	.774	.747			
G Supplier's social performance	.111	.475	.597	.299	.311	.415		
H Buyer's operational performance ^a								

Note: ^aBuyer's operational performance is a formative construct.

5.4.2 Evaluating the formative measurement model

Unlike the reflective measurement model, internal consistency is inappropriate for evaluating the reliability of the formative measurement model since its indicators are

error-free (Diamantopoulos and Winklhofer, 2001). Moreover, as the formative indicators capture different facets of their associated constructs, it should not be highly correlated (Jarvis et al., 2003; MacKenzie et al., 2005). As a result, the quality of the formative measurement model was assessed by establishing the content validity, examining the indicators' multicollinearity and examining the relative and absolute importance of the indicators to their respective constructs (Chin, 1998; Hair et al., 2014b). The three criteria are presented and discussed in the following subsections.

5.4.2.1 Content validity

Similar to the reflective measurement model, the content validity of the formative measurement model was established in two sequential steps were followed. In the first step, a thorough literature review was carried out to ensure that all the formative indicators (i.e. cost, quality, delivery and flexibility) represent and capture all the aspects and domain of operational performance (Jarvis et al., 2003; Hair et al., 2014b). These four operational performance dimensions represent a commonly agreed list of operations competitive priorities (Ward et al., 1998; Krause et al., 2007; Devaraj et al., 2007; Wong et al., 2011) and the main performance objectives for suppliers (Monczka et al., 1998; Krause et al., 2000; Liker and Wu, 2000) among operations and SCM scholars. In the second step, the initial survey was evaluated by several academics in the field of Operations and SCM.

5.4.2.2 Assessing the indicators' multicollinearity

Multicollinearity among the formative indicators can inflate the standard errors, which decreases the ability to demonstrate that the estimated weights are significantly different from zero (Hair et al., 2014b). Moreover, severe collinearity between two formative indicators can change their positive weights to negative and vice versa (Hair et al., 2014b).

To assess the level of multicollinearity, tolerance and Variance Inflation Factor (VIF) values were obtained. Tolerance shows the level of variance of one indicator not explained by other indicators associated with the same construct (Hair et al., 2014b). VIF indicates the amount increased in the standard error as a result of collinearity between two indicators (Hair et al., 2014b). A tolerance value of 0.20 or higher and a VIF value of 5 and lower, respectively, suggest that collinearity is not a concern (Hair

et al., 2014b). Table 5.14 reports the values of tolerance and VIF among the indicators. All tolerance values are higher than 0.20 and VIF values are lower than 5, suggesting that multicollinearity was not an issue for the formative indicators.

Table 5.14: Multicollinearity test of the formative indicators

Indicator	Multicollinearity measures	
	Tolerance	VIF
Cost	0.637	1.568
Delivery	0.243	4.107
Flexibility	0.247	4.046
Quality	0.421	2.371

5.4.2.3 Evaluating the indicators' relative and absolute importance

The indicator's relative importance represents the contribution of the formative indicator to its respective construct compared to that of the other indicators (Hair et al., 2014b). The indicator's absolute importance, on the other hand, refers to the contribution of the indicator to its associated construct (Hair et al., 2014b). The indicators' relative importance is assessed by examining the size and significance of their outer weights, whilst their absolute importance is evaluated by the size of their outer loadings. The outer weights are the result of regressing the construct on all indicators simultaneously (Hair et al., 2014b) since the formative indicators are causes of their constructs (Jarvas, 2003). Moreover, as formative indicators are error-free, they explain 100% of the variance in their construct (Diamantopoulos and Winklhofer, 2001). The outer loadings represent the simple regressions of each indicator on its associated construct (Hair et al., 2014b).

To examine the significance of the indicators' outer weights and loadings, bootstrapping with 5000 resamples was run. A significant indicator's outer weight suggests a relative contribution of the indicator to its corresponding construct, which provides support for retaining it (Hair et al., 2014b). However, when the indicator's outer weight is nonsignificant, the decision of keeping or removing it depends on the size of its outer loading. Specifically, when the indicator's outer weight is nonsignificant, and its outer loading is >0.50 , it suggests an absolute important indicator to its related construct, and therefore should be retained (Hair et al., 2014). When the indicator's outer weight, on the other hand, is nonsignificant and its outer

loading is <0.50 , the researcher can decide as to whether to keep or delete it (Hair et al., 2014b).

Table 5.15 reports the indicators' outer weights and loadings and their significances. All the indicators' outer weights and loadings are significant, suggesting that they are relatively and absolutely important to the buyer's operational performance with exception to the delivery indicator. It was decided to keep the delivery indicator as discarding it can change the theoretical content of the construct (Chin, 1998). It has almost no influence on the parameter estimates when reestimating the model (Hair et al., 2014b).

Table 5.15: Indicators' outer weights and loadings

Indicator	Outer weights	Outer loadings	<i>t</i> value	<i>p</i> -value
Cost	0.736	0.956	4.23	0.000
Quality	0.331	0.750	3.06	0.002
Delivery	0.199	0.484	1.677	0.092
Flexibility	0.229	0.634	2.50	0.002

5.5 Descriptive statistics

All the variables were measured on a 7 point Likert scale ranging from “1=strongly disagree to 7=strongly agree” with the exception of socially sustainable supply chain practices which were measured on a 5 point Likert scale with greater values indicating a higher level of implementation. The mean, standard deviation, skewness and kurtosis of the independent (SSTPs, SSCPs, relational, cognitive and structural capital), dependent (supplier's internal social performance and buyer's operational performance) and control variables (firm size, firm age, relationship length and supplier dependency) are presented and discussed in the following subsections.

5.5.1 Descriptive statistics of the independent variables

The aim of this study was to examine whether the implementation of socially sustainable supply chain management practices can improve supplier's internal social performance and buyer's operational performance. As highlighted in chapter 3, socially sustainable supply chain management practices were categorised into two groups, namely SSTPs and SSCPs. SSTPs reflect six assessment and monitoring

practices, whilst SSCPs represent four collaboration practices. Table 5.16 displays the descriptive statistics of SSTPs and SSCPs.

Table 5.16: Descriptive statistics of the independent variables

Constructs		Mean	Std. deviation	Skewness	Kurtosis
SSTPs					
SSTP1	Ethical code of conduct	2.90	1.24	-.04	-.98
SSTP2	Auditing	2.77	1.20	.03	-.68
SSTP3	Health and safety questionnaires	2.83	1.32	.16	-.98
SSTP4	Certification programme	2.50	1.65	.45	-1.46
SSTP5	Using established guidelines and procedures	2.98	1.26	-.19	-.86
SSTP6	Provide feedback	2.87	1.35	-.12	-1.29
SSCPs					
SSCP1	Financial incentives	1.62	.92	.96	-.79
SSCP2	Visits to supplier' facilities	2.94	1.36	-.11	-1.20
SSCP3	Provide training/education	1.87	1.15	.96	-.40
SSCP4	Developed new products/processes	2.55	1.23	.24	-.82

Table 5.16 indicates that the average score of SSTPs is above the scale average score (2.5). Using 'established guidelines and procedures' and 'ethical code of conduct' practices have, on average, the highest scores of 2.98 and 2.90, respectively. This is followed by 'providing feedback to suppliers' and 'using health and safety questionnaires' practices which show a similar pattern of implementation with mean scores of 2.87 and 2.83, respectively. 'Auditing suppliers' and 'certification' practices were the less implemented with mean scores (2.77 and 2.50, respectively).

Table 5.16 highlights that SSCPs have shown less adoption and implementation among the participating companies than SSTPs. This is probably due to the high costs associated with the implementation of this type of practice. In general, SSCPs average score is varied with some practices above and others below the scale average score (2.5). Specifically, 'visiting suppliers' facilities' to ensure compliance with social standards was the most implemented practice by companies with an average score of 2.94. This is followed by 'developing new products and/or a process' with suppliers to reduce hazards with a mean value of 2.55 that slightly exceeds the scale average score. Providing 'financial incentives' for complied suppliers and establishing 'training/education programmes' to improve suppliers capability were the less implemented practices with mean values of 1.62 and 1.87, respectively.

5.5.2 Descriptive statistics of the dependent variables

The study set out is to examine the impact of socially sustainable supply chain management practices (i.e. SSTPs and SSCPs) on supplier's internal social performance and buyer's operational performance. Respondents were asked to report on their supplier's internal social performance and their own operational performance. Supplier's internal social performance was captured by three indicators, whilst buyer's operational performance was measured by four indicators reflecting the buyer's improvements in cost, quality, delivery and flexibility. Table 5.17 presents the descriptive statistics of supplier's internal social performance indicators and buyer's operational performance indicators.

Table 5.17: Descriptive statistics of the dependent variables

Constructs	Mean	Std. deviation	Skewness	Kurtosis
Supplier' internal social performance				
Sperf1 Compliance with human rights	3.93	1.61	-.23	-.57
Sperf2 Improved safety and labour conditions	4.23	1.70	-.28	-.64
Sperf3 Compliance with child labour employment	4.05	1.94	-.03	-.86
Buyer's operational performance				
Operf1 Cost	5.03	1.35	-.84	.58
Operf2 Quality	5.33	1.28	-1.17	1.43
Operf3 Delivery	5.02	1.46	-1.06	1.04
Operf4 Flexibility	5.13	1.48	-1.14	1.10

Table 5.17 illustrates that the mean value of each supplier's internal social performance indicators is above the scale average score (3.5). Improved 'safety and labour conditions' item has the highest mean value of 4.23. This is followed by 'compliance with child labour employment' (4.05) and then 'compliance with human rights' (3.39). Taken together, this suggests that, on average, companies reported an improved supplier's internal social performance.

Table 5.17 also demonstrates that the mean value of all buyer's operational performance indicators are higher than the scale average point (3.5). Among the indicators, buyers reported that their 'product quality' was the most improved with an average score of 5.33. This is followed by achieving improvements in 'manufacturing flexibility' with an average score of 5.13. Improvements in the 'cost' and 'delivery' were the less enhanced dimensions with similar average scores of 5.03 and 5.02, respectively.

5.5.3 Descriptive analysis of the moderating variables

This study also aimed to explore whether the effect of socially sustainable supply chain management practices on supplier's social performance would be leveraged by the level of social capital embedded in buyer-supplier relationship. Social capital was conceptualised as a tripartite concept consisting of three dimensions: relational, cognitive and structural capital. Relational capital was measured by five indicators, while cognitive and structural capital were captured by four indicators each. Table 5.18 provides the descriptive statistics of the relational, cognitive and structural capital and their associated indicators.

Table 5.18: Descriptive statistics of the moderating variables

Constructs		Mean	Std. deviation	Skewness	Kurtosis
Relational capital		5.34	.89	-.52	-.06
Rcap1	Close interaction	5.70	.97	-.71	.46
Rcap2	Mutual trust	5.72	1.04	-.94	1.23
Rcap3	Mutual respect	5.60	1.00	-.39	-.29
Rcap4	Mutual friendship	4.74	1.35	-.62	.06
Rcap5	High levels of reciprocity	4.97	1.28	-.94	1.30
Cognitive capital		4.72	1.16	-.42	.82
Ccap1	Similar organisational culture/values	4.51	1.45	-.49	-.18
Ccap2	Similar philosophies/approaches	4.69	1.30	-.29	-.15
Ccap3	Compatible goals and objectives	5.09	1.20	-.86	1.24
Ccap4	Same vision of business	4.62	1.39	-.42	.09
Structural capital		4.59	1.40	-.29	-.81
Scap1	Organise social events	3.43	2.04	.06	-1.42
Scap2	Frequent communication	6.06	1.20	-1.92	4.52
Scap3	Frequent and intensive interaction	5.05	1.68	-.91	.03
Scap4	Close social relationships	3.83	2.11	-.07	-1.30

Table 5.18 clearly shows that the mean values of all social capital dimensions are higher than the scale average score (3.5). Relational capital was the most observed dimension of social capital in the buyer-supplier relationship followed by cognitive and then structural capital with mean values of 5.34, 4.72 and 4.59, respectively.

Table 5.18 also illustrates that the mean value of all relational capital indicators is greater than the scale average point (3.5). Among the indicators, 'mutual trust' (Rcap2) and 'close interaction' (Rcap1) were the most observed characteristics of relational capital with mean values of 5.72 and 5.70, respectively. This is followed by the existence of 'mutual respect' (Rcap3) between buyer and supplier with a mean value of 5.60. High levels of 'reciprocity' (Rcap5) and 'mutual friendship' (Rcap4) were the

least observed characteristics of relational capital with mean values of 4.97 and 4.74, respectively.

In respect to cognitive capital, Table 5.18 reveals that the mean values of its indicators are higher than the scale average score (3.5) with a noticeable higher mean value of the presence of ‘compatible goals and objectives’ (Ccap3) between buyers and suppliers. This is followed by the existence of ‘similar philosophies/approaches’ (Ccap2) and a ‘similar vision of businesses’ (Ccap4) between buyer and supplier with mean values of 4.69 and 4.62, respectively. Finally, ‘similar organisational culture/value’ (Ccap1) between buyer and supplier was the least observed characteristic of cognitive capital with a mean value of 4.51.

Table 5.18 indicates that the mean values of structural capital indicators were greater than the scale average score (3.5) with the exception of ‘organising social events’ (Scap1) which was just slightly below (3.43). The low mean value indicates less social events taking place between buyer and supplier. ‘Maintaining frequent communications’ (Scap2) between buyer and supplier was significantly higher than the average score with a mean value of 6.06. This was followed by ‘maintaining frequent and intensive interaction’ (Scap3) between buyer and supplier with a mean score of 5.05. ‘Maintaining close social relationships’ (Scap4) between buyer and supplier was just slightly above the average score of the scale with a mean value of 3.83.

5.6 Testing the structural model

5.6.1 Model specification

PLS-SEM was adopted for data analysis. A growing amount of literature has clearly demonstrated the superiority of PLS-SEM compared to its counterpart CB-SEM under certain conditions of which several are present this study (e.g. Peng and Lai, 2012; Hair et al., 2010a) and clearly pointed out previously in section 4.11.4.2. SmartPLS 3.0 (Ringle et al., 2014) was used to estimate the structural model.

Testing the structural model involves examining the model’s predictive capabilities (i.e. accuracy, relevancy and size) and the individual hypothesised relationships (Hair et al., 2014b). The model’s predictive accuracy and relevance were assessed using the

coefficient of determination (R^2 value) and Stone-Geisser's Q^2 value (Geisser, 1974; Stone, 1974), respectively. The effect size of the model was examined using f^2 (Cohen, 1988). The R^2 value represents the combined effects of the independent variables on the dependent variables (Hair et al., 2014b). The R^2 value varies from 0 to 1, with higher levels suggesting higher levels of predictive accuracy. The Q^2 value, on the other hand, represents the accuracy of predicting the data point of the indicators of the dependent variable (Hair et al., 2014b). A Q^2 value larger than zero indicates a predictive relevance of the dependent variables (Hair et al., 2014b). The blindfolding procedure in SmartPLS 3.0 was used to obtain the Q^2 value which omits certain data point in the dependent reflective construct's indicators and uses the remaining data point to estimate the parameters (Chin, 1998; Hair et al., 2014b; Henseler et al., 2009). Therefore, it requires deciding on an omission distance to run this procedure (Hair et al., 2014b). Following the recommendation of Hair et al. (2014b), an omission distance of eight was used to estimate the predictive relevance for supplier's internal social performance. Finally, f^2 reflects the ratio of the systematic variance explained by particular exogenous variables to the unexplained variance in the dependent variable (Cohen, 1988). f^2 of 0.02 is interpreted as a small size, while 0.15 as moderate and 0.35 as large (Cohen, 1988).

To test the significance of the hypothesised relationships, p -value and t -value were used as indicators. A p -value of $\leq .05$ and t -value of ≤ 1.96 (significance level = 5%) suggests a significant path relationship (Hair et al., 2014a). The significance of path coefficients under PLS-SEM is obtained through the bootstrapping technique available in SmartPLS 3.0. The bootstrapping technique draws randomly a large number of subsamples from the original sample with replacement (Hair et al., 2014b). The larger the number of samples used during the bootstrapping process, the more robust the results will be (Hair et al., 2014b). Accordingly, following of Hair et al.'s (2014b) suggestions, 5000 bootstrap samples were used.

The structural model was tested in three hierarchical stages. In the first stage (model 1), the baseline model, all the control variables were introduced into the regression equation to control their possible effects on supplier's internal social performance and buyer's operational performance. Model's 1 specifications are as follows:

$$S_{\text{perf}} = \beta_0 + \beta_1 SD + \beta_2 RL + \beta_3 SD + \varepsilon \quad (5.1)$$

$$B_{\text{perf}} = \beta_0 + \beta_1 FS + \beta_2 FA + \beta_3 RL + \varepsilon \quad (5.2)$$

Where:

S_{perf} : Supplier's internal social performance,

B_{perf} : Buyer's operational performance,

β_0 : Constant,

β_1, β_2 and β_3 : Coefficients,

FS: Firm size,

FA: Firm age,

SD: Supplier dependency,

RL: Relationship length,

ε : error

In the second stage (model 2), main effects model, all the independent and moderating variables were introduced to test their direct effects on both supplier's internal social performance and buyer's operational performance. Model 1 and model 2 together are labelled as direct effects models. Model 2 specifications are as follows:

$$S_{\text{perf}} = \beta_0 + \beta_1 RL + \beta_2 SD + \beta_3 S_{\text{STPs}} + \beta_4 S_{\text{SCPs}} + \beta_5 RC + \beta_6 CC + \beta_7 SC + \varepsilon \quad (5.3)$$

$$B_{\text{perf}} = \beta_0 + \beta_1 FS + \beta_2 FA + \beta_3 RL + \beta_4 S_{\text{STPs}} + \beta_5 S_{\text{SCPs}} + \varepsilon \quad (5.4)$$

Where:

S_{perf} : Supplier's internal social performance,

B_{perf} : Buyer's operational performance,

β_0 : Constant,

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ and β_6 : Coefficients,

FS: Firm size,

FA: Firm age,

RL: Relationship length,

S_{STPs} : Socially sustainable transactional practices,

S_{SCPs} : Socially sustainable collaboration practices,

RC: Relational capital,

CC: Cognitive capital,

SC: Structural capital,

ε : error

In the third stage (model 3), the full model, all interactions terms were introduced to test their potential effect on supplier's internal social performance. The model specifications are as follows:

$$\begin{aligned} S\text{perf} = & \beta_0 + \beta_1 \text{RL} + \beta_2 \text{SD} + \beta_3 \text{SSTPs} + \beta_4 \text{SSCPs} + \beta_5 \text{RC} + \beta_6 \text{CC} + \beta_7 \\ & \text{SC} + \beta_8 \text{RCXSSTPs} + \beta_9 \text{RCXSSCPs} + \beta_{10} \text{CCXSSTPs} + \beta_{11} \\ & \text{CCXSSCPs} + \beta_{12} \text{SCXSSTPs} + \beta_{13} \text{SCXSSCPs} + \varepsilon \quad (5.5) \end{aligned}$$

Where:

Sperf: Supplier's internal social performance,

β_0 : Constant,

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ and β_6 : Coefficients,

RL: Relationship length,

SD: Supplier dependency,

SSTPs: Socially sustainable transactional practices,

SSCPs: Socially sustainable collaboration practices,

RC: Relational capital,

CC: cognitive capital,

SC: Structural capital,

ε : error

To test the interaction effect of social capital dimensions (i.e. relational, cognitive and structural) on the relationship between both SSTPs and SSCPs on supplier's social performance under PLS-SEM, the product indicator approach (Chin et al., 2003) was adopted. As building the interaction term from the indicators of both the independents and moderator variables can lead to multicollinearity issue (Aiken and West, 1991; Dawson, 2014), the indicators were standardised (i.e. deducting the mean from the score of the indicator then dividing it by the standard deviation so that it has a mean of zero and standard deviation of 1). Mean-centred method (i.e. deducting the mean

from the score of the indicator so that it has a mean of zero) of the independent and moderator in creating the interaction term has been suggested as another method for transforming the values of the independent and moderator before computing the interaction term (Dawson, 2014).

5.6.2 Model results

5.6.3 Direct effects models

This section presents and reports the test of the hypotheses that predict a direct relationship between the independent variables (i.e. SSTPs and SSCPs) and the dependent variables (i.e. supplier's internal social performance and buyer's operational performance). This section also reports the potential impact of the control variables on the dependent variables.

In model 1, the baseline model, introducing the control variables (relationship length and supplier dependency) explained .019 of supplier's internal social performance, while introducing (firm size, firm age and relationship length) explained .047 of the variance in buyer's operational performance as reported in Table 5.19.

In model 2, compared with the baseline model, the addition of the all the exogenous variables (SSTPs, SSCPs, relational capital, cognitive capital, structural capital) increased R^2 for supplier's internal social performance significantly from 0.019 to 0.34 ($\Delta R^2 = 0.32$), while the impact of the relationship length between buyer and the supplier involved in the SSSC practices remained insignificant. The structural model shows a predictive relevance for supplier's internal social performance ($Q^2=0.25$). Similarly, the addition of SSTPs and SSCPs also increased R^2 for the buyer's operational performance significantly from .047 to 0.15 ($\Delta R^2 = .10$), whilst all the control variables (firms size, firm age, relationship length) remained insignificant.

5.6.3.1 SSTPs, SSCPs and supplier's social performance

The study argues that the implementation of SSTPs and SSCPS will improve supplier's internal social performance (H1a and H1b). The results reported in Table 5.19 indicate that SSTPs are not related to supplier's internal social performance ($\beta = .11, p > 0.05$), whilst SSCPs are positively and significantly associated ($\beta = .21, p < 0.01$). These results provide no support to H1a, but do provide support for H1b.

Table 5.19: Results of testing the structural model

Construct	Direct effects models								Interaction effects model				Hypothesis result
	Model 1				Model 2				Model 3				
	Supplier's internal social performance		Buyer's operational performance		Supplier's internal social performance		Buyer's operational performance		Supplier's internal social performance		Buyer's operational performance		
	β	t	β	t-value	β	t-value	β	t-value	β	t-value	β	t-value	
Firm size			0.13	0.92			0.03	0.24			0.03	0.235	
Firm age			-0.06	0.39			-0.04	0.31			-0.02	0.311	
Relationship length	0.08	0.53	0.16	0.95	0.04	0.46	0.01	0.10	0.01	0.12	0.016	0.10	
Supplier dependency	0.16	0.72	0.10	0.50	0.09	0.57	0.13	0.75	0.04	0.317	0.13	0.734	
SSTPs					0.11	0.97	-0.07	0.39	0.10	.95	-0.07	0.389	H1a: R, H2a: R
SSCPs					0.21	3.14***	0.02	0.15	0.22	3.03**	0.028	0.166	H1b: S, H2b: R
Relational capital					0.12	1.16			0.094	0.89			
Cognitive capital					0.10	1.02			0.09	1.10			
Structural capital					0.15	1.32			0.19	1.90*			
Supplier's int. social perf.							0.36	1.91*			0.36	1.93*	H6: S
SSTPs x SSCP									-0.196	1.28			H1c: R
SSTPs x relational capital									0.28	2.72**			H3a: S
SSCPs x relational capital									0.35	3.84***			H3b: S
SSTPs x cognitive capital									0.11	0.87			H4a:R
SSCPs x cognitive capital									0.23	2.01**			H4b:S
SSTPs x structural capital									0.27	3.30**			H5a:S
SSCPs x structural capital									0.13	1.07			H5b: R
R^2	0.019		0.047		0.34		0.15		0.467		0.149		
ΔR^2					0.321		0.103		0.12		-0.001		
f^2					0.49		0.12		0.22		-0.001		
Q^2	-0.017		n/a		0.25		n/a		0.29		n/a		

* $P \leq 0.10$, ** $p \leq 0.05$, *** $p \leq 0.01$ R: rejected; S: supported; and n/a: not applicable

5.6.3.2 SSTPs, SSCPs and buyer's operational performance

The study also predicts that the implementation of SSTPs and SSCPs is positively associated with buyer's operational performance as stated in H2a and H2b. In contrast to the predictions, the results displayed in Table 5.19 shows that both SSTPs ($\beta = -0.07, p > 0.05$) and SSCPs ($\beta = .02, p > 0.05$) are not related to buyer's operational performance. Hence the analysis provided no support for H2a and H2b.

5.6.3.3 Supplier's social performance and buyer's operational performance

The study also posited that improving supplier's internal social performance will have a positive impact on the buyer's operational performance as formulated in H6. The result reported in Table 5.19 point out that supplier's internal social performance is positively associated with buyer's operational performance ($\beta = .36, p < 0.10$). This provides partial support for H6. This result suggests that the implementation of SSCPs indirectly improve buyer's operational performance through enhancing supplier's internal social performance.

5.6.4 The interaction effects model

In the interaction model (model 3), all the interaction terms were added into the main direct models (model 1 and 2). The addition of these interaction terms increased R^2 for supplier's internal social performance significantly from 0.34 to 0.46 ($\Delta R^2 = 0.12$), while R^2 for buyer's operational performance remained relatively constant. The model predictive relevance Q^2 for supplier's internal social performance increased from 0.25 to 0.29. The effect size f^2 of the interaction effect was 0.22, suggesting a moderate effect (Cohen, 1992).

5.6.4.1 The interaction of SSTPs and SSCPs

The first interaction hypothesis was related to the impact of the joint implementation of both SSTPs and SSCPs on supplier's internal social performance. The hypothesis predicted that the simultaneous implementation of SSCTPs and SSCPs is negatively related to supplier's internal social performance. The data presented in Table 5.20 indicates the impact of joint implementation (synergic effect) of SSTPs and SSCPs on supplier's social performance is insignificant ($\beta = -.196, p > 0.05$), which provide no support for H1c. However, the direction of the effect is consistent with the hypothesised negative interaction. This result therefore warrants further research.

5.6.4.2 The interaction of SSTPs, SSCPs and social capital dimensions

The study predicted that the developing and maintaining of social capital (i.e. relational, cognitive and structural capital) in buyer-supplier relationship can improve and facilitate the implementation of SSTPs and SSCPs. The study argued a unique and contingent role of social capital dimensions on the relationship among SSTPs, SSCPs and supplier's internal social performance. In other words, social capital dimensions moderate the relationship among SSTPs, SSCPs and supplier's internal social performance. More specifically, relational, cognitive and structural capital moderate the relationship between SSTPs and supplier's internal social performance in such a fashion that the relationship becomes significant and positive. Moreover, relational, cognitive and structural capital moderates the relationship between SSCPs and supplier's internal social performance in such a fashion the positive effect of SSCPs on supplier's internal social performance is stronger when the buyer-supplier relationship has higher levels of the three dimensions. These predictions were developed in H3a-b to H5a-b.

The results reported in Table 5.20 indicate that the moderating effect of relational capital on the relationship between SSTPs and supplier's social performance is significant ($\beta = .28, p < 0.01$), which provides support for H3a. Similarly, relational capital has found to strengthen the relationship between SSCPs and supplier's internal social performance ($\beta = .35, p < 0.01$), thus, providing support for H3b.

For the moderating effect of cognitive capital, the results displayed in Table 5.20 demonstrate that the cognitive capital on the relationship between SSTPs and supplier's social performance is insignificant ($\beta = .12, p < 0.05$), which provides no support for H4a. On the other hand, the results suggest that cognitive capital strengthens the relationship between SSCPs and supplier's internal social performance ($\beta = .23, p < 0.01$), which provides support for H4b.

The results reported in Table 5.20 reveals that the moderating effect of structural capital on the relationship between SSTPs and supplier's internal social performance is significant ($\beta = .27, p < 0.01$), providing support for H5a. In contrast, the results highlight that structural capital has no influence on the relationship between SSCPs

and supplier's internal social performance ($\beta = .18, p < 0.05$), providing no support for H5b.

5.6.4.3 Simple slope analysis of the interactions effects

To gain a clear interpretation of the interactions effects model, the simple slope analysis was used (Cohen and Cohen 1983; Aiken and West, 1991). This analysis plots the predicted relationship between the independent and outcome variable at different levels of the moderators. Specifically, the interactions effects are plotted by estimating predicted values of the outcome variable at low and high values of the independent variable and the moderator variable (Dawson, 2014). The regression Equation 5.6 can be rearranged in Equation 5.7 to express the regression of the outcome variable on the independent at different levels of the moderator variable:

$$Y = \beta_0 + \beta_1 X + \beta_2 Z + \beta_3 XZ \quad (5.6)$$

$$Y = (\beta_1 + \beta_3 Z) X + (\beta_2 Z + \beta_0) \quad (5.7)$$

Where:

Y: Dependent variable,

X: Independent variable,

Z: Moderator variable,

β_0 : Constant,

β_1 and β_2 : Coefficients.

Following the recommendations by Cohen and Cohen (1983) and Aiken and West (1993), one standard deviation above the mean and one standard deviation below the mean of the moderator variable was adopted as the low and high values to plot the interaction effects. These values are substituted into equation 5.2 to produce a series of regression equations (simple slope lines) of the outcome variable on the independent at specific values of the moderator:

$$\text{For } Z_{\text{low}} = -SD: \quad Y = (\beta_1 + \beta_3(-SD)) X + (\beta_2(-SD) + \beta_0) \quad (5.8a)$$

$$\text{For } Z_{\text{high}} = +SD: \quad Y = (\beta_1 + \beta_3SD) X + (\beta_2SD + \beta_0) \quad (5.8b)$$

Where:

Y: Dependent variable,

X: Independent variable,

Z: Moderator variable,

- SD: One standard deviation below the mean of the moderator,

+SD: One standard deviation above the mean of the moderator,

β_0 : Constant,

$\beta_1, \beta_2,$ and β_3 : Coefficients,

One standard deviation above the mean and one standard deviation below the mean of all the moderating variables were substituted into the equations above. The resulting simple slope lines of the interactions effects are plotted in Figures 5.4-5.8. A visual inspection of the simple slope lines is used to detect the existence of an interaction effect (Dawson, 2014). If the lines have the same slope (parallel), no interaction effect is evident since the regression of the outcome variable on the independent is analogous at all the levels of the moderator. If the lines are not parallel, an interaction effect is existed since the regression of the outcome variable on the independent is different at all the values of the moderator (Cohen et al., 2003).

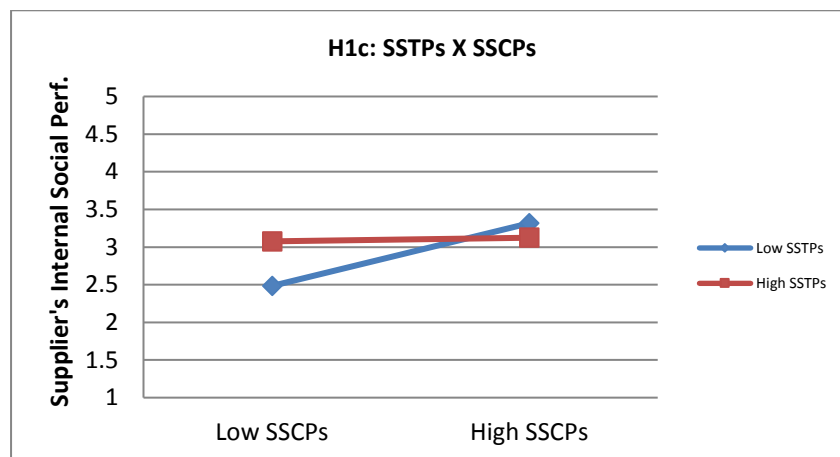


Figure 5.4: The interaction effect of SSTPs and SSCPs

Figure 5.4 shows the interaction effect of SSTPs and SSCPs on supplier's internal social performance. It clearly shows that there is an interaction effect of SSTPs and SSCPs on supplier's internal social performance since the slopes of lines of high and low SSTPs are slightly different. In other words, the relationship between SSCPs and supplier's internal social performance is always positive, but it is far more when SSTPs are less implemented (blue line) than when they are highly implemented (red

line). However, the previous analysis indicated that such interaction is insignificant thus rejecting H1c.

The analysis of the moderating effect of social capital dimensions on the relationships among SSTPs, SSCPs and supplier's internal social performance has revealed mixed results. Figure 5.5 plots the moderating effect of relational capital on the SSTPs-performance link. It shows that the impact of SSTPs on supplier's internal social performance is different at different levels (low and high) of relational capital, suggesting a moderating effect of relational capital. Specifically, the impact of SSTPs is stronger under a higher level of relational capital.

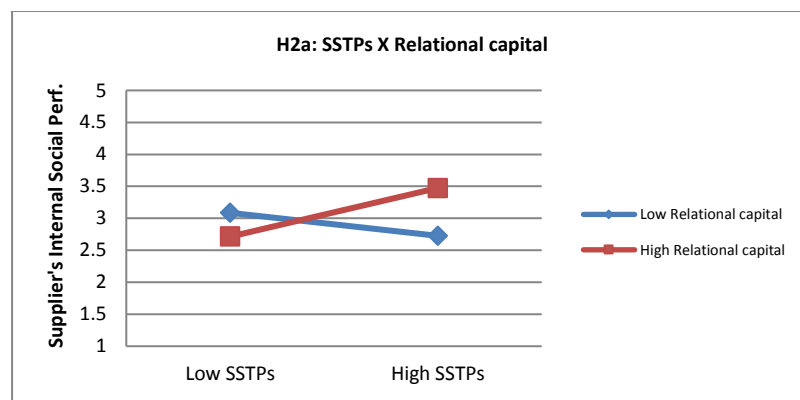


Figure 5.5: The interaction effect of relational capital and SSTPs

Similarly, Figure 5.6 shows the moderating effect of relational capital on the relationship SSCPs and supplier's internal social performance. It demonstrates that relational capital magnifies the impact of SSCPs on supplier's internal performance since the slopes of the lines are not the same. Put differently, the impact of SSCPs is stronger under a higher level of relational capital in the buyer-supplier relationship. Taken together, this confirms the previous results of accepting H3a and H3b.

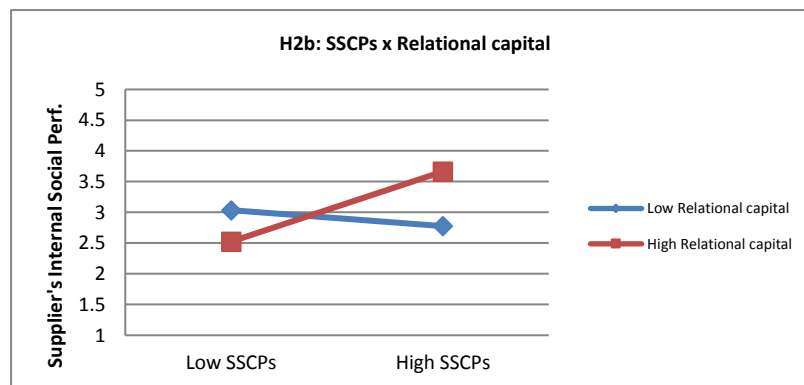


Figure 5.6: The moderating effect of relational capital on the SSCPs

Figure 5.7 plots the moderating effect of cognitive capital on the relationship between SSTPs and supplier's internal social performance. The figure shows that the impact of SSTPs on supplier's internal social performance is relatively the same under low and high level of cognitive capital since the slopes of their respective lines (blue and red) are similar.

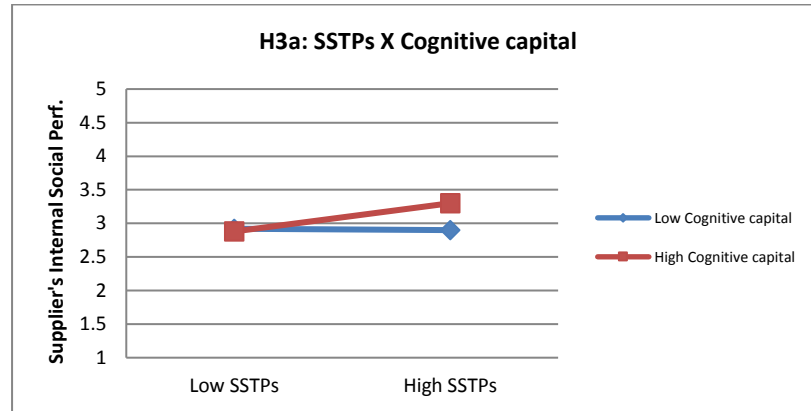


Figure 5.7: The interaction effect of cognitive capital and SSTPs

Figure 5.8 shows the moderating effect of cognitive capital on the SSCPs-performance link. Opposite to SSTPs, the figure shows that the impact of SSCPs on supplier's internal social performance is stronger as the level of cognitive capital increases (red line). In total, these observations support the previous results of rejecting H4a, while accepting H4b.

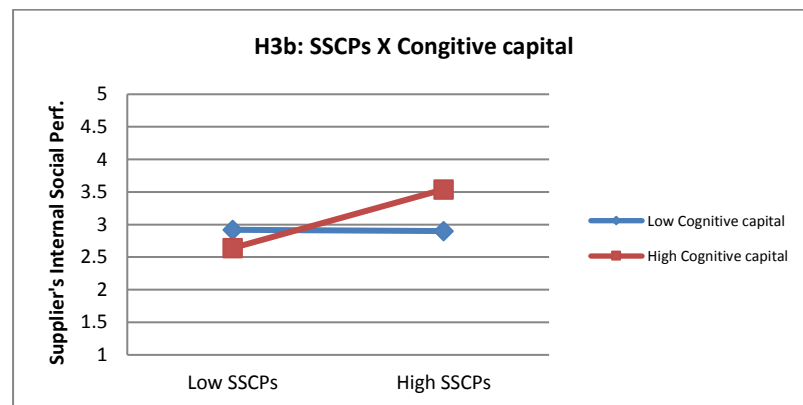


Figure 5.8: The interaction effect of cognitive capital and SSCPs

Figure 5.9 illustrates the moderating effect of structural capital on the SSTPs-performance link. The figure indicates that the impact of SSTPs on supplier's internal social performance is stronger when buyer-supplier relationship has a high level (red line) of structural capital than a low level (low line).

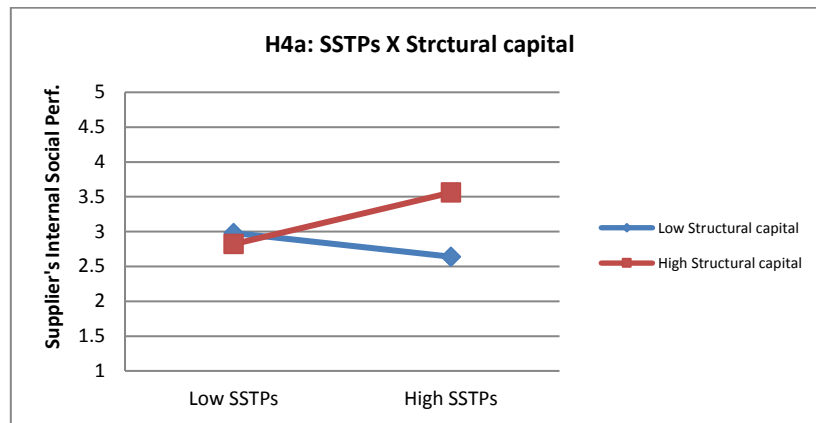


Figure 5.9: The interaction effect of structural capital and SSTPs

Figure 5.10 illustrates the moderating effect of structural capital on the relationship between SSCPs and supplier's internal social performance. The figure shows that the impact of SSCPs on supplier's internal social performance is relatively the same under high (red line) and low (blue line) levels of structural capital. Taken together, the visual examination of both figures confirms the previous results of accepting H5a, whilst rejecting H5b.

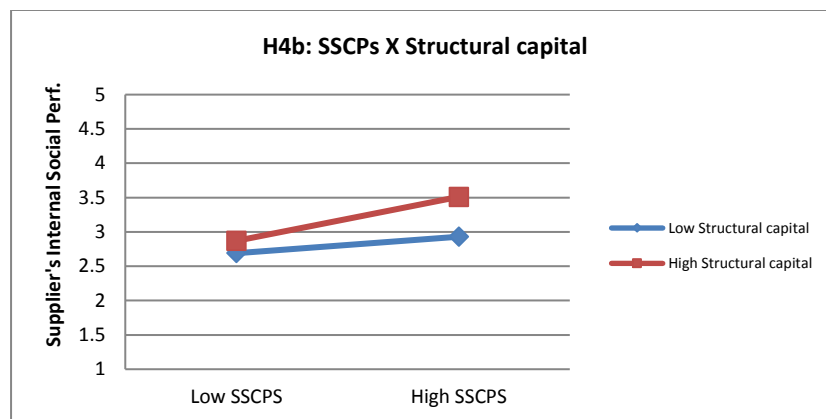


Figure 5.10: The interaction effect of structural capital and SSCPs

5.7 Analysis of variance

The firms that participated in this study varied in industry and supplier relationship length. Therefore, it was essential to assess whether there is a variance among industry sectors and supplier relationship lengths with regard to supplier's internal social performance and buyer's operational performance. The one-way analysis of variance (ANOVA) was used to determine whether there were any statistically significant differences among the means of industry sectors and different supplier relationship lengths (Tabachnick and Fidell, 2014). However, Levene's test should be conducted

prior to ANOVA to assess the homogeneity of variance. Levene's test assesses whether to accept or reject the null hypothesis which suggests that difference in variances in different groups is zero (Levene, 1960). The results of Levene's test and the ANOVA for the industry sectors and supplier relationship lengths are reported in the following subsections.

5.7.1 Industry effect

The firms involved in this study are distributed among 11 different manufacturing industries as was illustrated in section 5.2 (see Table 5.20). Firms working in chemicals, plastics and non-metallic products sector were the most represented firms (20) which represent 16.8% of the total sample. This is followed by firms working in Metals & metal products (17) which accounted for 14.3% of the total sample. Firms working in Machinery and industrial equipment and in electricity, electronics and semiconductor industry were equally represented in the sample (14 each) with 11.8%. The least represented industry in the sample was pharmaceutical (4).

Table 5.20 displays the results of Levene's test for supplier's internal social performance and buyer's operational performance across industry sectors. The results suggest that the variance in supplier's internal social performance ($p=0.71$) and buyer's operational performance ($p =0.10$) is relatively equal across industry sectors.

Table 5.20: Homogeneity of variance analysis (Levene's test)

Dependent variable	Levene statistics	Sig.
Supplier's internal social performance	.707	.716
Buyer's operational performance	1.63	.106

Having established the suitability of analysis of variance by Levene's test, ANOVA was performed to examine whether supplier's internal social performance and buyer's operational performance was significantly different among industries. Table 5.21 reports the analysis of variance for supplier's internal social performance and buyer's operational performance. The analysis reveals that there is no statistically significant difference between industry sectors in relation to supplier's internal social performance ($p=0.93$) and buyer's operational performance ($p=0.80$), suggesting that industry sector has no influence on supplier's internal social performance and buyer's operational performance.

Table 5.21: Analysis of variance across industry sector

Dependent variable	Source of variance	Sum of squares	df	Mean square	F	Sig.
Supplier's internal social performance	Between groups	11.176	10	1.118	.418	.935
	Within groups	288.408	108	2.670		
	Total	299.583	118			
Buyer's operational performance	Between groups	8.667	10	.867	.611	.802
	Within groups	153.193	108	1.418		
	Total	161.859	118			

5.7.2 Supplier relationship length effect

In term of relationship length, measured by number of years, the sample has shown that buyers have different relationship lengths with their suppliers as reported in Table 5.5 under section 5.2. Supplier relationship length is divided into four categories: less than 3 years; 3 to 6 years; 7 to 10 years and; more than 10 years.

Table 5.22 illustrates the results of Levene's test for supplier's internal social performance and buyer's operational performance across the different supplier relationship lengths. The results show that the variance in supplier's internal social performance ($p=0.29$) and buyer's operational performance ($p=0.65$) is relatively equal across different supplier relationship lengths.

Table 5.22: Homogeneity of variance analysis (Levene's test)

Dependent variable	Levene statistics	Sig.
Supplier's internal social performance	1.256	.293
Buyer's operational performance	.538	.657

Having established the suitability of analysis of variance by Levene's test, ANOVA was conducted to test whether the supplier's internal social performance and buyer's operational performance is significantly different across different supplier relationship lengths. Table 5.23 reports the analysis of variance for supplier's internal social performance and buyer's operational performance across relationship lengths. The analysis demonstrates that there was no statistically significant difference between different relationship lengths in respect to supplier's internal social performance ($p=0.34$) and buyer's operational performance ($p=0.47$), suggesting that the length of the relationship has no influence on supplier's internal social performance and buyer's operational performance.

Table 5.23: Analysis of variance across relationship lengths

Dependent variable	Source of variance	Sum of	df	MS	F	Sig.
Supplier's internal social performance	Between groups	8.563	3	2.854	1.128	.341
	Within groups	291.020	115	2.531		
	Total	299.583	118			
Buyer's operational performance	Between groups	3.455	3	1.152	.836	.477
	Within groups	158.404	115	1.377		
	Total	161.859	118			

In summary, the analysis of variance suggests that the variance in the dependent variables are equally distributed among industry sectors and different relationship lengths, and accordingly the results of the current study can be generalised to the population from which the sample was drawn. Therefore, it can be concluded that all the results of hypotheses testing reported previously are confirmed. Table 5.24 provides a summary of hypotheses testing results are confirmed.

Table 5.24: Summary of hypotheses testing results

No.	Path	Type of hypothesised relationship	Results
H1a	SSTPs → Supplier's Sperf.	Direct (+)	Rejected
H1b	SSCPs → Supplier's Sperf.	Direct (+)	Supported
H1c	SSTPs X SSIPs → Supplier's Sperf.	Interaction (-)	Rejected
H2a	SSTPs → Buyer's Operf.	Direct (+)	Rejected
H2b	SSCPs → Buyer's Operf.	Direct (+)	Rejected
H3a	Relation capital X SSTPs → Supplier's Sperf.	Interaction (+)	Supported
H3b	Relation capital X SSCPs → Supplier's Sperf.	Interaction (+)	Supported
H4a	Cognitive capital X SSTPs → Supplier's Sperf.	Interaction (+)	Rejected
H4b	Cognitive capital X SSCPs → Supplier's Sperf.	Interaction (+)	Supported
H5a	Structural capital X SSTPs → Supplier's Sperf.	Interaction (+)	Supported
H5b	Structural capital X SSCPs → Supplier's Sperf.	Interaction (+)	Rejected
H6	Supplier's Sperf. → Buyer's Operf.	Direct (+)	Supported

5.8 Summary

This chapter presented the process and results of data analysis. The analysis process involved four main stages. In the first stage, a general profile of the study sample was provided in term of respondents' position, firm size, firm age, industry and supplier relationship length using descriptive statistics. The firms involved in this study varied in size, age, industry and supplier relationship length. In the second stage, the data screening, the data were coded and cleaned, missing data were identified and handled, outliers were detected and managed, non-response bias was checked, common method variance was scrutinised and the assumptions of multivariate analysis (i.e. normality, linearity, multicollinearity and homoscedasticity) were examined. In the third stage,

the quality of the measurement models including the formative and reflective models was evaluated. The application of the CFA and HTMT method demonstrated the reliability and validity of the reflective measurement model. The examination of the content validity, the indicators' multicollinearity and the relative and absolute importance of the indicators showed an acceptable quality of the formative measurement model. In the final stage, the structural model was tested in three sequential stages using SmartPLS 3.0. All the control variables were introduced into the regression equation to control their possible effects on supplier's internal social performance and buyer's operational performance followed by the independent and moderating variables and then all the interactions terms to test their potential effect on supplier's internal social performance.

Chapter 6

DISCUSSION AND CONCLUSIONS

6.1 Introduction

In the preceding chapter, a robust empirical examination of the data was provided and subsequently the results of the proposed hypotheses were reported in section 5.6. This chapter summaries, interprets and discusses the results. It also draws conclusions and highlights the theoretical and practical implications of this study. The chapter ends by outlining the study limitations and suggesting fruitful directions for future research.

6.2 Discussion

The study set out to investigate the individual and combined effects of SSTPs and SSCPs on supplier's internal social performance and whether these effects can be moderated (strengthened) by the level of social capital (i.e. relational, cognitive and structural capitals) embedded in buyer-supplier relationships. The study also aimed to examine the impact of SSTPs and SSCPs on buyer's operational performance. The analysis buyer's perspectives of 119 large manufacturing companies in the UK suggested mixed results for the hypothesised relationships.

The discussion of the study results is structured into five sections. The first section discusses the relationship between SSSC practices (SSTPs and SSCPs) and supplier's internal social performance. This section also provides a discussion of the impact of the joint implementation of SSTPs and SSCPs. The second section focuses on the relationship between SSSC practices (SSTPs and SSCPs) and buyer's operational performance. The fourth section presents the discussion of the moderating effects of social capital dimensions (i.e. relational, cognitive and structural). Finally, section five presents the discussion of the relationship between supplier's internal social performance and buyer's operational performance.

6.2.1 SSTPs, SSCPs and supplier's internal social performance

The study predicted a positive relationship between SSTPs and supplier's internal social performance (H1a). The data provided no support to this prediction. Thus, the use of SSTPs (i.e. auditing, code of conduct, monitoring and certification) by buyers to improve supplier's internal social performance was found to be ineffective. This is in line with the results reported by Sancha et al. (2016) who found, using data from Spanish manufacturing companies, that monitoring and auditing suppliers have no impact on supplier's social performance. Likewise, Jiang (2009a) demonstrated that setting up standards and threatening non-compliant suppliers by buyers to increase commitment to the code of conduct would not help in reducing social failures in suppliers' factories, arguing it may backfire in the form of opportunistic behaviours by suppliers. Similarly, Yu (2008) revealed that the implementation of a conduct code of conduct was not only ineffective in curbing low-wage payment and promoting worker's right to freedom of association and collective bargaining but has increased the scale of these unethical actions by suppliers to stay competitive in the marketplace. The lack of association between SSTPs and supplier's internal social performance could be explained by the fact that SSTPs represent formal monitoring (Klassen and Vereecke, 2012) that can be perceived as coercive governance by suppliers, which does not necessarily lead to compliance (Payan and McFarland, 2005). Another explanation might be that the use of assessment-based governance (i.e. code of conduct and auditing) to establish a socially responsible supply chain creates a perception of inequity by suppliers (given that suppliers usually bear the majority of costs of these practices), which in turn leads to non-compliance (Normann et al., 2017) or just symbolic compliance (Huq et al., 2014).

Following the logic of the Relational View, the study expected a positive relationship between SSCPs and supplier's internal social performance (H1b). The analysis provided compelling evidence to support this expectation. That is, close work with suppliers on social issues through collaboration practices (e.g. training and joint activities) is an effective vehicle to enhance suppliers' social performance as opposite to monitoring and auditing practices. This result is consistent with the findings reported by Sancha et al. (2015) and Sancha et al. (2016) who found that collaboration and supplier development practices should be put in place, if buyers were to increase suppliers compliance with human rights, reduce child labour employment and improve safety and labour conditions at their facilities. The study findings also corroborate previous findings of Huq et al. (2016) who uncovered that buyers establish the ground for improved internal and external supplier's social conditions by building social management capabilities in the form of their own auditors and collaborating with suppliers and other stakeholders (e.g. NGOs). The result reported here is also similar to the findings of those studies that examined the impact of socially sustainable collaboration on supplier's operational performance. For example, Akamp and Müller (2013) found that supplier development and supplier integration as supply chain sustainability management activities to improve supplier's performance roles in quality, delivery, cost and overall service. Similarly, Marshall et al. (2016) reported using data collected from 156 first-tier suppliers that market-based practices (innovation and strategy practices) are positively related to performance. In contrast to SSTPs, it is reasonable to argue that the positive impact of SSCPs is a result of the interaction routines established between buyer and supplier that foster mutual learning, resources sharing and knowledge exchange, enabling suppliers to build specific capabilities to improve their social performance (Gualandris and Kalchschmidt, 2016).

The study also argued that the joint implementation of both SSTPs and SSCPs is detrimental to supplier's internal social performance (H1c). The study data failed to support this hypothesis. However, although the interaction effect is statistically insignificant, the direction of the relationship was consistent with the study prediction. This could imply that SSCPs become less effective in improving suppliers' internal social performance when they are implemented in conjunction with SSTPs. However, this warrants further in-depth investigation. This pattern conforms to Wanger's (2010)

observation, who found that the simultaneous application of indirect (i.e. auditing and formal evaluation) and direct supplier development impedes the development of suppliers' capabilities and negatively affect their product quality and delivery performance. More recently, Sancha et al. (2016) found that the assessment practices of supplier's social compliance are antecedents to the collaboration practices. This suggests that the use of SSTPs should precede the implementation of and used as a guide to inform the critical decision of whether establishing SSCPs is required for suppliers.

6.2.2 SSTPs, SSCPs and buyer's operational performance

In addition to their impact on supplier's internal social performance, the study predicted a positive effect of SSTPs on buyer's operational performance (H2a). The study data provided no support for this hypothesis. Thus, using code of conduct, auditing, certification system and supplier's self-assessment questionnaires to try to enhance the working conditions and health and safety in suppliers' factories does not appear to benefit buyers in the form of operational performance improvements. This result is compatible with the earlier findings of Hollos et al. (2012) who found that while green practices are positively related to cost reduction and operational performance, social practices (working conditions, labour, and safety certification) have on effect on cost reduction and operational performance. The finding is also in line with the economic literature of supplier development. For instance, Blonska et al. (2013) revealed that supplier development in the form of monitoring activities (e.g. certification and evaluation) can lead to operational improvements for the supplier, but the supplier might not be motivated to reciprocate these efforts by providing preferential benefits (i.e. value-added services and meet buyer specific requests) for the buyer.

The study also posited that the implementation of SSCPs positively influences buyer's operational performance (H2b). Similar to SSTPs, the results suggest that collaboration with suppliers on social issues through establishing training programmes, exchanging knowledge and committing resources with suppliers do not extend beyond improving supplier's internal social performance to enhance buyer's operational performance. This contrasts with the earlier findings of Klassen and Vereecke (2012) and Sancha at et al. (2015). In case study research of five

multinational firms in a variety of industries, Klassen and Vereecke (2012) reported that collaborative (e.g. supplier development) and social innovation (e.g. developing new product/service) practices lead to improved buyer's performance in term of market expansion, market preservation and reduced costs within the supply chain. Likewise, Sancha et al. (2015) found that social supplier development practices lead to improved buying firm's operational performance.

The lack of association between SSSC practices (i.e. SSTPs and SSCPs) and buyer's operational performance could be attributed to the fact that the benefits from social initiatives are mainly long-term and often intangible; this can make formalising the actual impact, in terms of economic results, more complex (Zorzini et al., 2015). Moreover, introducing social standards (i.e. certification and code of conduct) regarding child labour or labour safety could be very costly in terms of implementation and might not result in immediate improvements that the buying firm experiences (Holloos et al., 2012). Another explanation is that the supplier might simply exploit the buying firm by using the knowledge obtained during the development programmes to provide better performance (i.e. delivery and service) for other buyers (Wanger, 2010).

6.2.3 The moderating effects of social capital dimensions

6.2.3.1 The moderating effect of relational capital

The study predicted that the presence of relational capital in the buyer-supplier relationship positively moderates the relationship between SSTPs and supplier's internal social performance (H3a). The findings provide support to this prediction and suggest that relational capital plays a pivotal role in facilitating the implementation of SSTPs. Thus, the use of SSTPs achieves the intended aim of improving supplier's internal social performance only when a close interaction, mutual trust, friendship, respect and high level of reciprocity are established between buyer and supplier. A similar result was reported by Blonska et al. (2013) who found that indirect supplier development practices were detrimental (negatively related) to supplier's benefits in the relationship. However, under a high level of relational capital, Blonska et al. (2013) found that indirect supplier development (e.g. monitoring and assessment) was positively related to supplier's benefits because relational capital guaranteed the achievement of supplier development objectives as planned. This result also is in line with the complementary view of formal and relational governance (trust) in governing

inter-organisational buyer-supplier relationship (e.g. Poppo and Zenger, 2002; Gulati and Nickerson, 2008). The complement view suggests that the best performance outcome of any exchange relationship can be achieved by a simultaneous emphasis on using formal governance and relational governance (Poppo and Zenger, 2002; Gulati and Nickerson, 2008; Liu et al., 2009). This because trust (relational capital) reduces transactional costs, opportunism and facilitates coordination (Nahapiet and Ghoshal, 1998; Wang et al., 2013). In turn, formal governance (e.g. code of conduct and certification) provides a formal specification of duties and responsibilities and frame of reference for dispute resolution in the relationship (Poppo and Zenger, 2002; Liu et al., 2009). Thus, relational governance overcomes the deficiency of transactional contracts, and vice versa (Liu et al., 2009).

The study also argued that relational capital in the buyer-supplier relationship positively moderates the relationship between SSCPs and supplier's internal social performance (H3b). The results provide evidence that relational capital enhances the positive link between SSCPs and supplier's internal social performance. Relational capital indirectly improves supplier's internal social performance by facilitating different aspects of SSCPs including joint activities, knowledge and resources sharing, mutual communication, commitment and participation. This result is compatible with the studies that highlighted the critical role of relational capital in facilitating the collaboration between supply chain partners on different aspects/activities in the relationship. For example, Huikkola et al. (2013) indicated that relational capital in the form of trust and friendship enables joint learning in R&D collaboration by facilitating knowledge sharing and effective collaboration, opening dialogue and providing agreement between partners. Similarly, trust between buyer and supplier contributes to the efficiency of joint operational activities and on-site supplier visits aimed to improve supplier's capabilities and overall performance (Blonska et al., 2013; Liao, 2012). Likewise, Kohtamäki et al. (2012) pointed out that relational capital facilitates further the positive effects of enabling structures (i.e. steering groups, joint development groups, integrated IT system and process description) on relationship performance in subcontractor and customer relationship.

6.2.3.2 The moderating effect of cognitive capital

The study predicted that cognitive capital in the buyer-supplier relationship strengthens the relationship between SSTPs and supplier's internal social performance (H4a). The analysis did not support this prediction. Thus, sharing similar organisational culture, values, and vision and having compatible goals and objectives with suppliers appear to not support the implementation of SSTPs (i.e. auditing, monitoring and certification). The reason for this result is not entirely clear, but it might be that cognitive capital between buyer and supplier in the study sample has yet to be well developed. SSTPs are usually used and implemented by buying firms to tackle suppliers' social issues with whom they have transactional relationships. Transactional relationships (arm's-length) are short-term and do not provide enough opportunities for sustained interaction and conversations (Nahapiet and Ghoshal, 1998) which is a precondition for the development and maintenance of dense social capital (Bourdieu, 1986). Moreover, the short-term and unstable natures of the transactional relationships hinder the development of and reach to clear mutual understandings between buyer and supplier (Misztal, 1996). Furthermore, buying firms often establish monitoring or auditing systems to help mitigate shortcomings derived from limited access to information and uncertain commitment as geographic distance between them and suppliers increases (Koplin et al., 2007). As the distance between relationship partners increase, developing a high level of cognitive capital will be less likely (Nahapiet and Ghoshal, 1998). Another explanation for this result might be that cognitive capital is not essential when it comes to implementing SSTPs.

The study also posited that cognitive capital in the buyer-supplier relationship positively moderates the relationship between SSCPs and supplier's internal social performance (H4b). In contrast to SSTPs situation, the analysis confirmed that the development of cognitive capital in buyer-supplier relationship positively moderates the relationship between SSCPs and supplier's internal social performance. It seems that the alignment between buyer and supplier's goals and shared vision improves the implementation of SSCPs by increasing the communication level and information sharing, which subsequently improves supplier's internal social performance. This is broadly consistent with the emerging literature on the role of social capital in supply chain relationships. For example, Hung et al. (2014) suggested that cognitive capital facilitates both knowledge inflow and outflow in the green supply chain, which in turn

leads to improved green SCM performance. Similarly, Johnson et al. (2013) found that common language and codes reduce the costs of communication and help in setting explicit rules of coordination which facilitates the development of four formative capabilities (i.e. flexibility, velocity, visibility and collaboration) for supply chain resilience. Likewise, Lioliou and Zimmermann (2015) and Wang et al. (2013) emphasised that when a high level of shared values is manifested in the relationship, opportunism will be unlikely to occur in the relationship between buyer and supplier. As a result, both will be more willing to commit resources and investment during the implementation of SSCPs, which arguably further increases their positive impact on supplier's internal social performance.

6.2.3.3 The moderating effect of structural capital

The study findings unveiled that structural capital embedded in buyer-supplier relationship moderates the relationship between SSTPs and supplier's internal social performance (H5a). It implies that as buyers and suppliers establish frequent and strong social interactions, the use of SSTPs (i.e. auditing, monitoring and certification) becomes effective in enhancing the social conditions at suppliers' workplace. SSTPs represent an arm's length approach that is widely implemented by buyers improve suppliers' internal social conditions with whom they have a transactional relationship, which requires less involvement of buyers and hence less interactions. In such approach, buyers often audit and leave a supplier with an unrealistic set of targets to meet with no support and assistance (Jiang, 2009a; Huq et al., 2014). Buyer and supplier need to coordinate, exchange and process information from both sides in order to achieve the goals of SSTPs (Klassen and Vereecke, 2012; Grosvold et al., 2014). In this sense, our research supports the view that social interactions offer a context for buyers and suppliers to share information and identify gaps that may exist in current work practices (Carey et al., 2011). Similarly, structural capital improves communication between supply chain partners and fosters a better understanding of each other's key processes and operations (Son et al., 2016). Likewise, maintaining high levels of structural capital enable supply chain partners to clarify the objectives of their arrangements, explain the expectations and obligations of each partner (Lioliou and Zimmermann, 2015). Thus, structural capital facilitates the core aspects of SSTPs which involve setting objectives, monitoring progress, auditing, and

providing feedback to align suppliers' behaviour with buyers' criteria (Klasesn and Vereecke, 2012; Porteous et al., 2015).

The study also anticipated that structural capital strengthens the relationship between SSCPs and supplier's internal social performance (H5b). Unexpectedly, the findings indicated that structural capital has no influence on the SSCPs-performance link. Thus, the positive impact of SSCPs (i.e. training, development and joint activities) on supplier's social performance is constant regardless of the presence, level and strength of social interactions between buyers and suppliers. It is very likely that structural capital facilitates the implementation of SSTPs, but has no role in the case of SSCPs since SSCPs represent forms of strong interactions and ties between buyer and supplier (structural capital) (Krause et al., 2007). More specifically, structural capital (i.e. organising social events and establishing frequent communication, intensive interaction and close social relationships) may not add value and further magnify the positive impact of SSCPs on supplier's internal social performance since they share similar aspects. This is consistent with the complementary theory which argues that the impact of the combined effects of different practices is greater than the sum of their individual effects because of the complementary nature among those practices (Choi et al., 2008). Thus, to achieve the synergetic effect of a set of practices, they should be complementary (heterogeneous) rather than homogenous with no mutual contribution.

6.2.4 Supplier's social performance and buyer's operational performance

The analysis revealed a positive relationship between supplier's internal social performance and buyer's operational performance (H6). Thus, the improvements of supplier's internal social performance can directly contribute towards better buyer's operational performance. This result supports recent observations on the critical role of supplier's social performance in maintaining the function of the whole supply chain. For example, Porteous et al. (2015) and Pullman et al. (2008) argue that supplier's social deteriorations in the form of health and safety violations can affect supplier's internal operations resulting in factory closure, which can create potential disruptions in all sourcing process activities (Sancha et al., 2015; Rodriguez et al., 2016). The positive link between supplier's internal social performance and buyer's operational performance can also be explained by the fact that cooperation with suppliers on social

issues can lead to supplier performance improvements in their product costs, quality and delivery, suggesting better inputs for the buyer operations (Akamp and Muller, 2013). Another explanation is likely to be that enhancing the working conditions and safety procedures in the supplier's facilities results in a reduction of potential accidents and thus fewer interruptions in the supplying process and less delays in product delivery to buyer (Freire and Alarcon, 2002). Additionally, if the working conditions and welfare of the supplier's workers are enhanced, the quality of the product supplied can improve due to increased employees' motivation and retention, in turn leading to reduce internal and external quality failure costs (Pagell et al., 2010; Huq et al., 2014).

6.3 Research conclusion and implications

The study set out to examine the individual and combined effects of SSTPs and SSCPs on supplier's internal social performance and whether these effects can be moderated (strengthened) by the level of social capital (i.e. relational, cognitive and structural capitals) embedded in buyer-supplier relationships. The study also aimed to examine the impact of SSTPs and SSCPs on buyer's operational performance. The findings revealed that only SSCPs improve supplier's internal social performance directly and that the implementation of both SSTPs and SSCPs do not enhance buyer's operational performance. However, the findings unveiled that SSCPs improve buyer's operational performance indirectly through enhancing supplier's internal social performance. The results also uncovered the relative importance of social capital dimensions on the implementation of SSTPs and SSCPs. Specifically, relational capital was found to play a unique role by facilitating the implementation of both SSTPs and SSCPs, while cognitive capital is relevant and effective in increasing supplier's internal social performance in parallel with SSCPs, and structural capital is salient in conjunction with SSTPs.

This study increases our understanding of the implementation of socially sustainable supply chain management by highlighting the critical role of social capital embedded in buyer-supplier relationship. It offers a set of managerial implications that can support informed decision-making by supply chain practitioners. The following subsections highlight the major theoretical and practical implications of this study.

6.3.1 Theoretical contributions

This research contributes to both the growing literature on SSCM and the broader literature on inter-organisational social capital in several important ways. Firstly, by exclusively studying the social dimension of sustainability and their impact on both supplier's internal social performance and buyer's operational performance, this study adds necessary balance to the literature which has predominantly focused on the environmental side of sustainability in supply chains. This focused examination also provides a clear understanding of the impact of pursuing social initiatives in the supply chain on the performance of associated partners, which has largely been absent to date as previous studies have tended to combine environmental and social dimensions into a single concept, which makes separate analysis and hence discriminating interpretation impossible (Porteous et al., 2015).

Secondly, the findings of this study add to the limited research that links socially sustainable supply chain practices to supplier's social performance. Although a considerable number of studies have provided evidence of the link between the environmental supply chain practices and supplier's environmental performance (e.g. Lee, 2015), comparable evidence that establishes a link between SSSC practices and supplier's social performance is very rare. While some scholarly attempts have been made to examine the impact of SSSC practices on buyer and supplier's economic performance (e.g. Hollos et al., 2012; Marshall et al., 2016), efforts to examine its impact on the supplier's social performance are sparse (Sancha et al., 2015 Sancha et al., 2016; Huq et al., 2016).

Thirdly, this study has deepened our understating of the impact of SSTP and SSCPs on supplier's internal social performance by not only revealing their individual impacts but also their joint impact, which has largely been ignored in the prior literature. A better understanding of the implications of the joint implementation of SSTP and SSCPs can help buying firms in their efforts to implement the most effective combination of SSTP and SSCPs to improve supplier's social performance.

Fourthly, this study also contributes to the research into SSCM by featuring the indirect role of all three social dimensions (i.e. relational, cognitive and structural) on supplier's internal social performance. More specifically, this study has provided a comprehensive and nuanced understanding of the role and influence of each of the

three social dimensions by articulating how they underpin and enable the effective implementation of SSTPs and SSCPs by empirically examining their moderating effects on the relationship between SSSC practices (i.e. SSTPs and SSCPs) and supplier's internal social performance. This holistic and distinguishing view provides an understanding of the specific characteristics and the relative importance of each social capital dimension in the implementation of socially sustainable supply chains, which has not been elaborated before in this context. This distinction is also important to augment understanding of the unique role of each dimension in buyer-supplier relationships.

Fifthly, prior supply chain social capital research has predominately tended to focus on examining the impact of social capital dimensions (i.e. relational, cognitive and structural) on relationship outcomes including performance outcomes such as buyer and supplier's strategic (Villena et al., 2011; Gelderman et al., 2016; Son et al., 2016) and operational performance (Krause et al., 2007; Lawson et al., 2008; Avery et al., 2014; Zhang et al., 2016) and indirect outcomes such as relationship learning (e.g. Li, 2010; Kohtamäki and Bourlakis, 2012), opportunism (Wang et al., 2013; Lioliou and Zimmermann 2015), commitment to innovation (Tsai et al., 2013), knowledge sharing (Li et al., 2014) and supply chain integration (Yim and Leem, 2013). This study extends the growing research on social capital in supply chains by explicating its benefits to the implementation of socially sustainable supply chains.

Finally, by reviewing, organising, synthesises and integrating the applications of social capital theory in SCM research this study increases our understandings of the role of social capital in supply chain relationships by developing a holistic model that comprehensively identifies the antecedents and outcomes of social capital in supply chain relationships.

6.3.2 Managerial implications

Supply chain managers are constantly under enormous pressure from external stakeholders (e.g. NGOs and customers) and the fear of potential supply chain disruptions to enhance the conditions under which their outsourced items are being produced. Managing the social issues of suppliers, particularly those located in remote areas, is a challenging and daunting task. This study provides a number of practical

implications that can help supply chain managers to better understand and manage socially sustainable supply chains.

Firstly, this study indicates that adopting a transactional approach, thereby performing heavy auditing of suppliers' operations and practices, requesting suppliers to obtain third-party certification and providing self-assessment report, to tackle suppliers' utilisation of child labour and enhance working conditions and health and safety in their premises is ineffective. In contrast, establishing a more collaborative approach by which buyers start suppliers' development and training programmes, joint-efforts, exchange knowledge and commit relationship-specific resources (e.g. human and financial capital) found to significantly enhance the social conditions within suppliers' internal environment. Thus, supply chain managers who are currently implementing the transactional approach (SSTPs) or who are thinking of adopting and implementing sustainability in their supply chains should shift their approach to developing sustainable suppliers towards the collaborative approach. Nevertheless, supply chain managers can still use SSTPs (assessment) to gain detailed information regarding suppliers' current social deficiencies and improvement needs before they subsequently tailor their corresponding corrective actions and direct their collaborative specific-investments (e.g. training) to improve suppliers' capabilities and overall performance.

Secondly, the study found no evidence for the direct impact of the implementation of SSTPs and SSCPs on buyer's operational performance. However, supply chain managers should be aware that the implementation of SSCPs (e.g. supplier development), in particular, can indirectly contribute to their operational performance through enhanced supplier's internal social performance. Enhancing the working conditions and safety procedures in the supplier's facilities can therefore reduce potential accidents leading to less disruption in the supplying process and delivery time. Moreover, collaboration with suppliers on social issues lead to increase employees' motivation and retention, which in turn can improve supplier product costs, quality and delivery performance, suggesting better inputs for the buyer operations (Huq et al., 2014; Akamp and Muller, 2013).

Thirdly, the findings indicate that social capital embedded in buyer-supplier relationship appears to account for a change in suppliers' motivations and an increase in suppliers' commitment towards SSCM initiatives established by buyers. That is to

say, relational, cognitive and structural capital stimulates frequent and mutual communication, fosters knowledge and information sharing, facilitates joint activities and can increase resources commitment within the relationship – all of which are key aspects of being able to successfully implement SSSC practices. The use of SSTPs achieves the intended aim of improving supplier's internal social performance only when higher levels of close interaction, mutual trust, friendship, respect and high level of reciprocity are established between buyer and supplier. Therefore, supply chain managers need to ensure that they identify the appropriate mechanisms that can ensure that relational, cognitive and structural capital are established in parallel with SSTPs and SSCPs to improve supplier's internal social performance effectively.

Fourthly, the study uncovered that social capital dimensions (i.e. relational, cognitive and structural) play different roles on the implementation of SSTPs and SSCPs. The results revealed that relational capital (i.e. mutual trust, respect and friendship) plays a unique role by facilitating the implementation of both SSTPs and SSCPs. Cognitive capital (i.e. similar organisational culture, philosophies and vision) is relevant and effective in increasing supplier's internal social performance in parallel with SSCPs, whilst structural capital (i.e. organising social events and establishing frequent communication, intensive interaction and close social relationships) is salient in conjunction with SSTPs. Therefore, supply chain managers need to develop the specific social capital dimension that fits with their current approach (i.e. SSTP or SSCPs) of managing the social performance of their suppliers.

Fifthly, in order to ensure a smooth and effective implementation of SSSC practices, supply chain managers need to actively engage in leveraging all social capital dimensions in the relationship. Supply chain managers need to work towards establishing trust, respect, friendship and high levels of reciprocity with suppliers. Supply chain managers also need to work regularly with their suppliers toward the alignment of their values, goals and visions to develop a better mutual understanding of each other operations and processes. They should also try to improve social interactions (i.e. organise social events and establishing frequent communication, intensive interaction and close social relationships) with suppliers in terms of presence, frequency and strength. Furthermore, it would be highly recommended that supply chain managers identify the conduits that serve as a platform to foster the

required intense and ongoing interactions with suppliers. They should consider and invest in activities, practices and policies that promote the engendering of the three forms of social capital in the relationship. For example, holding regular relationship steering meetings, establishing integrated information system and inviting suppliers to visit factories would be rich mechanisms to develop trust, shared purpose and interactions routines in the relationship.

Finally, supply chain managers should understand that building, fostering and maintaining social capital with partners is a complex process which requires enduring interactions, considerable time, investment in resources (Nahapiet and Ghoshal, 1998; Hughes and Perrons, 2011), a context of transparency (Kohtamäki et al., 2013) and a fair relationship between buyer and supplier. However, it is also important to note that supply chain managers should be aware of the risk associated with excessive levels of social capital. As extra social capital is accumulated, the risks of opportunism (Wang et al., 2013), loss of objectivity, irrational decision making (Chou et al., 2006) and costly investments may begin to outweigh the benefits (Yang, 2009; Villena et al., 2001; Son et al., 2016). Therefore, supply managers should be conscious of seeking to adopt and establish a balanced emphasis on social relationships whilst implementing SSSC practices.

6.4 Limitations and future research directions

Despite the significant contributions of this research, several limitations should be acknowledged, which can serve as fertile grounds for future research on SSCM and the broader literature on social capital. Firstly, the current study highlighted the indirect roles of social capital dimensions (i.e. relational, cognitive and structural) on supplier's internal social performance by examining their moderating effects on the relationship among SSTPs, SSCPs and supplier's internal social performance. A salient research avenue would be to extend this study and increase our understanding of the role of social capital in the context of sustainable supply chains by empirically examining whether social capital dimensions can substitute SSSC practices and directly drive social improvements at suppliers. Such a future examination may provide further understanding on the relative importance of the three dimensions of social capital for supplier's internal social performance, and to what extent that may

differ in different supply chain contexts (e.g. industry and geographical location, amongst many others).

Secondly, the conceptual model was tested using a sample from large manufacturing companies operating in the UK. Although this setting helped to control industry (manufacturing vs service) and country-levels variations as potential noises in testing the model, it limits the generalizability of the results due to industry and culture-specific characteristics. Future research can replicate the study in different settings including other countries and in the service industry. Moreover, although current research has suggested that large companies are more capable of adopting and implementing external sustainability initiatives, further research should adopt the understanding provided by this research to look at the barriers and enablers of adopting sustainability in small and medium-sized firms.

Thirdly, buyer's operational and supplier's internal social performance were captured by self-report data collection method from the buyer's perspective. Future research can address this limitation by collecting objective data. More valuable insights can be gained from collecting data from buyer-supplier dyads and involving the supplier's employees' voice. More specifically, perceptions of social capital in the relationship can be sought from the supplier's side, whereas the information on the implementation of SSSC practices can be obtained from the buyer's side, and supplier's internal social performance can be captured from the supplier's employee's perspective. The social performance element of overall sustainability performance has largely been absent - in contrast to the environmental performance – possibly due to the difficulty in quantifying it (Hutchins and Sutherland, 2008). Future research could, therefore, use intra-organisational justice dimensions to capture supplier's internal social performance from an employees perspective, thereby reducing the potential for bias that may arise directly from buyers or suppliers reporting on this type of performance. Such an approach could provide a more comprehensive measure covering several critical social issues that may be present, or even prevalent, in supplier's operations/premises, including the fairness of payment (distributive justice), the fairness of procedures that govern the distribution of outcomes (procedural justice), and more importantly the way employees are treated (interactional justice).

Fourthly, this study used cross-sectional data to test the proposed conceptual model, which although extensively used in previous management research is nevertheless limited in spotting possible causal relationships among the endogenous and exogenous variables. A promising avenue for future research therefore, would be through adopting longitudinal data to identify causal relationships. Companies may have to wait for a while before reaping the benefits of establishing social sustainability in their supply chains (Sancha et al., 2016), that is to say time lag needed for the effect of an improvement practice to manifest. A longitudinal study can also cast a new light on the dynamic nature of the interplay between social capital dimensions and socially sustainable supply chain practices.

Finally, considerable research suggests that social capital is built through interaction between parties and can be used to facilitate action (Nahapiet and Ghoshal, 1998; Adler and Kwon, 2002). Another promising avenue therefore, would be to explore the unique role of SSTPs and SSCPs in developing social capital in supply chain relationships, and in turn on supplier's social performance. Although Lee (2015) has recently examined this notion in green SCM practices, the author did not differentiate between two approaches (i.e. transactional and collaboration) of managing supplier's sustainability and how it gives rise to social capital. Moreover, Lee (2015) limited the analysis to only two dimensions of social capital (relational and structural) and to supplier's operational and environmental performance. These two approaches to sustainability have specific features and the degree of interactions between buyer and supplier during the implementation varies. As Kwon and Adler (2014, p. 412) emphasised the source of social capital "lies in the social relations among those actors, and these social relations can be differentiated (notionally) from relations of market exchange and of hierarchical authority".

References

- Adler, P. S., and Kwon, S. W. (2002). Social capital: Prospects for a new concept. *Academy of Management Review*, 27(1), 17-40.
- Ahi, P., Jaber, M. Y., and Searcy, C. (2016). A comprehensive multidimensional framework for assessing the performance of sustainable supply chains. *Applied Mathematical Modelling*, 40(23), 10153-10166.
- Ahi, P., and Searcy, C. (2015). Measuring social issues in sustainable supply chains. *Measuring Business Excellence*, 19(1), 33-45.
- Aiken, L. S., and West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.
- Akamp, M., and Müller, M. (2013). Supplier management in developing countries. *Journal of Cleaner Production*, 56, 54-62.
- Amaeshi, K. M., Osuji, O. K., and Nnodim, P. (2008). Corporate social responsibility in supply chains of global brands: A boundaryless responsibility? Clarifications, exceptions and implications. *Journal of Business Ethics*, 81(1), 223-234.
- Andersen, M., and Skjoett-Larsen, T. (2009). Corporate social responsibility in global supply chains. *Supply chain management: an international journal*, 14(2), 75-86.
- Anderson, J. C., and Gerbing, D. W. (1982). Some methods for respecifying measurement models to obtain unidimensional construct measurement. *Journal of Marketing Research*, 19(4), 453-460.
- Ansari, Z. N., and Kant, R. (2017). A state-of-art literature review reflecting 15 years of focus on sustainable supply chain management. *Journal of Cleaner Production*, 142, 2524-2543.
- Ansett, S. (2007). Mind the gap: A journey to sustainable supply chains. *Employee Responsibility Rights Journal*, 19(4), 295–303.

- Armstrong, S., and Overton, T. (1977). Estimating Nonresponse Bias in Mail Surveys. *Journal of Marketing Research*, 14(3), 396-402.
- Avery, S. L., Swafford, P., and Prater, E. L. (2014). Impact of supplier relationship management practices on buying firm performance: comparison of the United States and China. *Operations Management Research*, 7(1-2), 36-48.
- Awaysheh, A., and Klassen, R. D. (2010). The impact of supply chain structure on the use of supplier socially responsible practices. *International Journal of Operations & Production Management*, 30(12), 1246-1268.
- Azadnia, A.H., Saman, M.Z.M., and Wong, K.Y. (2015). Sustainable supplier selection and order lot-sizing: an integrated multi-objective decision-making process. *International Journal of Production Research*, 53(2), 383-408.
- Bacon, D. R., Sauer, P. L., and Young, M. (1995). Composite reliability in structural equations modeling. *Educational and Psychological Measurement*, 55(3), 394-406.
- Bagozzi, R. P. (1981). Evaluating structural equation models with unobservable variables and measurement error: a comment. *Journal of Marketing Research*, 18(3), 375-381.
- Bai, C., and Sarkis, J. (2010). Integrating sustainability into supplier selection with grey system and rough set methodologies. *International Journal of Production Economics*, 124(1), 252-264.
- Bai, C., and Sarkis, J. (2014). Determining and applying sustainable supplier key performance indicators. *Supply Chain Management: An International Journal*, 19(3), 275-291.
- Baker, W. E. (1990). Market networks and corporate behavior. *American Journal of Sociology*, 96(3), 589-625.
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99-120.
- Bartlett, M. S. (1954). A note on the multiplying factors for various chi square approximations. *Journal of Royal Statistical Society*, 16(Series B), 296-298.

- Baruch, Y., and Holtom, B. C. (2008). Survey response rate levels and trends in organizational research. *Human Relations*, 61(8), 1139-1160.
- Belal, A. R. (2002). Stakeholder accountability or stakeholder management: a review of UK firms' social and ethical accounting, auditing and reporting (seaar) practices. *Corporate Social Responsibility and Environmental Management*, 9(1), 8-25.
- Bell, E., and Bryman, A. (2007). The ethics of management research: an exploratory content analysis. *British Journal of Management*, 18(1), 63-77.
- Bernardes, E. S. (2010). The effect of supply management on aspects of social capital and the impact on performance: A social network perspective. *Journal of Supply Chain Management*, 46(1), 45-55.
- Beske, P., Koplin, J., and Seuring, S. (2008). The use of environmental and social standards by German first-tier suppliers of the Volkswagen AG. *Corporate Social Responsibility and Environmental Management*, 15(2), 63–75.
- Beske-Janssen, P., Johnson, M. P., and Schaltegger, S. (2015). 20 years of performance measurement in sustainable supply chain management—what has been achieved?. *Supply chain management: An international Journal*, 20(6), 664-680.
- Blau, P. M. (1964). *Exchange and Power in Social Life*. New York: John Wiley & Sons, Inc.
- Blome, C., and Paulraj, A. (2013). Ethical climate and purchasing social responsibility: A benevolence focus. *Journal of Business Ethics*, 116(3), 567–585.
- Blonska, A., Storey, C., Rozemeijer, F., Wetzels, M., and de Ruyter, K. (2013). Decomposing the effect of supplier development on relationship benefits: The role of relational capital. *Industrial Marketing Management*, 42(8), 1295-1306.
- Blumberg, B., Cooper, D.R., and Schindler, P.S. (2014). *Business Research Methods*. (4th edn). Berkshire: McGraw-Hill.
- Bollen, K. A. (1989). *Structural Equations with Latent Variables*. Wiley: New York.

- Bollen, K., and Lennox, R. (1991). Conventional wisdom on measurement: A structural equation perspective. *Psychological Bulletin*, 110(2), 305-314.
- Bourdieu, P. (1980). Le capital social: notes provisoires. *Acres Rech. Sci. Soc.*, 31, 2-3.
- Bourdieu, P. (1985). The forms of capital. In J. G. Richardson (Eds.), *Handbook of Theory and Research for the Sociology of Education* (241-258). New York: Greenwood.
- Bourdieu, P., and L. P. D. Wacquant. (1992). *An Invitation to Reflexive Sociology*. Chicago: University of Chicago Press.
- Bowen, H. R. (1953). *Social Responsibilities of the Businessman*. New York: Harper & Row.
- Boyd, D. E., Spekman, R. E., Kamauff, J. W., and Werhane, P. (2007). Corporate social responsibility in global supply chains: a procedural justice perspective. *Long Range Planning*, 40(3), 341-356.
- Briner, R. B., and Denyer, D. (2012). Systematic review and evidence synthesis as a practice and scholarship tool. In D. M. Rousseau (Eds.), *Handbook of Evidence-based Management: Companies, Classrooms and Research* (112-129), New York: Oxford University Press.
- Bryman, A., and Bell, E. (2015). *Business Research Methods*. (4th edn). Oxford University Press.
- Burns, R. B. (2000). *Introduction to Research Methods*. London: Sage Publications.
- Burt, R. S. (1997). The contingent value of social capital. *Administrative Science Quarterly*, 42(2), 339-365.
- Busse, C. (2016). Doing well by doing good? The self-interest of buying firms and sustainable supply chain management. *Journal of Supply Chain Management*, 52(2), 28-47.

- Busse, C., Schleper, M. C., Niu, M., and Wagner, S. M. (2016). Supplier development for sustainability: contextual barriers in global supply chains. *International Journal of Physical Distribution & Logistics Management*, 46(5), 442-468.
- Campbell, D. T., and Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin*, 56 (2), 81-105.
- Cannon, J. P., Achrol, R. S., and Gundlach, G. T. (2000). Contracts, norms, and plural form governance. *Journal of the Academy of Marketing Science*, 28(2), 180-194.
- Cao, Z., and Lumineau, F. (2015). Revisiting the interplay between contractual and relational governance: A qualitative and meta-analytic investigation. *Journal of Operations Management*, 33-34, 15-42.
- Capasso, A., Gallucci, C., and Rossi, M. (2015). Standing the test of time. Does firm performance improve with age? An analysis of the wine industry. *Business History*, 57(7), 1037-1053.
- Carbone, V., Moatti, V., and Vinzi, V. E. (2012). Mapping corporate responsibility and sustainable supply chains: an exploratory perspective. *Business Strategy and the Environment*, 21(7), 475-494.
- Carey, S., Lawson, B., and Krause, D. R. (2011). Social capital configuration, legal bonds and performance in buyer–supplier relationships. *Journal of Operations Management*, 29(4), 277-288.
- Carroll, A. B. (1979). A three-dimensional conceptual model of corporate performance. *Academy of Management Review*, 4(4), 497-505.
- Carroll, A. B. (1991). The pyramid of corporate social responsibility: Toward the moral management of organizational stakeholders. *Business Horizons*, 34(4), 39-48.
- Carter, C. R. (2005). Purchasing social responsibility and firm performance: The key mediating roles of organizational learning and supplier performance. *International Journal of Physical Distribution & Logistics Management*, 35(3), 177-194.

- Carter, C. R., and Jennings, M. M. (2002a). Logistics social responsibility: an integrative framework. *Journal of Business Logistics*, 23(1), 145-180.
- Carter, C. R., and Jennings, M. M. (2002b). Social responsibility and supply chain relationships. *Transportation Research Part E: Logistics and Transportation Review*, 38(1), 37-52.
- Castka, P., and Balzarova, M. A. (2008a). ISO 26000 and supply chains— On the diffusion of the social responsibility standard. *International Journal of Production Economics*, 111(2), 274–286.
- Castka, P., and Balzarova, M. A. (2008b). Adoption of social responsibility through the expansion of existing management systems. *Industrial Management and Data Systems*, 108(3), 297–309.
- Chang, K. H., and Gotcher, D. F. (2007). Safeguarding investments and creation of transaction value in asymmetric international subcontracting relationships: The role of relationship learning and relational capital. *Journal of World Business*, 42(4), 477-488.
- Chang, M. L., Cheng, C. F., and Wu, W. Y. (2012). How buyer-seller relationship quality influences adaptation and innovation by foreign MNCs' subsidiaries. *Industrial Marketing Management*, 41(7), 1047-1057.
- Chase, Richard B., Nicholas J. Aquilano, and F. Robert Jacobs (2004). *Operations Management for Competitive Advantage*. (11th edn). Boston: McGraw-Hill.
- Cheng, W. L., and Ahmad, J. (2010). Incorporating stakeholder approach in corporate social responsibility (CSR): A case study at multinational corporations (MNCs) in Penang. *Social Responsibility Journal*, 6(4), 593–610.
- Chin, W. W., Marcolin, B. L., and Newsted, P. R. (2003). A partial least squares latent variable modeling approach for measuring interaction effects: Results from a Monte Carlo simulation study and an electronic-mail emotion/adoption study. *Information Systems Research*, 14(2), 189-217.

- Chiouy, C.Y., Chou, S.H., and Yeh, C.Y. (2011). Using fuzzy AHP in selecting and prioritizing sustainable supplier on CSR for Taiwan's electronics industry. *Journal of Information and Optimization Sciences*, 32 (5), 1135-1153.
- Choi, B., Poon, S. K., and Davis, J. G. (2008). Effects of knowledge management strategy on organizational performance: A complementarity theory-based approach. *Omega*, 36(2), 235-251.
- Choi, T. Y., and Wacker, J. G. (2011). Theory Building in the OM/SCM Field: Pointing to the Future by Looking at the Past. *Journal of Supply Chain Management*, 47(2), 8-11.
- Chopra S., and Meindl P. (2010). *Supply Chain Management: strategy, planning, and operation*. Pearson Education: New Jersey.
- Christopher, M. (2005). *Logistics and Supply Chain Management*, Pearson Education Limited, England.
- Ciliberti, F. (2011). CSR codes and the principal-agent problem in supply chains: Four case studies. *Journal of Cleaner Production*, 19(8), 885–894.
- Ciliberti, F., de Groot, G., de Haan, J., and Pontrandolfo, P. (2009). Codes to coordinate supply chains: SMEs' experiences with SA8000. *Supply Chain Management: An International Journal*, 14(2), 117-127.
- Ciliberti, F., Pontrandolfo, P., and Scozzi, B. (2008). Logistics social responsibility: standard adoption and practices in Italian companies. *International Journal of Production Economics*, 113(1), 88-106.
- Coad, A., Segarra, A., and Teruel, M. (2013). Like milk or wine: Does firm performance improve with age? *Structural Change and Economic Dynamics*, 24, 173– 189
- Coase, R. H. (1937). The nature of the firm. *Economica*, 4(16), 386-405.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Earlbaum Associates.
- Cohen, J. (1992). A power primer. *Psychological bulletin*, 112(1), 155-159.

- Cohen, J., and Cohen, P. (1983). *Applied multiple regression/correlation analysis for the behavioral sciences*. (2nd Ed.). Hillsdale, NJ: Erlbaum.
- Cohen, J., Cohen, P., West, S. G., and Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences*. (3rd Ed.). Mahwah, NJ: Lawrence Erlbaum Associates.
- Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology*, 94, S95-S120.
- Coleman, J.S. (1990). *Foundations of Social Theory*, Belknap Press, Cambridge, MA.
- Collis, J., and Hussey, R. (2014). *Business research: A practical guide for undergraduate and postgraduate students*. (4th edn). Hampshire: Palgrave Macmillan.
- Cook, D. J., N. L. Greengold, A. G. Ellrodt, and S. R. Weingarten (1997). The Relation Between Systematic Reviews and Practice Guidelines. *Annals of Internal Medicine*, 127(3), 210-216.
- Cooper, M. C., Lambert, D. M., and Pagh, J. D. (1997). Supply chain management: more than a new name for logistics. *The International Journal of Logistics Management*, 8(1), 1-14.
- Cortina, J. (1993). What is coefficient alpha? An examination of theory and methods. *Journal of Applied Psychology*, 78 (1), 98-104.
- Cousins, P. D., Handfield, R. B., Lawson, B., and Petersen, K. J. (2006). Creating supply chain relational capital: the impact of formal and informal socialization processes. *Journal of Operations Management*, 24(6), 851-863.
- Coyle, J. J., Langley, C. J., Novack, R. A., and Gibson, B. (2017). *Supply Chain Management: a logistics perspective*. (10th ed). Boston: Cengage Learning.
- Crampton, S. M., and Wagner, J. A., III. (1994). Percept-percept inflation in microorganizational research: An investigation of prevalence and effect. *Journal of Applied Psychology*, 79(1), 67-76.

- Crane, A. (2013). Modern slavery as a management practice: Exploring the conditions and capabilities for human exploitation. *Academy of Management Review*, 38(1), 49–69.
- Crespin-Mazet, F., and Dontenwill, E. (2012). Sustainable procurement: building legitimacy in the supply network. *Journal of Purchasing and Supply Management*, 18(4), 207-217.
- Cronbach, L.J. (1951). Coefficient alpha and the internal structure of test. *Psychometrika*, 16 (3), 297-334.
- Croom, S., Romano, P., and Giannakis, M. (2000). Supply Chain Management: an analytical framework for critical literature review. *European Journal of Purchasing & Supply Chain management*, 6(1), 67-83.
- Crowther, M. A., and Cook, D. J. (2007). Trials and tribulations of systematic reviews and meta-analyses. *Hematology*, (1), 493-497.
- Dai, J., and Blackhurst, J. (2012). A four-phase AHP–QFD approach for supplier assessment: sustainability perspective. *International Journal of Production Research*, 50(19), 5474-5490.
- David, R. J., and Han, S. K. (2004). A systematic assessment of the empirical support for transaction cost economics. *Strategic Management Journal*, 25(1), 39-58.
- Dawson, J. F. (2014). Moderation in management research: What, why, when, and how. *Journal of Business and Psychology*, 29(1), 1-19.
- De Bakker, F., and Nijhof, A. (2002). Responsible chain management: a capability assessment framework. *Business Strategy and the Environment*, 11(1), 63-75.
- Delbufalo, E. (2012). Outcomes of inter-organizational trust in supply chain relationships: a systematic literature review and a meta-analysis of the empirical evidence. *Supply Chain Management: An International Journal*, 17(4), 377-402.
- Denyer, D., and Tranfield, D. (2009). Producing a systematic review. In Buchanan, D. and Bryman, A. (Eds), *The Sage Handbook of Organizational Research Methods*, London: Sage Publications Ltd, 671-689.

- Denzin, N. K., and Lincoln, Y. S. (2000). *Handbook of Qualitative Research*. (2nd edn). Thousand Oaks, CA: Sage.
- Devaraj, S., Krajewski, L., and Wei, J. C. (2007). Impact of eBusiness technologies on operational performance: the role of production information integration in the supply chain. *Journal of Operations Management*, 25(6), pp. 1199-1216.
- Diamantopoulos, A., and Winklhofer, H. M. (2001). Index construction with formative indicators: An alternative to scale development. *Journal of Marketing Research*, 38(2), 269-277.
- Diener, E., and Crandall, R. (1978). *Ethics in Social and Behavioral research*. Chicago: Chicago University Press.
- Dillman, D. A. (1991). The design and administration of mail surveys. *Annual Review of Sociology*, 17(1), 225-249.
- Dillman, D. A. (2007). *Mail and internet surveys - the tailored design method*. (2nd edn). New York: Wiley.
- Dillman, D.A. (1978). *Mail and Telephone surveys: The total design method*. New York: Wiley.
- Dillman, D.A. (2000). *Mail and internet surveys: The tailored designed method*. (2nd edn). New York: Wiley.
- Durach, C. F., Kembro, J., and Wieland, A. (2017). A new paradigm for systematic literature reviews in supply chain management. *Journal of Supply Chain Management*, 53(4), 67-85.
- Dyer, J. H., and Hatch, N. W. (2006). Relation-specific capabilities and barriers to knowledge transfers: Creating advantage through network relationships, *Strategic Management Journal*, 27(8), 701-719.
- Dyer, J. H., and Singh, H. (1998). The relational view: Cooperative strategy and sources of interorganizational competitive advantage. *Academy of Management Review*, 23(4), 660-679.

- Ehrgott, M., Reimann, F., Kaufmann, L., and Carter, C. R. (2011). Social sustainability in selecting emerging economy suppliers. *Journal of Business Ethics*, 98(1), 99-119.
- Elfenbein, D. W., and Zenger, T. R. (2013). What is a relationship worth? Repeated exchange and the development and deployment of relational capital. *Organization Science*, 25(1), 222-244.
- Elkington, J. (1998). *Cannibals with Forks: The Triple Bottom Line of the 21st Century*. Stoney Creek: New Society Publishers.
- Eltantawy, R. A., Fox, G. L., and Giunipero, L. (2009). Supply management ethical responsibility: reputation and performance impacts. *Supply Chain Management: An International Journal*, 14(2), 99-108.
- Erol, I., Sencer, S., and Sari, R. (2011). A new fuzzy multicriteria framework for measuring sustainability performance of a supply chain. *Ecological Economics*, 70 (6), 1088-1100.
- Erridge, A., and Hennigan, S. (2012). Sustainable procurement in health and social care in Northern Ireland. *Public Money & Management*, 32(5), 363-370.
- Festinger, L., and Katz, D. (1966). *Research Methods in the Behavioural Sciences*. New York: Rinehart and Winston.
- Filstead, W. J. (1979). Qualitative methods: A needed perspective in evaluation research. In T. D. Cook & C. S. Reichardt (Eds.), *Qualitative and Quantitative Methods in Evaluation Research* (pp. 33–48). Beverly Hills, CA: Sage.
- Fink, A. (2005). *Conducting Research Literature Reviews: From the Internet to Paper*. (2nd edn). Thousand Oaks, California: Sage Publications.
- Flynn, B. B., Sakakibara, S., Schroeder, R. G., Bates, K. A., and Flynn, E. J. (1990). Empirical research methods in operations management. *Journal of Operations Management*, 9(2), pp. 250-284.
- Foerstl, K., Reuter, C., Hartmann, E., and Blome, C. (2010). Managing supplier sustainability risks in a dynamically changing environment—Sustainable

- supplier management in the chemical industry. *Journal of Purchasing and Supply Management*, 16(2), 118-130.
- Ford, D. (1980). The development of buyer-seller relationships in industrial markets. *European Journal of Marketing*, 14(5/6), 339-353.
- Fornell, C., and Larcker, D. F. (1981). Structural equation models with unobservable variables and measurement error: Algebra and statistics. *Journal of Marketing Research*, 18 (3), 382-388.
- Forsman-Hugg, S., Katajajuuri, J. M., Riipi, I., Mäkelä, J., Järvelä, K., and Timonen, P. (2013). Key CSR dimensions for the food chain. *British Food Journal*, 115(1), 30-47.
- Fox, R. J., Crask, M. R., and Kim, J. (1988). Mail survey response rate a meta-analysis of selected techniques for inducing response. *Public Opinion Quarterly*, 52(4), 467-491.
- Freeman, R. E. (1984). *Strategic management: A stakeholder approach*. Cambridge, UK: Cambridge University Press.
- Frohlich, M. T. (2002). Techniques for improving response rates in OM survey research. *Journal of Operations Management*, 20(1), 53-62.
- Fukuyama, F. (2001). Social capital, civil society and development. *Third World Quarterly*, 22(1), 7-20.
- Gallear, D., Ghobadian, A., and Chen, W. (2012). Corporate responsibility, supply chain partnership and performance: An empirical examination. *International Journal of Production Economics*, 140(1), 83-91.
- Gant, J., C. Ichniowski, and K. Shaw (2002). Social capital and organizational change in high-involvement and traditional work organizations. *Journal of Economics and Management*, 11(2), 289–328.
- Gao, J., and Bansal, P. (2013). Instrumental and integrative logics in business sustainability. *Journal of Business Ethics*, 112(2), 241-255.

- Gattiker, T.F., Carter, C.R., Huang, X., and Tate, W.L. (2014). Managerial commitment to sustainable supply chain management projects. *Journal of Business Logistics*, 35(4), 318-337.
- Geibler, J. V. (2013). Market based governance for sustainability in value chains: Conditions for successful standard setting in the palm oil sector. *Journal of Cleaner Production*, 56(1 special issue), 39–53.
- Geisser, S. (1974). A Predictive Approach to the Random Effects Model. *Biometrika*, 61 (1), 101–107.
- Gelderman, C. J., Semeijn, J., and Mertschuweit, P. P. (2016). The impact of social capital and technological uncertainty on strategic performance: The supplier perspective. *Journal of Purchasing and Supply Management*, 22(3), 225-234.
- Geyskens, I., Steenkamp, J. B. E., and Kumar, N. (2006). Make, buy, or ally: A transaction cost theory meta-analysis. *Academy of Management Journal*, 49(3), 519-543.
- Gimenez, C., and Sierra, V. (2013). Sustainable supply chains: Governance mechanisms to greening suppliers. *Journal of Business Ethics*, 116(1), 189-203.
- Gimenez, C., and Tachizawa, E. M. (2012). Extending sustainability to suppliers: A systematic literature review. *Supply Chain Management: An International Journal*, 17(5), 531–543.
- Gimenez, C., Sierra, V., and Rodon, J. (2012). Sustainable operations: Their impact on the triple bottom line. *International Journal of Production Economics*, 140(1), 149-159.
- Giunipero, L. C. (1990). Motivating and monitoring JIT supplier performance. *Journal of Purchasing & Materials Management*, 26(3), 19-24.
- Goebel, P., Reuter, C., Pibernik, R., and Sichtmann, C. (2012). The influence of ethical culture on supplier selection in the context of sustainable sourcing. *International Journal of Production Economics*, 140(1), 7-17.

- Gold, S., Hahn, R., and Seuring, S. (2013). Sustainable supply chain management in 'base of the pyramid' food projects – a path to triple bottom line approaches for multinationals?. *International Business Review*, 22(5), 784-799.
- Gopalakrishnan, K., Yusuf, Y. Y., Musa, A., Abubakar, T., and Ambursa, H. M. (2012). Sustainable supply chain management: A case study of British Aerospace (BAe) Systems. *International Journal of Production Economics*, 140(1), 193-203.
- Govindan, K., Khodaverdi, R., and Jafarian, A. (2013). A fuzzy multi criteria approach for measuring sustainability performance of a supplier based on triple bottom line approach. *Journal of Cleaner Production*, 47, 345-354.
- Granovetter, M. (1992). Economic institutions as social constructions: a framework for analysis. *Acta Sociologica*, 35(1), 3-11.
- Grawe, S. J., Daugherty, P. J., and Dant, R. P. (2012). Logistics service providers and their customers: gaining commitment through organizational implants. *Journal of Business Logistics*, 33(1), 50-63.
- Greer, T. V., and Lohtia, R. (1994). Effects of source and paper color on response rates in mail surveys. *Industrial Marketing Management*. 23(1), 47-54.
- Grimm, J. H., Hofstetter, J. S., and Sarkis, J. (2016). Exploring sub-suppliers' compliance with corporate sustainability standards. *Journal of Cleaner Production*, 112, 1971-1984.
- Grosvold, J., U. Hoejmose, S., and K. Roehrich, J. (2014). Squaring the circle: Management, measurement and performance of sustainability in supply chains. *Supply Chain Management: An International Journal*, 19(3), 292-305.
- Grover, V., and Malhotra, M. K. (2003). Transaction cost framework in operations and supply chain management research: theory and measurement. *Journal of Operations management*, 21(4), 457-473.
- Gualandris, J., and Kalchschmidt, M. (2014). Customer pressure and innovativeness: their role in sustainable supply chain management. *Journal of Purchasing and Supply Management*, 20(2), 92-103.

- Gualandris, J., and Kalchschmidt, M. (2016). Developing environmental and social performance: the role of suppliers' sustainability and buyer–supplier trust. *International Journal of Production Research*, 54(8), 1-17.
- Guba, E. G., and Lincoln, Y. S. (1994). Competing paradigms in qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of Qualitative Research* (105–117). Thousand Oaks, CA: Sage.
- Guide, V. D. R., and Ketokivi, M. (2015). Notes from the Editors: Redefining some methodological criteria for the journal. *Journal of Operations Management*, 37, v-viii.
- Gulati, R. (1995). Does familiarity breed trust? The implications of repeated ties for contractual choice in alliances. *Academy of Management Journal*, 38(1), 85-112.
- Gulati, R., and Nickerson, J. A. (2008). Interorganizational trust, governance choice, and exchange performance. *Organization Science*, 19(5), 688-708.
- Gunasekaran, A., and Kobu, B. (2007). Performance measures and metrics in logistics and supply chain management: a review of recent literature (1995–2004) for research and applications. *International journal of Production Research*, 45(12), 2819-2840.
- Gunasekaran, A., Patel, C., and McGaughey, R. E. (2004). A framework for supply chain performance measurement. *International Journal of Production Economics*, 87(3), 333-347.
- Gupta, N., Shaw, J. D., and Delery, J. E. (2000). Correlates of response outcomes among organizational key informants. *Organizational Research Methods*, (3)4, 323-347.
- Hair, J. F., Hult, G. T. M., Ringle, C. M., and Sarstedt, M. (2014b). *A primer on partial least squares structural equation modeling (PLS-SEM)*. Thousand Oaks: Sage.
- Hair, J.F., Black W.C., B.J. Babin, and R.E. Anderson. (2014a). *Multivariate Data Analysis: Pearson New International Edition*. (7th Edn). Pearson Education, Limited.

- Harman, G. H. (1965). The inference to the best explanation. *The Philosophical Review*, 74(1), 88-95.
- Harman, H.H. (1967). *Modern Factor Analysis*. (2nd edn). Chicago: University of Chicago Press, Chicago.
- Harwood, I., and Humby, S. (2008). Embedding corporate responsibility into supply: a snapshot of progress. *European Management Journal*, 26(3), 166-174.
- Hassini, E., Surti, C., and Searcy, C. (2012). A literature review and a case study of sustainable supply chains with a focus on metrics. *International Journal of Production Economics*, 140(1), 69-82.
- Helm, S., Eggert, A., and Gardefeld, I. (2010). Modeling the impact of corporate reputation on customer relationship and loyalty using partial least squares. In: Vinci, V.E., Chin, W.W., Henseler, J., Wang, H. (Eds.), *Handbook of Partial Least Squares: Concepts, Methods and Applications* (pp. 515–534). Springer-Verlag, Berlin, Germany.
- Hempel, C. G. (1965). *Aspects of Scientific Explanation and other Essays in the Philosophy of Science*. New York: Free Press.
- Henseler, J., and Chin, W. W. (2010). A comparison of approaches for the analysis of interaction effects between latent variables using partial least squares path modeling. *Structural Equation Modeling*, 17(1), 82-109.
- Henseler, J., Ringle, C. M., and Sinkovics, R. R. (2009). The use of partial least squares path modeling in international marketing. *Advances in International Marketing*, 20, 277–320.
- Henseler, J., Ringle, C.M., and Sarstedt, M., (2012). Using partial least squares path modeling in international advertising research: basic concepts and recent issues. In: Okazaki, S. (Ed.), *Handbook of Research in International Advertising* (252-276). Cheltenham: Edward Elgar Publishing.
- Hitt, M. A., Xu, K., and Carnes, C. M. (2016). Resource based theory in operations management research. *Journal of Operations Management*, 41, 77-94.

- Hoejmose, S. U., and Adrien-Kirby, A. J. (2012). Socially and environmentally responsible procurement: A literature review and future research agenda of a managerial issue in the 21st century. *Journal of Purchasing and Supply Management*, 18(4), 232-242.
- Hoejmose, S. U., Roehrich, J. K., and Grosvold, J. (2014). Is doing more doing better? The relationship between responsible supply chain management and corporate reputation. *Industrial Marketing Management*, 43(1), 77–90.
- Hoejmose, S., Brammer, S., and Millington, A. (2013). An empirical examination of the relationship between business strategy and socially responsible supply chain management. *International Journal of Operations & Production Management*, 33(5), 589-621.
- Hollos, D., Blome, C., and Foerstl, K. (2012). Does sustainable supplier co-operation affect performance? Examining implications for the triple bottom line. *International Journal of Production Research*, 50(11), 2968-2986.
- Hsueh, C.-F., and Chang, M.-S. (2008). Equilibrium analysis and corporate social responsibility for supply chain integration. *European Journal of Operational Research*, 190(1), 116–129.
- Hudson, L. A., and Ozanne, J. L. (1988). Alternative ways of seeking knowledge in consumer research. *Journal of Consumer Research*, 14(4), 508-521.
- Hughes, M., and Perrons, R. K. (2011). Shaping and re-shaping social capital in buyer–supplier relationships. *Journal of Business Research*, 64(2), 164-171.
- Huikkola, T., Ylimäki, J., and Kohtamäki, M. (2013). Joint learning in R&D collaborations and the facilitating relational practices. *Industrial Marketing Management*, 42(7), 1167-1180.
- Hulland, J. (1999). Use of partial least squares (PLS) in strategic management research: A review of four recent studies. *Strategic Management Journal*, 20(2), 195-204.

- Hung, S. W., Chen, P. C., and Chung, C. F. (2014). Gaining or losing? The social capital perspective on supply chain members' knowledge sharing of green practices. *Technology Analysis & Strategic Management*, 26(2), 189-206.
- Huq, F. A., Chowdhury, I. N., and Klassen, R. D. (2016). Social management capabilities of multinational buying firms and their emerging market suppliers: An exploratory study of the clothing industry. *Journal of Operations Management*, 46, 19-37.
- Huq, F. A., Stevenson, M., and Zorzini, M. (2014). Social sustainability in developing country suppliers: An exploratory study in the ready-made garments industry of Bangladesh, *International Journal of Operations & Production Management*, 34 (5), 610-638.
- Husgafvel, R., Pajunen, N., Virtanen, K., Paavola, I.L., Päällysaho, M., Inkinen, V., Heiskanen, K., Dahl, O. and Ekroos, A. (2015). Social sustainability performance indicators—experiences from process industry. *International Journal of Sustainable Engineering*, 8(1), 14-25.
- Inkpen, A. C., and Tsang, E. W. (2005). Social capital, networks, and knowledge transfer. *Academy of Management Review*, 30(1), 146-165.
- Jamali, D. (2008). A stakeholder approach to corporate social responsibility: A fresh perspective into theory and practice. *Journal of Business Ethics*, 82(1), 213-231.
- Jap, S., and Anderson, E. (2004). Challenges and advances in marketing strategy field research. In C. Moorman, & D. Lehmann (Eds.), *Assessing Marketing Strategy Performance* (269–292). Newbury Park, London: Sage.
- Jap, S. D., and Ganesan, S. (2000). Control mechanisms and the relationship life cycle: Implications for safeguarding specific investments and developing commitment. *Journal of Marketing Research*, 37(2), 227-245.
- Jarvis, C. B., MacKenzie, S. B., and Podsakoff, P. M. (2003). A critical review of construct indicators and measurement model misspecification in marketing and consumer research. *Journal of Consumer Research*, (30)2, 199-218.

- Jiang, B. (2009a). The effects of interorganizational governance on supplier's compliance with SCC: An empirical examination of compliant and non-compliant suppliers. *Journal of Operations Management*, 27(4), 267-280.
- Jiang, B. (2009b). Implementing supplier codes of conduct in global supply chains: Process explanations from theoretic and empirical perspectives. *Journal of Business Ethics*, 85(1), 77-92.
- Johnsen, R. E., and Lacoste, S. (2016). An exploration of the 'dark side' associations of conflict, power and dependence in customer–supplier relationships. *Industrial Marketing Management*, 59, 76-95.
- Johnsen, T. E., Miemczyk, J., and Howard, M. (2017). A systematic literature review of sustainable purchasing and supply research: Theoretical perspectives and opportunities for IMP-based research. *Industrial Marketing Management*, 61, 130-143.
- Johnson, N., Elliott, D., and Drake, P. (2013). Exploring the role of social capital in facilitating supply chain resilience. *Supply Chain Management: An International Journal*, 18(3), 324-336.
- Joo, S. J., Min, H., Kwon, I. W. G., and Kwon, H. (2010). Comparative efficiencies of specialty coffee retailers from the perspectives of socially responsible global sourcing. *The International Journal of Logistics Management*, 21(3), 490-509.
- Kaiser, H. F. (1974). An index of factorial simplicity. *Psychometrika*, 39(1), 31-36.
- Kale, P., Singh, H., and Perlmutter, H. (2000). Learning and protection of proprietary assets in strategic alliances: Building relational capital. *Strategic Management Journal*, 21(3), 217-237.
- Kaptein, M. (2004). Business codes of multinational firms: what do they say?. *Journal of Business Ethics*, 50(1), 13-31.
- Kenny, D. A., and Judd, C. M. (1984). Estimating the nonlinear and interactive effects of latent variables. *Psychological Bulletin*, 96(1), 201-210.

- Ketchen, D. J., and Hult, G. T. M. (2007a). Toward greater integration of insights from organization theory and supply chain management. *Journal of Operations Management*, 25(2), 455-458.
- Ketchen, D. J., and Hult, G. T. M. (2007b). Bridging organization theory and supply chain management: The case of best value supply chains. *Journal of Operations Management*, 25(2), 573-580.
- Ketchen Jr, D. J., and Hult, G. T. M. (2011). Building theory about supply chain management: Some tools from the organizational sciences. *Journal of Supply Chain Management*, 47(2), 12-18.
- Ketokivi, M., and Mantere, S. (2010). Two strategies for inductive reasoning in organizational research. *Academy of Management Review*, 35(2), 315-333.
- Khan, F. R. (2007). Representational approaches matter. *Journal of Business Ethics*, 73(1), 77-89.
- Kim, K. K., Umanath, N. S., Kim, J. Y., Ahrens, F., and Kim, B. (2012). Knowledge complementarity and knowledge exchange in supply channel relationships. *International Journal of Information Management*, 32(1), 35-49.
- Kitchenham, B., Budgen, D., Brereton, P., Turner, M., Charters, S., and Linkman, S. (2007). Large-scale software engineering questions—expert opinion or empirical evidence?. *IET software*, 1(5), 161-171.
- Klassen, R. D., and Vereecke, A. (2012). Social issues in supply chains: Capabilities link responsibility, risk (opportunity), and performance. *International Journal of Production Economics*, 140 (1), 103-115.
- Kohtamäki, M., and Bourlakis, M. (2012). Antecedents of relationship learning in supplier partnerships from the perspective of an industrial customer: the direct effects model. *Journal of Business & Industrial Marketing*, 27(4), 299-310.
- Kohtamäki, M., Partanen, J., and Möller, K. (2013). Making a profit with R&D services—The critical role of relational capital. *Industrial Marketing Management*, 42(1), 71-81.

- Kohtamäki, M., Vesalainen, J., Henneberg, S., Naudé, P., and Ventresca, M. J. (2012). Enabling relationship structures and relationship performance improvement: The moderating role of relational capital. *Industrial Marketing Management*, 41(8), 1298-1309.
- Koka, B. R., and Prescott, J. E. (2002). Strategic alliances as social capital: A multidimensional view. *Strategic Management Journal*, 23(9), 795-816.
- Kolk, A., and van Tulder, R. (2002a). Child labor and multinational conduct: a comparison of international business and stakeholder codes. *Journal of Business Ethics*, 36(3), 291-301.
- Kolk, A., and van Tulder, R. (2002b). The Effectiveness of self-regulation: corporate codes of conduct and child labour. *European Management Journal*, 20(3), 260-271.
- Koplin, J., Seuring, S., and Mesterharm, M. (2007). Incorporating sustainability into supply management in the automotive industry – the case of the Volkswagen Ag. *Journal of Cleaner Production*, 15 (11-12), 1053-1062.
- Kortelainen, K. (2008). Global supply chains and social requirements: case studies of labour condition auditing in the People's Republic of China. *Business Strategy and the Environment*, 17(7), 431-443.
- Kostova, T., and Roth, K. (2003). Social capital in multinational corporations and a micro-macro model of its formation. *Academy of Management Review*, 28(2), 297-317.
- Koufteros, X.A., Rawski, G.E., and Rupak, R. (2010). Organisational integration for product development: the effects on glitches, on-time execution of engineering change orders, and market success. *Decision Sciences*, 41(1), 49-80.
- Krause, D. R., Handfield, R. B., and Tyler, B. B. (2007). The relationships between supplier development, commitment, social capital accumulation and performance improvement. *Journal of Operations Management*, 25(2), 528-545.

- Krause, D. R., Scannell, T. V., and Calantone, R. J. (2000). A structural analysis of the effectiveness of buying firms' strategies to improve supplier performance. *Decision Sciences*, 31(1), 33-55.
- Kulangara, N. P., Jackson, S. A., and Prater, E. (2016). Examining the impact of socialization and information sharing and the mediating effect of trust on innovation capability. *International Journal of Operations & Production Management*, 36(11), 1601-1624.
- Kumar Kar, A., and K. Pani, A. (2014). Exploring the importance of different supplier selection criteria. *Management Research Review*, 37(1), 89-105.
- Kumar, D., and Rahman, Z. (2016). Buyer supplier relationship and supply chain sustainability: empirical study of Indian automobile industry. *Journal of Cleaner Production*, 131, 836-848.
- Kwon, S. W., and Adler, P. S. (2014). Social capital: Maturation of a field of research. *Academy of Management Review*, 39(4), 412-422.
- Lambert, D. M. (2014). *Supply Chain Management: Processes, partnerships, performance*. (4th ed.). Ponte Vedra Beach, FL: Supply Chain Management Institute.
- Lambert, D. M., and Cooper, M. C. (2000). Issues in supply chain management. *Industrial Marketing Management*, 29(1), 65-83.
- Lambert, D. M., Cooper, M. C., and Pagh, J. D. (1998). Supply chain management: Implementation issues and research opportunities. *The International Journal of Logistics Management*, 9(2), 1-19.
- Lavie, D. (2006). The competitive advantage of interconnected firms: An extension of the resource-based view. *Academy of Management Review*, 31 (3), 638-658.
- Law, K. S., and Wong, C. S. (1999). Multidimensional constructs in structural equation analysis: An illustration using the job perception and job satisfaction constructs. *Journal of Management*, 25(2), 143-160.

- Lawson, B., Tyler, B. B., and Cousins, P. D. (2008). Antecedents and consequences of social capital on buyer performance improvement. *Journal of Operations Management*, 26(3), 446-460.
- Leana, C. R., and Van Buren, H. J. (1999). Organizational social capital and employment practices. *Academy of Management Review*, 24(3), 538-555.
- Lee, S. Y. (2015). The effects of green supply chain management on the supplier's performance through social capital accumulation. *Supply Chain Management: An International Journal*, 20(1), 42-55.
- Lee, S. Y. (2016). Responsible supply chain management in the Asian context: the effects on relationship commitment and supplier performance. *Asia Pacific Business Review*, 22(2), 325-342.
- Leenders, M.R., and H.E. Fearon (1997). *Purchasing and Supply Management*, (11th edn), Chicago: Irwin.
- Leigh, J., and Waddock, S. (2006). The emergence of total management responsibility systems: J Sainsbury (plc) voluntary responsibility management systems for global food retail supply chains. *Business and Society Review*, 111(4), 409–426.
- Leire, C., and Mont, O. (2010). The implementation of socially responsible purchasing. *Corporate Social Responsibility and Environmental Management*, 17(1), 27-39.
- Leischnig, A., Geigenmueller, A., and Lohmann, S. (2014). On the role of alliance management capability, organizational compatibility, and interaction quality in interorganizational technology transfer. *Journal of Business Research*, 67(6), 1049-1057.
- Levene, H. (1960). Robust tests for equality of variances. In I. Olkin (eds.) *Contributions to Probability and Statistics*, Stanford University. Press. Palto Alto, CA.
- Li, L. Y. (2010). Antecedents of principal–Agent relationship value: The differential impact of social capital and dynamic learning factors. *Journal of Marketing Channels*, 17(4), 313-338.

- Li, S., Ragu-Nathan, B., Ragu-Nathan, T. S., and Rao, S. S. (2006). The impact of supply chain management practices on competitive advantage and organizational performance. *Omega*, 34(2), 107-124.
- Li, W., Humphreys, P. K., Yeung, A. C., and Cheng, T. E. (2007). The impact of specific supplier development efforts on buyer competitive advantage: an empirical model. *International Journal of Production Economics*, 106(1), 230-247.
- Li, Y., Ye, F., and Sheu, C. (2014). Social capital, information sharing and performance: Evidence from China. *International Journal of Operations & Production Management*, 34(11), 1440-1462.
- Liao, K., Sharkey, T. W., Ragu-Nathan, T. S., and Vonderembse, M. (2012). Trust-driven joint operational activities to achieve mass customization: a culture perspective. *Benchmarking: An International Journal*, 19(4/5), 585-603.
- Liker, J., and Wu, Y. (2000). Japanese automakers U.S. suppliers and supply-chain superiority. *Sloan Management Review*, 42, 81-93.
- Lim, S. J., and Phillips, J. (2008). Embedding CSR values: The global footwear industry's evolving governance structure. *Journal of Business Ethics*, 81(1), 143-156.
- Lin, N. (2001). Building a network theory of social capital. In N. Lin, K. Cook, & R. S. Burt (Eds.), *Social capital: Theory and research* (3-30). New York: Aldine de Gruyter.
- Linsky, A. S. (1975). Stimulating responses to mailed questionnaires: A review. *Public Opinion Quarterly*, 39(1), 82-101.
- Lioliou, E., and Zimmermann, A. (2015). Vendor opportunism in IT outsourcing: a TCE and social capital perspective. *Journal of Information Technology*, 30(4), 307-324.
- Liu, Y., Luo, Y., and Liu, T. (2009). Governing buyer-supplier relationships through transactional and relational mechanisms: Evidence from China. *Journal of Operations Management*, 27(4), 294-309.

- Locke, R. M., Rissing, B. A., and Pal, T. (2013). Complements or substitutes? Private codes, state regulation and the enforcement of labour standards in global supply chains. *British Journal of Industrial Relations*, 51(3), 519–552.
- Locke, R., Amengual, M., and Mangla, A. (2009). Virtue out of necessity? Compliance, commitment, and the improvement of labor conditions in global supply chains. *Politics & Society*, 37(3), 319-351.
- Locke, R., Amengual, M., and Mangla, A. (2009). Virtue out of necessity? Compliance, commitment, and the improvement of labor conditions in global supply chains. *Politics & Society*, 37(3), 319-351.
- Lummus, R. R., and Vokurka, R. J. (1999). Defining supply chain management: a historical perspective and practical guidelines. *Industrial Management & Data Systems*, 99(1), 11-17.
- Lund-Thomsen, P. (2008). The global sourcing and codes of conduct debate: five myths and five recommendations. *Development and Change*, 39(6), 1005-1018.
- Lund-Thomsen, P., and Lindgreen, A. (2014). Corporate social responsibility in global value chains: Where are we now and where are we going? *Journal of Business Ethics*, 123(1), 11–22.
- Lund-Thomsen, P., and Lindgreen, A. (2014). Corporate social responsibility in global value chains: Where are we now and where are we going?. *Journal of Business Ethics*, 123(1), 11-22.
- Luo, Y., Liu, Y., Yang, Q., Maksimov, V., and Hou, J. (2015). Improving performance and reducing cost in buyer–supplier relationships: The role of justice in curtailing opportunism. *Journal of Business Research*, 68(3), 607-615.
- Luthra, S., Govindan, K., Kannan, D., Mangla, S.K., and Garg, C.P. (2017). An integrated framework for sustainable supplier selection and evaluation in supply chains. *Journal of Cleaner Production*, 140, 1686-1698.
- MacKenzie, S. B., Podsakoff, P. M., and Jarvis, C. B. (2005). The problem of measurement model misspecification in behavioural and organizational research

- and some recommended solutions. *Journal of Applied Psychology*, 90(4), 710 – 730.
- Maignan, I., and Mcalister, T. D. (2003). Socially responsible organizational buying: How can stakeholders dictate policies? *Journal of Macromarketing*, 23(2), 78–89.
- Maignan, I., Hillebrand, B., and Mcalister, D. (2002). Managing socially-responsible buying: how to integrate non-economic criteria into the purchasing process. *European Management Journal*, 20(6), 641-648.
- Majumdar, S. K. (1997). The impact of size and age on firm-level performance: some evidence from India. *Review of Industrial Organization*, 12(2), 231-241.
- Malhotra, N. K., Birks, D. F. ,and Wills, P. (2012). *Marketing Research – An Applied Approach*. (4th edn). Essex: Pearson Education Limited.
- Maloni, M. J., and Brown, M. E. (2006). Corporate social responsibility in the supply chain: an application in the food industry. *Journal of Business Ethics*, 68(1), 35-52.
- Mamic, I. (2005). Managing global supply chain: The sports footwear, apparel and retail sectors. *Journal of Business Ethics*, 59 (1–2), 81–100.
- Mani, V., Agrawal, R., and Sharma, V. (2015). Social sustainability in the supply chain: analysis of enablers. *Management Research Review*, 38(9), 1016-1042.
- Mani, V., Agrawal, R., and Sharma, V. (2016). Impediments to social sustainability adoption in the supply chain: an ISM and MICMAC analysis in Indian manufacturing industries. *Global Journal of Flexible Systems Management*, 17(2), 135-156.
- Mani, V., Agrawal, R., and Sharma, V. (2014). Supplier selection using social sustainability: AHP based approach in India. *International Strategic Management Review*, 2(2), 98-112.
- Mantere, S., and Ketokivi, M. (2013). Reasoning in organization science. *Academy of Management Review*, 38(1), 70-89.

- Marshall, D., McCarthy, L., Heavey, C., and McGrath, P. (2015a). Environmental and social supply chain management sustainability practices: Construct development and measurement. *Production Planning & Control*, 26(8), 673–690.
- Marshall, D., McCarthy, L., McGrath, P., and Claudy, M. (2015b). Going above and beyond: how sustainability culture and entrepreneurial orientation drive social sustainability supply chain practice adoption. *Supply Chain Management: An International Journal*, 20(4), 434-454.
- Marshall, D., McCarthy, L., Claudy, M., and McGrath, P. (2016). Piggy in the Middle: How Direct Customer Power Affects First-Tier Suppliers' Adoption of Socially Responsible Procurement Practices and Performance. *Journal of Business Ethics*, 1-22.
- Matthews, R. L., and Marzec, P. E. (2012). Social capital, a theory for operations management: a systematic review of the evidence. *International Journal of Production Research*, 50(24), 7081-7099.
- Meixell, M.J., and Luoma, P. (2015). Stakeholder pressure in sustainable supply chain management: a systematic review. *International Journal of Physical Distribution & Logistics Management*, 45(1/2), 69-89.
- Mentzer, J. T., DeWitt, W., Keebler, J. S., Min, S., Nix, N. W., Smith, C. D., and Zacharia, Z. G. (2001). Defining supply chain management. *Journal of Business Logistics*, 22(2), 1-25.
- Meredith, J. (1993). Theory building through conceptual methods. *International Journal of Operations & Production Management*, 13(5), 3-11.
- Mienczyk, J., Johnsen, T.E., and Macquet, M. (2012). Sustainable purchasing and supply management: a structured literature review of definitions and measures at the dyad, chain and network levels. *Supply Chain Management: An International Journal*, 17(5), 478-496.
- Miocevic, D. (2016). The antecedents of relational capital in key exporter-importer relationships: An institutional perspective. *International Marketing Review*, 33(2), 196-218.

- Misztal, B. (1996). *Trust in Modern Societies*. Cambridge, England: Polity Press.
- Modi, S. B., and Mabert, V. A. (2007). Supplier development: Improving supplier performance through knowledge transfer. *Journal of Operations Management*, 25(1), 42-64.
- Monczka, R., Peterson, K., Handfield, R.B., and Ragatz, G. (1998). Determinants of successful vs. non-strategic supplier alliances. *Decision Sciences*, 29(3), 553–577.
- Montabon, F., Pagell, M., and Wu, Z. (2016). Making sustainability sustainable. *Journal of Supply Chain Management*, 52(2), 11-27.
- Mukherjee, K. (2016). Supplier selection criteria and methods: past, present and future. *International Journal of Operational Research*, 27(1-2), 356-373.
- Murphy, D. F., and Mathew, D. (2001). Nike and global labour practices. Case study prepared for the New Academy of Business Innovation Network for Socially Responsible Business, Bristol, UK.
- Murphy, P. R., and Poist, R. F. (2002). Socially responsible logistics: an exploratory study. *Transportation Journal*, 23-35.
- Nahapiet, J., and Ghoshal, S. (1998). Social capital, intellectual capital, and the organizational advantage. *Academy of Management Review*, 23(2), 242-266.
- Neuman, L. W. (2011). *Social research methods: Qualitative and quantitative approaches*. (7th edn). Boston: Allyn & Bacon.
- Normann, U., Ellegaard, C., and Møller, M. M. (2017). Supplier perceptions of distributive justice in sustainable apparel sourcing. *International Journal of Physical Distribution & Logistics Management*, 47(5), 368-386.
- Nunnally, J. (1978). *Psychometric Theory*. 2nd edn. McGraw-Hill, New York.
- Oh, H., Chung, M. H., and Labianca, G. (2004). Group social capital and group effectiveness: The role of informal socializing ties. *Academy of Management Journal*, 47(6), 860-875.

- Oh, H., Labianca, G., and Chung, M. H. (2006). A multilevel model of group social capital. *Academy of Management Review*, 31(3), 569-582.
- Pagell, M., and Shevchenko, A. (2014). Why research in sustainable supply chain management should have no future. *Journal of Supply Chain Management*, 50(1), 44-55.
- Pagell, M., Wu, Z., and Wasserman, M. E. (2010). Thinking differently about purchasing portfolios: an assessment of sustainable sourcing. *Journal of Supply Chain Management*, 46(1), 57-73.
- Pallant, J. (2013). *SPSS Survival Manual*. (5th edn.) London: Open University Press.
- Park-Poaps, H., and Rees, K. (2010). Stakeholder forces of socially responsible supply chain management orientation. *Journal of Business Ethics*, 92(2), 305–322.
- Payan, J. M., and McFarland, R. G. (2005). Decomposing influence strategies: Argument structure and dependence as determinants of the effectiveness of influence strategies in gaining channel member compliance. *Journal of Marketing*, 69(3), 66–79.
- Pedersen, E. R., and Andersen, M. (2006). Safeguarding corporate social responsibility (CSR) in global supply chains: how codes of conduct are managed in buyer-supplier relationships. *Journal of Public Affairs*, 6(3-4), 228-240.
- Pena-López, J. A., and Sánchez-Santos, J. M. (2017). Individual social capital: Accessibility and mobilization of resources embedded in social networks. *Social Networks*, 49, 1-11.
- Peng, D. X., and Lai, F. (2012). Using partial least squares in operations management research: A practical guideline and summary of past research. *Journal of Operations Management*, 30(6), 467-480.
- Perez-Aleman, P., and Sandilands, M. (2008). Building value at the top and the bottom of the global supply chain: MNC-NGO partnerships. *California Management Review*, 51(1), 24-49.
- Perrini, F., Russo, A., and Tencati, A. (2007). CSR strategies of SMEs and large firms. Evidence from Italy. *Journal of Business Ethics*, 74(3), 285–300.

- Peter, J. P. (1981). Construct Validity: A Review of Basic Issues and Marketing Practices. *Journal of Marketing Research*, 18(2), 133–145.
- Petersen, K. J., Handfield, R. B., Lawson, B., and Cousins, P. D. (2008). Buyer dependency and relational capital formation: the mediating effects of socialization processes and supplier integration. *Journal of Supply Chain Management*, 44(4), 53-65.
- Petter, S., Straub, D., and Rai, A. (2007). Specifying formative constructs in information systems research. *MIS Quarterly*, 31(4), 623-656.
- Pillai, K. G., Hodgkinson, G. P., Kalyanaram, G., and Nair, S. R. (2017). The negative effects of social capital in organizations: a review and extension. *International Journal of Management Reviews*, 19(1), 97-124.
- Pinheiro, M. L., Serôdio, P., Pinho, J. C., and Lucas, C. (2016). The role of social capital towards resource sharing in collaborative R&D projects: Evidences from the 7th Framework Programme. *International Journal of Project Management*, 34(8), 1519-1536.
- Podsakoff, P. M., and Organ, D. W. (1986). Self-reports in organizational research: Problems and prospects. *Journal of Management*, 12(4), 531-544.
- Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., and Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88 (5), 879-903.
- Poist, R. F. (1989). Evolution of Conceptual Approaches to the Design of Logistics Systems: A Sequel. *Transportation Journal*, 28(3), 35-39.
- Ponterotto, J. G. (2005). Qualitative research in counseling psychology: A primer on research paradigms and philosophy of science. *Journal of Counseling Psychology*, 52(2), 126-136.
- Popper, K. R. (1959). *The Logic of Scientific Discovery*. London: Hutchinson.
- Poppo, L., and Zenger, T. (2002). Do formal contracts and relational governance function as substitutes or complements?. *Strategic Management Journal*, 23(8), 707-725.

- Porteous, A. H., Rammohan, S. V., and Lee, H. L. (2015). Carrots or sticks? Improving social and environmental compliance at suppliers through incentives and penalties. *Production and Operations Management*, 24(9), 1402-1413.
- Porter, M. E. 1980. *Competitive strategy*. New York: Free Press.
- Portes, A. (1998). Social capital: Its origins and applications in modern sociology. *Annual Review of Sociology*, 24(1), 1-24.
- Presser, S., Blair, J., and Triplett, T. (1992). Survey sponsorship, response rates, and response effects. *Social Science Quarterly*, 73(3), 699–702.
- Preuss, L. (2009). Ethical sourcing codes of large UK-based corporations: prevalence, content, limitations. *Journal of Business Ethics*, 88(4), 735-747.
- Pullman, M. E., Maloni, M. J., and Carter, C. R. (2009). Food for thought: social versus environmental sustainability practices and performance outcomes. *Journal of Supply Chain Management*, 45(4), 38-54.
- Putnam, R. D. (1995). Bowling alone: America's declining social capital. *Journal of Democracy*, 6(1), 65-78.
- Qureshi, I., and Compeau, D. (2009). Assessing between-group differences in information systems research: A comparison of covariance-and component-based SEM. *MIS Quarterly*, 33(1), 197-214.
- Reinartz, W., Haenlein, M., and Henseler, J. (2009). An empirical comparison of the efficacy of covariance-based and variance-based SEM. *International Journal of Research in Marketing*, 26(4), 332-344.
- Reuter, C., Foerstl, K. A. I., Hartmann, E. V. I., and Blome, C. (2010). Sustainable global supplier management: the role of dynamic capabilities in achieving competitive advantage. *Journal of Supply Chain Management*, 46(2), 45-63.
- Reuter, C., Goebel, P., and Foerstl, K. (2012). The impact of stakeholder orientation on sustainability and cost prevalence in supplier selection decisions. *Journal of Purchasing and Supply Management*, 18(4), 270-281.

- Richardson, H. A., Simmering, M. J., and Sturman, M. C. (2009). A tale of three perspectives: Examining post hoc statistical techniques for detection and correction of common method variance. *Organizational Research Methods*, 12 (4), 762–800.
- Rindfleisch, A., and Heide, J. B. (1997). Transaction cost analysis: Past, present, and future applications. *Journal of Marketing*, 61 (4), 30-54.
- Rindfleisch, A., Malter, A. J., Ganesan, S., and Moorman, C. (2008). Cross-sectional versus longitudinal survey research: Concepts, findings, and guidelines. *Journal of Marketing Research*, 45(3), 261-279.
- Roberts, N., Thatcher, J. B., and Grover, V. (2010). Advancing operations management theory using exploratory structural equation modelling techniques. *International Journal of Production Research*, 48 (15), 4329-4353.
- Roberts, S. (2003). Supply chain specific? Understanding the patchy success of ethical sourcing initiatives. *Journal of Business Ethics*, 44(2), 159-170.
- Robison, L. J., Schmid, A. A., and Siles, M. E. (2002). Is social capital really capital? *Review of Social Economy*, 60(1), 1-21.
- Roden, S., and Lawson, B. (2014). Developing social capital in buyer–supplier relationships: The contingent effect of relationship-specific adaptations. *International Journal of Production Economics*, 151, 89-99.
- Rodríguez, J. A., Giménez, C., and Arenas, D. (2016a). Cooperative initiatives with NGOs in socially sustainable supply chains: How is inter-organizational fit achieved?. *Journal of Cleaner Production*, 137, 516-526.
- Rodríguez, J.A., Giménez Thomsen, C., Arenas, D., and Pagell, M. (2016b). NGOs' initiatives to enhance social sustainability in the supply chain: poverty alleviation through supplier development programs. *Journal of Supply Chain Management*, 52(3), 83-108.
- Rogelberg, S. G., and Stanton, J. M. (2007). Introduction understanding and dealing with organizational survey nonresponse. *Organizational Research Methods*, 10(2), 195-209.

- Rogelberg, S. G., Fisher, G. G., Maynard, D. C., Hakel, M. D., and Horvath, M. (2001). Attitudes toward surveys: Development of a measure and its relationship to respondent behaviour. *Organizational Research Methods*, 4(1), 3-25.
- Rossi, M. (2016). The impact of age on firm performance: A literature review. *Corporate Ownership and Control*, 13(2), 2017-223.
- Rubin, D. B. (1976). Inference and missing data. *Biometrika*, 63(3), 581-592.
- Rungtusanatham, M. J., Choi, T. Y., Hollingworth, D. G., Wu, Z., and Forza, C. (2003). Survey research in operations management: historical analyses. *Journal of Operations Management*, 21(4), 475-488.
- Sancha, C., Gimenez, C., and Sierra, V. (2016). Achieving a socially responsible supply chain through assessment and collaboration. *Journal of Cleaner Production*, 112(3), 1934-1947.
- Sancha, C., Gimenez, C., Sierra, V., and Kazeminia, A. (2015). Does implementing social supplier development practices pay off? *Supply Chain Management: An International Journal*, 20(4), 389-403.
- Sarkis, J., Helms, M. M., and Hervani, A. A. (2010). Reverse logistics and social sustainability. *Corporate Social Responsibility and Environmental Management*, 17(6), 337-354.
- Sartor, M., Orzes, G., Di Mauro, C., Ebrahimpour, M., and Nassimbeni, G. (2016). The SA8000 social certification standard: Literature review and theory-based research agenda. *International Journal of Production Economics*, 175, 164-181.
- Saunders, M., Lewis, P., and Thornhill, A. (2009). *Research Methods for Business Students*. (5th edn). London: FT Prentice Hall.
- Saunders, M., Lewis, P., and Thornhill, A. (2012). *Research Methods for Business Students*. (6th edn). London: FT Prentice Hall.
- Saunders, M., Lewis, P., and Thornhill, A. (2015). *Research Methods for Business Students*. (7th edn). London: FT Prentice Hall.

- Schaefer, D. R., and Dillman, D. A. (1998). Development of a standard e-mail methodology: Results of an experiment. *Public Opinion Quarterly*, 62(3), 378-397.
- Schafer, J. L., and Olsen, M. K. (1998). Multiple imputation for multivariate missing-data problems: A data analyst's perspective. *Multivariate Behavioral Research*, 33(4), 545-571.
- Schneider, L., and Wallenburg, C.M. (2012). Implementing sustainable sourcing – does purchasing need to change? *Journal of Purchasing and Supply Management*, 18, (4), 243-257.
- Seuring, S., and Müller, M. (2008). From a literature review to a conceptual framework for sustainable supply chain management. *Journal of Cleaner Production*, 16(15), 1699-1710.
- .
- Shalke, P.N., Paydar, M.M., and Hajiaghaei-Keshteli, M. (2017). Sustainable supplier selection and order allocation through quantity discounts. *International Journal of Management Science and Engineering Management*, pp. 1-13.
- Skarmeas, D., Zeriti, A., and Baltas, G. (2016). Relationship value: Drivers and outcomes in international marketing channels. *Journal of International Marketing*, 24(1), 22-40.
- Social Accountability International (SAI), 2014.[<http://www.sa-intl.org/>] (accessed 17.05.16).
- Social responsibility - Schematic overview of ISO 26000 [<https://www.iso.org/publication/PUB100260.html>] (accessed 17.05.2016).
- Son, B. G., Kocabasoglu-Hillmer, C., and Roden, S. (2016). A dyadic perspective on retailer–supplier relationships through the lens of social capital. *International Journal of Production Economics*, 178, 120-131.
- Soundararajan, V., and Brown, J. A. (2016). Voluntary governance mechanisms in global supply chains: Beyond CSR to a stakeholder utility perspective. *Journal of Business Ethics*, 134(1), 83-102.

- Spekman , R. E., and Davis, E. W. (2004). Risky business: expanding the discussion on risk and the extended enterprise. *International Journal of Physical Distribution & Logistics Management*, 34(5), 414-433.
- Spekman, R. E., Kamauff Jr, J. W., and Myhr, N. (1998). An empirical investigation into supply chain management: a perspective on partnerships. *Supply Chain Management: An International Journal*, 3(2), 53-67.
- Spence, L., and Bourlakis, M. (2009). The evolution of corporate social responsibility to supply chain responsibility: The case of Waitrose. *Supply Chain Management: An International Journal*, 14(4), 291–302.
- Steenkamp, J. B. E., and Baumgartner, H. (1998). Assessing measurement invariance in cross-national consumer research. *Journal of Consumer Research*, 25(1), 78-107.
- Steier, L. (2001). New venture firms, international expansion, and the liabilities of joint venture relationships. *The Journal of High Technology Management Research*, 12(2), 295-321.
- Stone, M. (1974). Cross-Validatory Choice and Assessment of Statistical Predictions. *Journal of the Royal Statistical Society*, 36 (2), 111–147.
- Tabachnick, B., and Fidell, L. (2014). *Using Multivariate Statistics: Pearson New International Edition*. Essex: Pearson Education Limited. *Technology Management Research*, 12(2), 295-321.
- Tate, W. L., Ellram, L. M., and Kirchoff, J. F. (2010). Corporate social responsibility reports: a thematic analysis related to supply chain management. *Journal of Supply Chain Management*, 46(1), 19-44.
- Tencati, A., Russo, A., and Quaglia,V. (2008). Unintended consequences of CSR: Protectionism and collateral damage in global supply chains: The case of Vietnam. *Corporate Governance*, 8(4), 518–531.
- Torraco, R. J. (2005). Writing integrative literature reviews: Guidelines and examples. *Human Resource Development Review*, 4(3), 356–367.

- Touboulic, A., and Walker, H. (2015). Theories in sustainable supply chain management: a structured literature review. *International Journal of Physical Distribution & Logistics Management*, 45(1/2), 16-42.
- Tourangeau, R., Rips, L. J., and Rasinski, K. (2000). *The Psychology of Survey Response*. Cambridge, England: Cambridge University Press.
- Tranfield D., Denyer D., and Smart P. (2003). Towards a Methodology for Developing Evidence-Informed Management Knowledge by Means of Systematic Review. *British Journal of Management*, 14(3), 207-222.
- Tsai, W., and Ghoshal, S. (1998). Social capital and value creation: The role of intrafirm networks. *Academy of Management Journal*, 41(4), 464-476.
- Tsai, Y. H., Joe, S. W., Ding, C. G., and Lin, C. P. (2013). Modeling technological innovation performance and its determinants: An aspect of buyer–seller social capital. *Technological Forecasting and Social Change*, 80(6), 1211-1221.
- Tseng, C. H., and Chen, L. T. (2014). Determinants of subsidiary’s technological capability—examining the roles of subsidiary–local supplier linkage. *Journal of Business & Industrial Marketing*, 29(5), 374-386.
- Unal, B., and Donthu, N. (2014). Role of absorptive capabilities in outsourcing the headquarters selling task in the United States. *Industrial Marketing Management*, 43(6), 1079-1084.
- Uzzi, B. (1996). The sources and consequences of embeddedness for the economic performance of organisations: the network effect. *American Sociological Review*, 61 (4), 674–698.
- Villena, V. H., Revilla, E., and Choi, T. Y. (2011). The dark side of buyer–supplier relationships: A social capital perspective. *Journal of Operations Management*, 29(6), 561-576.
- Vinzi, V., Chin, W. W., Henseler, J., and Wang, H. (2010). *Handbook of Partial Least Squares*. Berlin, Germany: Springer.

- Vonderembse, M. A., and Tracey, M. (1999). The impact of supplier selection criteria and supplier involvement on manufacturing performance. *Journal of Supply chain Management*, 35(2), 33-39.
- Voorhees, C. M., Brady, M. K., Calantone, R. and Ramirez, E. (2016). Discriminant validity testing in marketing: an analysis, causes for concern, and proposed remedies. *Journal of the Academy of Marketing Science*, 44(1), 119-134.
- Vurro, C., Russo, A., and Perrini, F. (2009). Shaping sustainable value chains: Network determinants of supply chain governance models. *Journal of Business Ethics*, 90(4), 607-621.
- Wagner, S. M. (2010). Indirect and direct supplier development: Performance implications of individual and combined effects. *IEEE Transactions on Engineering Management*, 57(4), 536-546.
- Wagner, S. M. (2011). Supplier development and the relationship life-cycle. *International Journal of Production Economics*, 129(2), 277-283.
- Wagner, S. M., and Johnson, J. L. (2004). Configuring and managing strategic supplier portfolios. *Industrial Marketing Management*, 33(8), 717-730.
- Walker, H., and Jones, N. (2012). Sustainable supply chain management across the UK private sector. *Supply Chain Management: An International Journal*, 17(1), 15-28.
- Wang, L., and Li, J. (2016). The antecedents and innovation outcomes of firms' absorptive capacity in global buyer-supplier relationships. *Journal of Technology Transfer*, 1-24.
- Wang, Q., Li, J. J., Ross, W. T., and Craighead, C. W. (2013). The interplay of drivers and deterrents of opportunism in buyer-supplier relationships. *Journal of the Academy of Marketing Science*, 41(1), 111-131.
- Wang, Z., and Sarkis, J. (2013). Investigating the relationship of sustainable supply chain management with corporate financial performance. *International Journal of Productivity and Performance Management*, 62(8), 871-888.

- Ward, P. T., McCreery, J. K., Ritzman, L. P., and Sharma, D. (1998). Competitive priorities in operations management. *Decision Sciences*, 29(4), 1035-1046.
- Webster, J., and Watson, R. T. (2002). Analyzing the past to prepare for the future: Writing a literature review. *MIS quarterly*, xiii-xxiii.
- Werts, C. E., Linn, R. L., and Jöreskog, K. G. (1974). Intraclass reliability estimates: Testing structural assumptions. *Educational and Psychological Measurement*, 34(1), 25-33.
- Whewell, W. (1840). *The Philosophy of the Inductive Sciences, Founded upon their History*. London: John W. Parker and Son.
- Whipple, J. M., Wiedmer, R., and Boyer, K. (2015). A dyadic investigation of collaborative competence, social capital, and performance in buyer-supplier relationships. *Journal of Supply Chain Management*, 51(2), 3-21.
- Williamson, O. E. (2008). Outsourcing: Transaction cost economics and supply chain management. *Journal of Supply Chain Management*, 44(2), 5-16.
- Wold, H. (1966). Estimation of principal components and related models by iterative least squares. In Krishnaiah, P. R. (Eds.) *Multivariate analysis*, New York: Academic Press, 391-420.
- Wold, H. (1985). Partial least squares. In S. Kotz, N. L. Johnson (Eds). *Encyclopedia of Statistical Sciences*, (581–591). Wiley: New York.
- Wolf, J. (2014). The relationship between sustainable supply chain management, stakeholder pressure and corporate sustainability performance. *Journal of Business Ethics*, 119(3), 317-328.
- Wong, C. Y., Boon-Itt, S, and Wong, C. W. (2011). The contingency effects of environmental uncertainty on the relationship between supply chain integration and operational performance. *Journal of Operations Management*, 29(6), 604-615.
- World Commission on Environment and Development (1987). *Our Common Future*. London: Oxford University Press.

- Wuyts, S., and Geyskens, I. (2005). The formation of buyer—supplier relationships: detailed contract drafting and close partner selection. *Journal of Marketing*, 69(4), 103-117.
- Xu, L., Kumar, D. T., Shankar, K. M., Kannan, D., and Chen, G. (2013). Analyzing criteria and sub-criteria for the corporate social responsibility-based supplier selection process using AHP. *The International Journal of Advanced Manufacturing Technology*, 68(1-4), 907-916.
- Yakovleva, N., Sarkis, J., and Sloan, T. (2012). Sustainable benchmarking of supply chains: the case of the food industry. *International Journal of Production Research*, 50(5), 1297-1317.
- Yammarino, F. J., Skinner, S. J., and Childers, T. L. (1991). Understanding mail survey response behavior a meta-analysis. *Public Opinion Quarterly*, 55(4), 613-639.
- Yang, J. (2009). The determinants of supply chain alliance performance: an empirical study. *International Journal of Production Research*, 47(4), 1055-1069.
- Yawar, S. A., and Seuring, S. (2017). Management of social issues in supply chains: a literature review exploring social issues, actions and performance outcomes. *Journal of Business Ethics*, 141(3), 621-643.
- Yim, B., and Leem, B. (2013). The effect of the supply chain social capital. *Industrial Management & Data Systems*, 113(3), 324-349.
- Yu, X. (2008). Impacts of Corporate Code of Conduct on Labor Standards: A Case Study of Reebok's Athletic Footwear Supplier Factory in China. *Journal of Business Ethics*, 81(3), 513-529.
- Zhang, M., Guo, H., and Zhao, X. (2017). Effects of social capital on operational performance: impacts of servitisation. *International Journal of Production Research*, 55(15), 4304-4318.
- Zhang, M., Pawar, K. S., and Bhardwaj, S. (2017). Improving supply chain social responsibility through supplier development. *Production Planning & Control*, 28(6-8), 500-511.

Zikmund, W. G., Babin, B. J., Carr, J. C., and Griffin, M. (2013). *Business Research Methods*. (9th edn). Cengage Learning.

Zorzini, M., Hendry, L. C., Huq, F. A., and Stevenson, M. (2015). Socially responsible sourcing: reviewing the literature and its use of theory. *International Journal of Operations & Production Management*, 35(1), 60-109.

Appendix A: Data Collection Ethical Approval

22 October 2015

LETTER OF APPROVAL

Applicant: Mr Mohammad Alghababsheh

Project Title: The Effect of Socially Sustainable Supply Chain Management Practices on Supplier Performance: the Role of Interorganizational Justice and Social Capital

Reference: 0173-LR-Oct/2015-172

Dear Mr Mohammad Alghababsheh

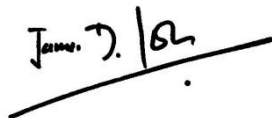
The Research Ethics Committee has considered the above application recently submitted by you.

The Chair, acting under delegated authority, is satisfied that the amendments accord with the decision of the Committee and has agreed that there is no objection on ethical grounds to the proposed study. Approval is given on the understanding that the conditions of approval set out below are followed:

- The agreed protocol must be followed. Any changes to the protocol will require prior approval from the Committee.

Please note that:

- Research Participant Information Sheets and (where relevant) flyers, posters, and consent forms should include a clear statement that research ethics approval has been obtained from the relevant Research Ethics Committee.
- The Research Participant Information Sheets should include a clear statement that queries should be directed, in the first instance, to the Supervisor (where relevant), or the researcher. Complaints, on the other hand, should be directed, in the first instance, to the Chair of the relevant Research Ethics Committee
- Approval to proceed with the study is granted subject to receipt by the Committee of satisfactory responses to any conditions that may appear above, in addition to any subsequent changes to the protocol.
- The Research Ethics Committee reserves the right to sample and review documentation, including raw data, relevant to the study.
- You may not undertake any research activity if you are not a registered student of Brunel University or if you cease to become registered, including abeyance or temporary withdrawal. As a deregistered student you would not be insured to undertake research activity. Research activity includes the recruitment of participants, undertaking consent procedures and collection of data. Breach of this requirement constitutes research misconduct and is a disciplinary offence.



Professor James Knowles

Chair

College of Business, Arts and Social Sciences Research Ethics Committee
Brunel University London

Appendix B: The Questionnaire



Mohammad Alghababsheh
PhD candidate
Operations and Supply Chain Systems Research Centre
Brunel Business School
Brunel University London
Tel: +44 (0) 1895267622 I M: +44 (0) 7455919799
Email: mohammad.alghababsheh@brunel.ac.uk

«Salutation» «Contact first name» «Contact last name»

«Company name»

«Mailing_address_line_1», «Mailing_address_line_2»

«Mailing_address_line_3»«Mailing_City»

«Mailing_County»

«Mailing_Postcode»

Dear «Contact_Salutation» «Contact_Last_name»

I am a doctoral researcher at Brunel University London. In my PhD research, I am looking at the role of inter-organisational social capital on the implementation of socially sustainable supply chain (SSSC) practices. This research seeks the participation of randomly selected companies with operations based in the UK, including your company. Your contact details have been obtained from Financial Analysis Made Easy (FAME) database.

You are kindly invited to voluntarily participate in this research by answering the enclosed questionnaire that should take only 10 -15 minutes of your time. It is very important to note that your answers will be strictly confidential in accordance with the procedures of Brunel University Code of Research Ethics. Your answers will be used only for research purposes and will be destroyed after completing data analysis. The findings of my research will be reported only at an industry level. Therefore, the information you provide will not be revealed a company level.

Your participation is highly important in developing a better understanding of the implications of social capital on the implementation of SSSC practices, which would help companies like yours to set up highly effective governance systems that encourage suppliers to establish social sustainability while simultaneously maximising mutual gains for both parties. Therefore, you can request a summary of the results, if you are interested, by indicating that at the end of the questionnaire.

The questionnaire includes questions mainly focusing on your company's experience with implementing specific SSSC practices with a key supplier. Therefore, please consultate with others in your company on this matter if necessary for providing the most accurate answers.

It is very important to let you know that a prepaid addressed envelope is attached so that you can use it to return the questionnaire.

If you have any query related to your participation, please do not hesitate to contact me at the above email address, or my supervisor Professor David Gallear of the Brunel Business School at david.gallear@brunel.ac.uk.

Yours sincerely,

Mohammad Alghababsheh

Instructions: This questionnaire is divided into two parts. The first part seeks general information about you and your company. The second part includes questions mainly focusing on your company's experience with implementing specific socially sustainable supply chain practices with a key supplier. Therefore, please consider a **particular supplier** when you answer these questions.

Part one: general information

Please indicate your current job title?			
<input type="radio"/>	President/CEO	<input type="radio"/>	Operations Manager
<input type="radio"/>	Supply Chain Manager	<input type="radio"/>	Purchasing Manager
<input type="radio"/>	Supplier Relationship Manager	<input type="radio"/>	Logistics Manager
Other (please specify): _____			

For how long you have been in this position?			
Less than 3 years <input type="radio"/>	3 – 6 years <input type="radio"/>	7 – 10 years <input type="radio"/>	More than 10 years <input type="radio"/>

How many employees do you have in your company?			
250 - 500 <input type="radio"/>	501 – 1000 <input type="radio"/>	1001 – 1500 <input type="radio"/>	more than 1500 <input type="radio"/>

Please indicate the industry in which your company is working?			
<input type="radio"/>	Food, beverages, tobacco	<input type="radio"/>	Chemicals, rubber, plastics, non-metallic products
<input type="radio"/>	Textiles and apparel	<input type="radio"/>	Pharmaceutical
<input type="radio"/>	Wood, cork, paper	<input type="radio"/>	Metals & Metal Products
<input type="radio"/>	Machinery and industry equipment	<input type="radio"/>	Electricity, electronics and semiconductor
<input type="radio"/>	Automotive and transportation equipment	<input type="radio"/>	Furniture
Other (please specify): _____			

Please indicate the age of your company?			
Less than 3 years <input type="radio"/>	3 – 6 years <input type="radio"/>	7 – 10 years <input type="radio"/>	more than 10 years <input type="radio"/>

Part Two: Socially sustainable supply chain practices, social capital and

For how long you have been dealing with this supplier?			
Less than 3 years <input type="radio"/>	3 – 6 years <input type="radio"/>	7 – 10 years <input type="radio"/>	More than 10 years <input type="radio"/>

Please indicate the geographical location of the supplier

No.	Supplier dependence	Strongly disagree	disagree	Slightly disagree	Neutral	Slightly agree	Agree	Strongly agree
1.	If we discontinued our relationship, it would have difficult for this supplier to make up the sales volume in our trading area.	1	2	3	4	5	6	7
2.	It would be difficult for this supplier to replace us.	1	2	3	4	5	6	7
3.	This supplier is quite dependent on us.	1	2	3	4	5	6	7
4.	This supplier does not have a good alternative to us in our trading area.	1	2	3	4	5	6	7

Please indicate the extent to which your firm has implemented the following *socially sustainable supply chain practices/activities* from “Not implemented”=1 to “fully implemented”=5.

No.	Socially sustainable supply chain practices	Not implemented	Considering it currently	Partially	Largely	Fully
1.	We developed an ethical code of conduct with our key supplier.	1	2	3	4	5
2.	We conduct audits of the health and safety of our supplier’s employees.	1	2	3	4	5
3.	We sent health and safety questionnaires to our supplier in order to monitor their compliance.	1	2	3	4	5
4.	We use a certification programme (e.g. SA8000) to recognise the supplier’s corporate social responsibility capability.	1	2	3	4	5
5.	We assess supplier’s ethical performance through form evaluation using established guidelines and procedures.	1	2	3	4	5
6.	We provide our supplier with feedback about the results of such evaluation.	1	2	3	4	5
7.	We offer financial incentives for the supplier if they improve commitment to social sustainability.	1	2	3	4	5
8.	We visit our supplier’ facilities to help them improve their performance.	1	2	3	4	5
9.	We provide training/education for the supplier’s personnel about corporate social responsibility practices and the required skills.	1	2	3	4	5
10.	We developed new product/processes with our supplier that reduced health and safety hazards for employees.	1	2	3	4	5

Please indicate the extent to which your firm has developed *social capital** with your key supplier from “strongly disagree=1” to “strongly agree=7”.

Social capital is the sum of the actual and potential resources (e.g. trust, close relationship, compatible goals etc.) embedded within, available through and derived from the network of relationships possessed by an individual or social unit (e.g. organisations).

No.	Social capital	Strongly disagree	disagree	Slightly disagree	Neutral	Slightly agree	Agree	Strongly agree
Relation capital								
1.	The relationship is characterized by close interaction at multiple levels.	1	2	3	4	5	6	7
2.	The relationship is characterised by mutual trust at multiple levels.	1	2	3	4	5	6	7
3.	The relationship is characterised by mutual respect at multiple levels.	1	2	3	4	5	6	7
4.	The relationship is characterised by mutual friendship at multiple levels.	1	2	3	4	5	6	7
5.	The relationship is characterized by high levels of reciprocity.	1	2	3	4	5	6	7
Cognitive capital								
6.	We have similar organisational culture/values and management style with supplier.	1	2	3	4	5	6	7
7.	We have similar philosophies/approaches to business dealings.	1	2	3	4	5	6	7
8.	We have compatible goals and objectives with supplier	1	2	3	4	5	6	7
9.	We have the same vision of business in the relationships.	1	2	3	4	5	6	7
Structural capital								
10.	We engage in and organise social events with our supplier.	1	2	3	4	5	6	7
11.	We have frequent communication with our supplier	1	2	3	4	5	6	7
12.	We maintain frequent and intensive interaction between personnel.	1	2	3	4	5	6	7
13.	We maintain close social relationships with our supplier.	1	2	3	4	5	6	7

Please indicate the extent to which your firm’s supplier improvement efforts has enhanced *supplier performance*

No.	Supplier’s Social performance	Strongly disagree	disagree	Slightly disagree	Neutral	Slightly agree	Agree	Strongly agree
1.	We have improved compliance with human rights in the supplier’ facilities.	1	2	3	4	5	6	7

2.	We have improved safety and labour conditions in the supplier' facilities.	1	2	3	4	5	6	7
3.	We have improved compliance with child labour employment in the supplier' facilities.	1	2	3	4	5	6	7

Please indicate the extent to which your **firm**'s has enhanced its *operational performance*

No.	Operational performance	Strongly disagree	disagree	Slightly disagree	Neutral	Slightly agree	Agree	Strongly agree
1.	We have reduced our product cost.	1	2	3	4	5	6	7
2.	We have improved our product quality.	1	2	3	4	5	6	7
3.	We have shortened the delivery times of our products.	1	2	3	4	5	6	7
4.	We have improved our manufacturing flexibility.	1	2	3	4	5	6	7

Thank you for taking the time to complete this questionnaire

✂ -----

We expect to have this study completed approximately by September 2016. Please indicate if you would like to receive a brief summary of the study's results? Yes No

If yes, where would you like the results sent:

Email: _____

Mailing address: _____

Appendix C: Data Analysis

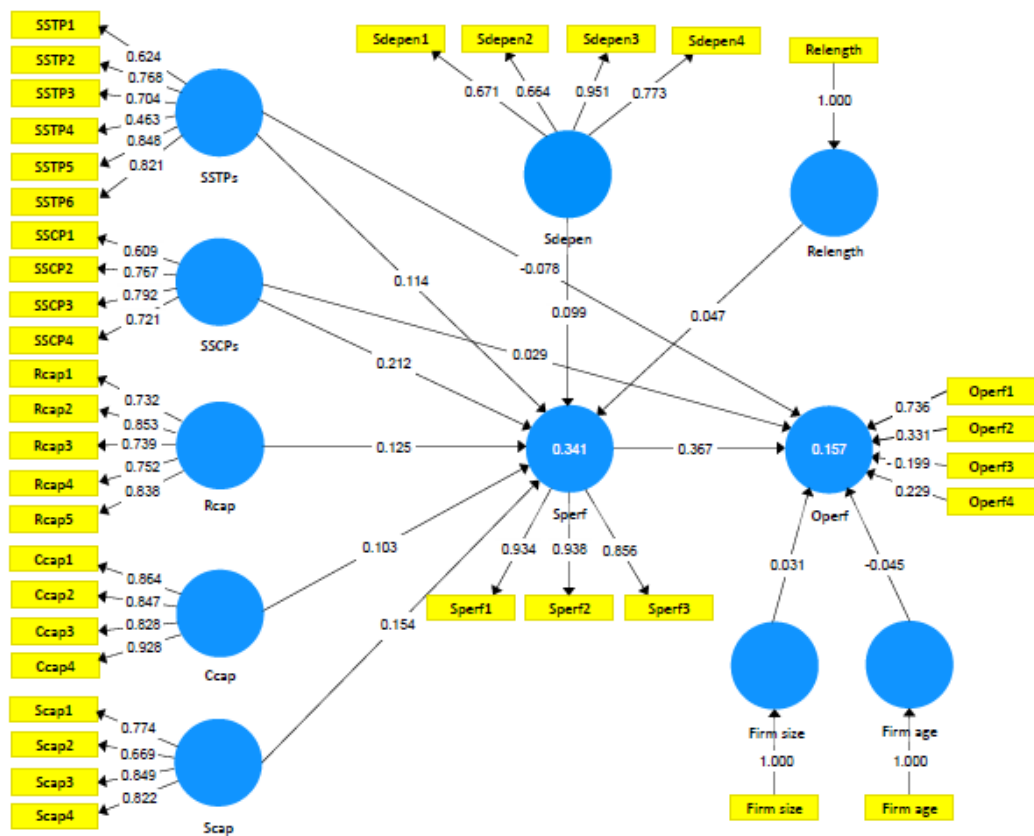


Figure C.1: Results of evaluating the measurement model using SmartPLS 3.0 (Confirmatory factor analysis)

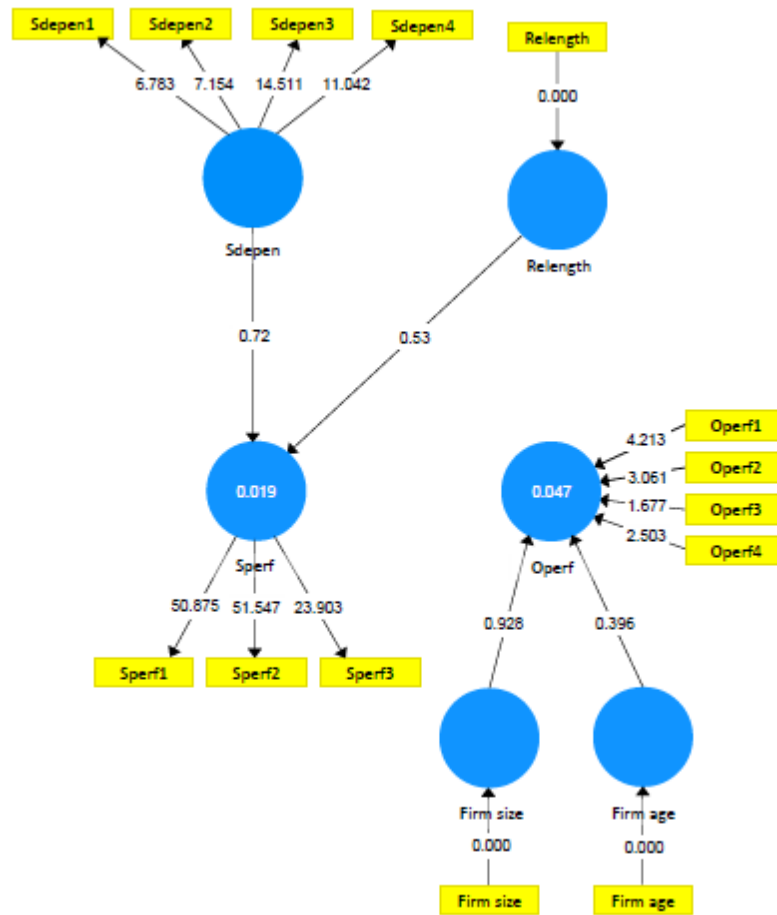


Figure C.2: Results of testing the structural model using SmartPLS 3.0 (model 1)

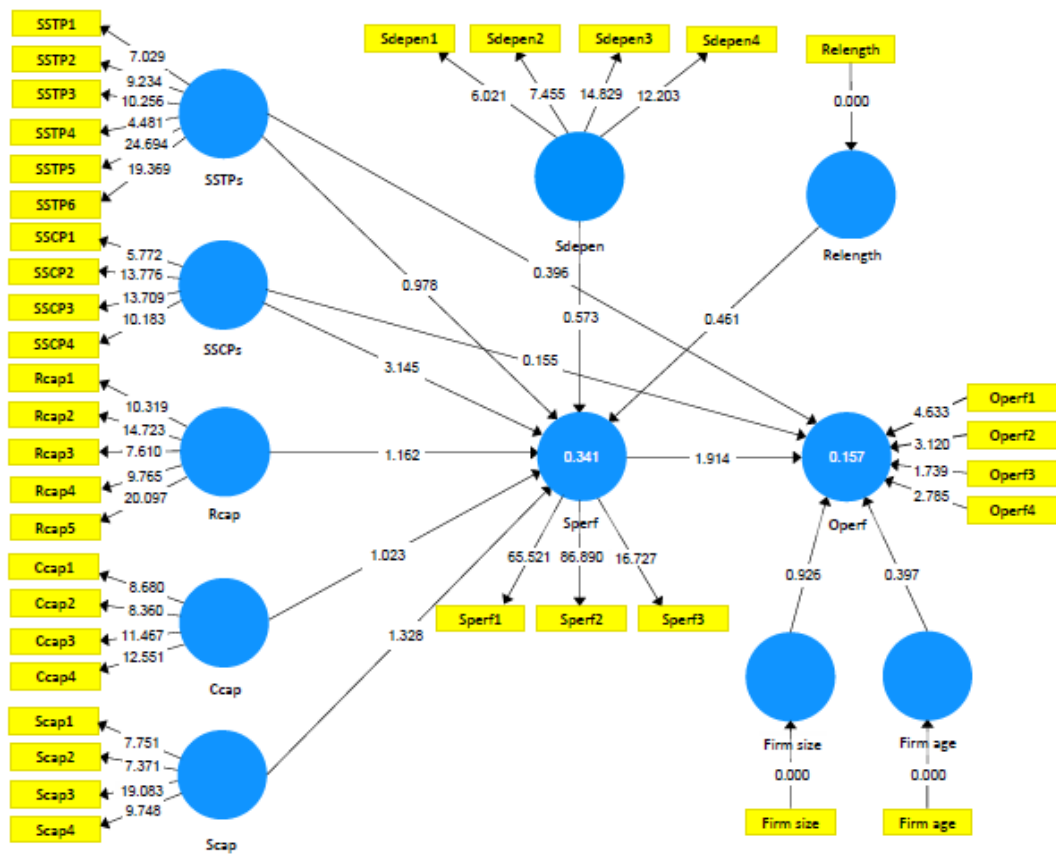


Figure C.3: Results of testing the structural model using SmartPLS 3.0 (model 2)

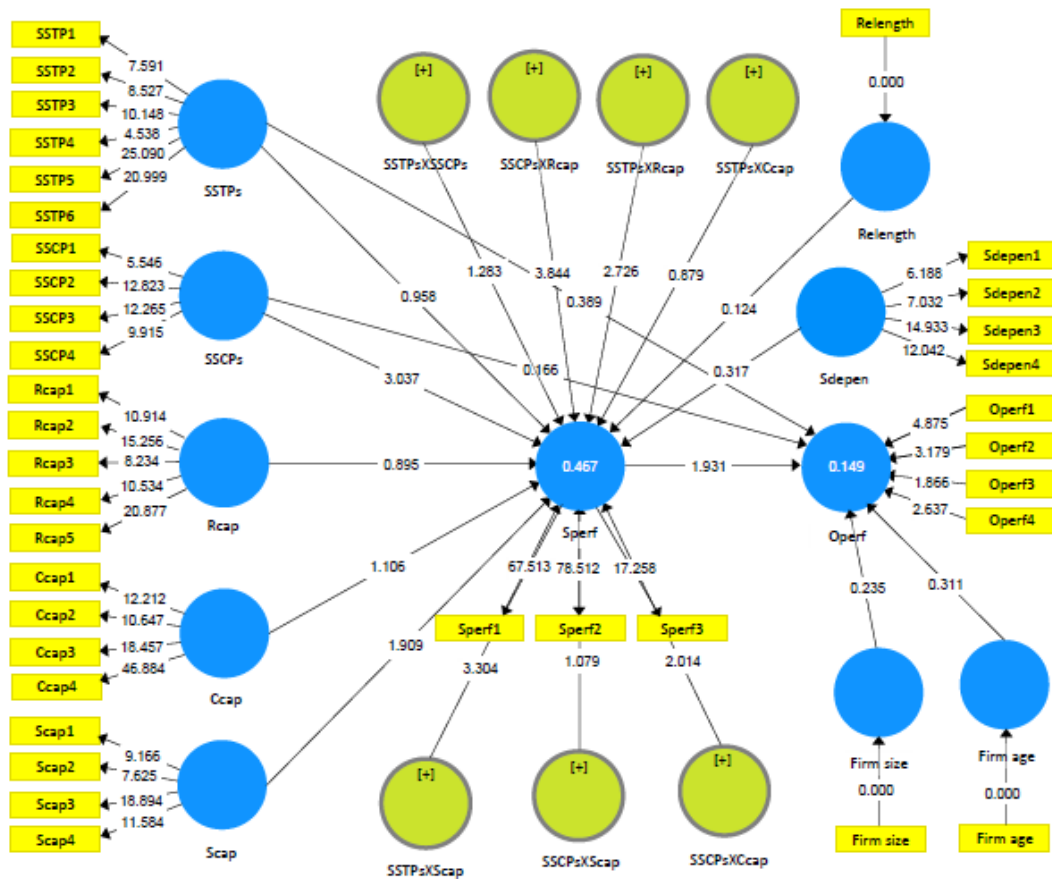


Figure C.4: Results of testing the structural model using SmartPLS 3.0 (model 3)