Socially responsible purchasing and its effect on operational and relational efficiency: the mediating role of buyer-supplier collaboration level

Master thesis
Purchasing and Supply Management

Author: Sophie Gaarenstroom – 357885sg
Supervisor: Merieke Stevens
Co-reader: Serge Rijsdijk
January 2013

Management summary

Purpose: The general purpose of this study is to empirically test the effect of socially responsible purchasing (SRP), through the mediating variable of buyer-supplier collaboration level, on operational and relational efficiency of a buyer-supplier relationship. In addition, this research tests whether geographical distance influences the strength of the relationship between socially responsible purchasing and buyer-supplier collaboration level. The research question guiding this paper is: '*What is the effect of socially responsible purchasing on operational and relational efficiency of a buyer-supplier relationship and does geographical distance influence the strength of this relationship?*'

Methodology: The theoretical scope is developed through an integration of literature from corporate social responsibility, supply chain management, the resource-based view and stakeholder theory. A mail survey methodology was used directed towards purchase managers working for business-to-business firms active in the industrial goods and machinery industry in The Netherlands. This resulted in an effective sample of 257 purchase managers. The hypothesised relationships were empirically tested by means of regression analysis using SPSS statistics software.

Findings: A strong positive relationship was found between SRP and buyer-supplier collaboration level. Moreover, buyer-supplier collaboration level has a strong positive effect on both operational efficiency and relational efficiency. Findings further show that buyer-supplier collaboration level is a perfect mediator in the relationship between SRP and operational efficiency and SRP and relational efficiency. Finally, SRP also has a direct positive effect on both operational and relational efficiency. No empirical support was found for the hypothesised negative, moderating influence of geographical distance on the relationship between SRP and buyer-supplier collaboration level.

Managerial implications: The significant mediating role of buyer-supplier collaboration level provides a partial explanation on why and how SRP can be beneficial for companies. The findings suggest that, in order to be successful in SRP practices, a unified effort is required from both buyer and supplier. Moreover, these results should trigger purchase managers to see the operational and relational benefits of SRP and to engage in these practices. This is simply because the long-term operational and relational benefits of these practices outweigh the short-term costs.

Value: Little research has been conducted into the field of socially responsible purchasing and its effect on buyer firm benefits, while this is a highly relevant topic in the current business environment. This study adds value by including both operational benefits and relational benefits in its conceptual model and introducing the mediating variable of buyer-supplier collaboration level.

Table of contents

List of figures and tables

Figures

Tables

1. Introduction

The master thesis requires students to do an independent and individual research in the academic field of International Management. The master thesis is research-based and the main objective is to gain a deeper understanding of a topic and to contribute to the current body of knowledge regarding this topic.

The topic of this master thesis is socially responsible purchasing (SRP) and its effect on operational and relational efficiency. This study combines stakeholder theory and the resource-based view and applies it to the context of socially responsible purchasing. The relationship between socially responsible purchasing and operational and relational efficiency of a buyer-supplier relationship with the mediating variable of buyer-supplier collaboration level will be empirically tested. In addition, this thesis examines the role of geographical distance on this relationship. The empirical domain is business-to-business firms, active in the industrial goods and machinery industry in The Netherlands. Before going more into depth regarding the research objective and the gaps in literature, the background of the topic is shortly introduced.

1.1 Background

The topic of this study is introduced by the following two quotes.

'*A good company delivers excellent products and services, and a great company does all that and strives to make the world a better place*.' (William Ford Jr., Chairman, Ford Motor Co, 1998)

'*The social responsibility trend is huge. It's the biggest opportunity for businesses to increase their effectiveness and performance.' (*David Cooperrider, 2012)

These quotes show the increasing attention regarding the importance and opportunities for firms to engage in socially responsible practices. Due to an increasingly globalised world, the collective social and environmental impact of firms and their supply chains is becoming bigger and bigger (Lee et al., 2012, Maignan et al., 1999). This impact extends beyond the traditional boundaries of a firm and affects not only the firm and the customers involved, but also other stakeholders and the environment. Governments, employees, non-governmental organisations (NGO's) and consumers are increasingly pressuring firms to take their responsibilities (Lee et al., 2012, Simpson et al., 2007). Companies have started to implement sustainable supply chain practices, in response to enhanced consumer demand and increasing governmental regulations for products that are created through socially and environmentally responsible practices (Green et al., 2012). Addressing these social and environmental concerns provide firms with new opportunities to add value to their business and to achieve competitive advantages (Zhu et al.,

2005). These socially responsible processes can improve a firms' record on corporate social responsibility, minimise reputational risks and increase flexibility in response to new environmental regulations (Simpson et al., 2007).

Next to the extrinsic motivation for firms to implement socially responsible business practices, there is also an intrinsic motivation. Many firms want to do more than just comply with government regulations; they want to minimise the social and environmental harm done due to their activities to ensure their own long-term survival (Rao, 2002). In addition, prior studies have shown that sustainable supply chain practices (SSCP) enhance knowledge, commitment and behaviour of both management and employees, which also gives firms an extra intrinsic incentive to effectively engage in sustainable supply chain initiatives (Sakai, 2010).

One key element of these socially responsible practices is socially responsible purchasing. Socially responsible purchasing (SRP) are practices that include both environmental and social aspects in purchasing activities. These practices vary and include amongst others partnering with stakeholders to ensure fair labour conditions, putting demands on suppliers, introducing philanthropy projects, cleaner production methods, reducing carbon emissions and developing internal policies (Mont and Leire, 2009). SRP has implications for all elements in the supply chain including customers, suppliers and employees (Carter, 2004) and the development of efficient and effective sustainable purchasing processes require an unified effort by all stakeholders involved (Vasileiou and Morris, 2006). Due to the increased attention of stakeholders on a firms' social and environmental behaviour the topic of SRP gained more attention and became a significant aspect of business for many purchasing managers (Maignan et al., 2002).

Many firms wonder if these significant efforts for more sustainable initiatives will ultimately translate into improved performance (Green et al., 2012). There is limited research available regarding the relation between SRP and firm performance. Moreover, prior research findings on the relationship between sustainable supply chain practices (SSCM) and firm performance have been mixed. Some literature sources suggest a direct or indirect positive relationship between SSCP and firm performance (McGuire et al, 1988, Lee et al., 2012), while others suggest a negative relationship between these two constructs (Ullman, 1985, Vance, 1985, Wagner et al., 2002) or no relationship at all (Alexander and Buchholz, 1978). Studies that found a negative relationship between sustainable supply chain practices and firm performance argue that SSCP results in extra costs which do not outweigh the benefits, thereby putting the firm at a disadvantage in comparison to other companies acting less socially responsible (Ullman, 1985, Vance, 1975). At the other hand, research that found that sustainable supply

chain management does have a positive impact on firm performance state that companies that invest in new sustainable technologies can gain a competitive advantage due to higher innovativeness and lower costs of production and compliance through increased efficiency and higher productivity (Green et al, 2012, Lee et al, 2012).

This study focuses on two dimensions of socially responsible purchasing. The first dimension is the relationship between SRP and operational and relational efficiency. This master thesis tests whether SRP enhances relational and operational efficiency through the mediating variable of buyer-supplier collaboration level. The second dimension of this study is geographical distance and its effect on the relationship between SRP and buyer-supplier collaboration level. According to the knowledge of the researcher, no research has been conducted on the effect of geographical distance in relation to SRP performance. How does geographical proximity affect the relationship between SRP and performance outcomes? The next paragraph goes more into depth regarding the research purpose and research gaps in literature.

1.2   Research aim and research question

The purpose of this study is to empirically test the impact of socially responsible purchasing, geographical distance and buyer-supplier collaboration level on operational and relational efficiency of a buyer-supplier relationship in the business-to-business industry of industrial goods and machinery firms in The Netherlands. Results show whether there is a difference in relational and operational efficiency for firms that engage in socially responsible purchasing practices and firms that do not engage in these purchasing practices through the mediating variable of buyer-supplier collaboration level. This thesis tests whether higher levels of socially responsible purchasing result in higher levels of buyer-supplier collaboration, which in turn is expected to positively affect relational and operational efficiency of a firm. In addition, this research tests whether geographical distance influences the strength of the relationship between socially responsible purchasing and buyer-supplier collaboration level. The unit of analysis is the dyadic buyer-supplier relationship.

This is a quantitative study and the aim is to contribute to theory development. A conceptual theoretical model is developed that tests whether the implementation of socially responsible purchasing practices impact operational and relational efficiency. Data collection is done by means of a mail survey targeted at purchase professionals in the business-to-business (B2B) industrial goods and machinery industry in The Netherlands. The results aim to shed new light on the benefits of engaging in socially responsible purchasing and the impact of geographical distance.

The research question guiding this paper consists of two dimensions, which are integrated in the following main research question:

> *'What is the effect of socially responsible purchasing on operational and relational efficiency of a buyer-supplier relationship and does geographical distance influence the strength of this relationship?'*

1.3 Research gaps and practical and academic relevance

In existing literature sources, there is a limited amount of research that focuses on the relationship between SRP and firm benefits. There is hardly any quantitative research that connects these two constructs, while SRP is an increasingly important topic in today's business environment.

One of the few high-quality quantitative researches regarding the relation between SRP and firm benefits is that of Carter (2005). Carter is a leading researcher concentrating on the topic of SRP. He has published several articles in high-quality journals (Carter and Jennings, 2000, Carter and Jennings, 2004, Carter, 2005). Therefore, this research focuses to a great extent on the studies of Carter.

Although there is a limited amount of research available on the relationship between SRP and firm benefits, there is an abundance of research that focuses on the impact of sustainable supply chain practices on performance outcomes (Green et al., 2012, Lee et al., 2012) and economic performance (Alvarez-Gil et al., 2001), but results are mixed. At this moment, it is still unclear whether the benefits outweigh the costs when engaging in sustainable supply chain practices (Zhu et al., 2005). A possible explanation for these differences in results can include differences in firm size, industry, country location/governmental regulation and corporate strategy (Wagner et al., 2002) or the interference of mediating or moderating variables (Lee et al., 2012). There is little research regarding the relationship between SRP and firm benefits. Research regarding this relationship has not found a direct relation between the two constructs, according to the researchers' knowledge. Research did find several constructs that mediate the relationship between SRP and firm performance e.g. organisational learning (Carter, 2005), supplier performance (Carter, 2005) and buyer-supplier knowledge sharing (Eefting, 2010).

This study tests whether the level of buyer-supplier collaboration increases with higher levels of SRP involvement. Prior studies have shown that SRP has implications for all parties in the supply chain and the development of efficient and effective SRP practices requires a unified and cooperative effort of both buyer and supplier (Vasileiou and Morris, 2006). Enhanced buyer-

supplier relationships have proven to improve buyer-supplier commitment, honesty and trust, reduce costs, improve quality and enhance customer value (Zacharia et al., 2009, Dyer and Singh, 1998). This master thesis tests whether the level of collaboration between buyer and supplier increases when engaging in SRP practices and whether this results in operational and relational benefits. This is done in a business-to-business setting. It is assumed that collaboration is more important in the business-to-business industry than in the business-to-consumer industry (B2C) as the B2B industry focuses more on individual relationships with a few buyers or suppliers.

Moreover, there is no research that couples SRP to geographical distance to the researchers knowledge, while findings from prior studies in related areas imply that geographical distance might have an impact on the relation between SRP and performance. Only the article of Campbell et al. (2010) was found that couples CSR to the general concept of distance operationalised by the CAGE (cultural, administrative, geographical and economic distance) framework (Ghemawat, 2001), which will be explained in section 2.6.

Based on these gaps in the extant literature, this study aims to contribute to existing research in the following ways.

1. The focus of this thesis is on socially responsible purchasing, while most literature focuses on sustainable supply chain initiatives (SSCP). However, the purchasing department is an integral part of connecting two concerns namely organisational and economic performance, because they create a link between internal functions and external stakeholders (Carter and Jennings, 2004).

2. This study will concentrate on the relation between SRP and operational and relational efficiency, while existing studies mostly focus on more specific benefits such as reduced costs and improved profits.

3. This research focuses on industrial goods and machinery organisations in the B2B industry in The Netherlands. In the B2B industry, different factors are important for the buyer such as supplier trust, relationship length and supplier experience, than in the business-to-consumer industry (Zacharia et al., 2009).

4. Most research that couples SSCP to firm performance focuses only on the environmental aspect of supply chain management (Green et al, 2012, Lee et al, 2012), while research has shown that the social aspect is also important (Mont and Leire, 2009). This study will focus on both the social and environmental aspect of sustainable purchasing.

5. This study includes the construct of geographical distance in the relationship between

SRP and performance efficiency. Geographical distance has received little attention in relation to CSR in literature, while prior findings in related research areas indicate there might be a connection between these two concepts (Angue and Mayrhofer, 2010).

This study is relevant for firms in two ways.

1. This study aims to provide firms with additional insights on if and how socially responsible purchasing practices can enhance operational and relational efficiency through an increased level of buyer-supplier collaboration.

2. This master thesis shows the impact of geographical distance on SRP performance.

The remainder of this thesis will be structured as follows. The next chapter provides a literature review, which defines and explains the concepts used in this research (chapter 2). This chapter also explains the hypotheses and gives the conceptual model guiding this research. Chapter 3 describes the chosen methodology. Chapter 4 empirically tests the relationships and analyses the results. Chapter 5 discussions the results and gives managerial implications. This chapter also describes the limitations of this research and provides the reader with directions for future research. A general conclusion is drawn in chapter 6. More details of this study such as the survey and statistical outputs can be found in the appendices.

2. Literature review

The literature review discusses the current state of literature regarding the concept of socially responsible purchasing. By going into depth into academic literature, research hypotheses are developed. This literature review starts with describing the basic theories that guides this research, followed by a definition of the concepts of corporate social responsibility and socially responsible purchasing and its drivers and dimensions. Then, prior findings regarding the benefits of SRP and CSR are discussed followed by an explanation of the concepts of buyer-supplier collaboration and geographical distance. Finally, the concepts are connected to each other by stating the hypotheses, followed by the conceptual model.

2.1 The resource-based view and stakeholder theory

There are two theories employed in this research, which are integrated, combined and used to co-develop the hypotheses. These two complementary theories and the basic assumptions guiding these theories are the building blocks of this master thesis.

The first theory employed is the Resource-Based View (RBV). Wernerfelt (1984) and Barney (1991) brought the RBV to the attention of management scholars. This theory states that organisational performance is determined by the way a firm deploys, manages and positions its internal resources and capabilities. These need to be valuable, rare, imperfectly imitable and not substitutable. Resources and capabilities are a bundle of tangible and intangible assets, including the information and knowledge the firm controls, its management skills, and the firm organisational processes and routines (Barney, 1991). The RBV takes the company as the primary unit of analysis and differences in performance between firms are due to differences in the way firm resources and capabilities are employed.

RBV can be applied in the field of corporate social responsibility. Several literature sources have analysed CSR from a resource-based perspective and state that the environmental and social performance of companies can constitute a source of competitive advantage (Barney at al., 2001). The RBV suggests that environmental and social stances of a firm are shaped by its culture and may be fruitful. Examples of company cultures committed to socially responsibility include Ben and Jerry's, the Body Shop and Johnson & Johnson. Socially responsible business practices are embedded in their culture in ways that are inimitable (Barney et al., 2001).

When connecting the RBV to socially responsible purchasing, it is found that SRP practices can be an extra, value adding and unique resource, thereby helping to create a sustainable competitive advantage (Carter, 3005, Worthington, 2009). There are two studies, to the authors' knowledge, which connect the RBV with SRP. First of all, the study of Carter (2005)

argues that knowledge can be a unique capability of firms. Knowledge includes the ability of companies to effectively learn and implement changes based on what they have learned. A 'learning organisation' can lead to a sustained competitive advantage, according to Carter (2005). His research empirically tested this relationship and found that SRP has a positive effect on organisational learning. Secondly, the study of Worthington (2009) states that SRP can enhance a firm's reputation, which is a valuable resource for firms. It can serve as a basis for decisions made by stakeholders. This study was exploratory and not empirically tested.

The second complementary theory guiding this study is stakeholder theory. Stakeholder theory addresses ethics, morals and values in business management. In the traditional view, the shareholder view, it is assumed that shareholders are the owners of the firm and management should therefore always put their needs first in order to increase firm value (Donaldson and Preston, 1995). Stakeholder theory is a response to this theory. It states that there are many parties involved in managing a firm such as customers, employees, the government, suppliers and even the competition (Freeman, 1984). Customers are important for sales revenues and earnings stability, employees are important for productivity and customer satisfaction, shareholders provide capital and the governments must be satisfied in order to have favourable rules and regulations (Schmidt, 1999). This theory further suggests that a firm needs to create value for stakeholders (Donaldson and Preston, 1995, Freeman, 1984). A firm must satisfy some stakeholder needs in order to maintain its institutional legitimacy (Litz, 1996). Stakeholder theory encourages a richer and more accurate appreciation for the, often conflicting, interests both within and outside the organisation (Litz, 1996).

When integrating stakeholder theory with the RBV, stakeholder theory adds a social-political dimension to the RBV, which are the stakeholders. Critics of the RBV state that the view does not give firms enough guidance on how they need to manage their resources and capabilities (Priem and Butler, 2001). Stakeholder theory can be used to address an aspect of this limitation; it shows how stakeholder management can be a source of sustainable competitive advantage and how organisations can manage their stakeholders to further facilitate the development of unique resources and capabilities. In this way, the two theories are complementary, because a firm requires effective management of resources, capabilities and stakeholders.

The current business environment is characterised by dynamic growth, rapidly changing technologies and highly specialised expertise (Hara et al., 2003). Individual firm resources and capabilities are not enough to cope with challenges from global competition. This is where stakeholder theory can play a role. Stakeholder management provides a roadmap for managing

change in an uncertain business environment (Schmidt, 1999). It is an effective tool to achieve strong, sustainable firm performance while minimising exposure to market volatility. That is why firms need to effectively manage stakeholders in order to adapt to a changing and dynamic business environment.

In addition, the time and efforts firms put in to meeting stakeholder demands can be seen as a strategic investment. It requires commitment beyond the minimum level of compliance to satisfy stakeholders. Firms can gain a strategic competitive advantage by developing extra, complementary skills that are difficult to imitate by the competition (Ruf et al., 2001).

The study of Schmidt (1999) tested the relationship between stakeholder management and corporate performance and found that firms who best manage their stakeholders are also firms who were in the "best companies to work for", "firms with the highest shareholders return" and "best corporate citizen" lists. These firms were rated highest in reputation, but at the same time financially performed the best. This research shows that effective stakeholders management is a unique capability eventually leading to superior financial performance and a sustainable competitive advantage. For these reasons, stakeholder theory can be seen as a contribution to the RBV.

When coupling stakeholder theory to socially responsible practices, Litz (1996) argues that sustainability is determined by the extent to which a firm considers the interests of their stakeholders. Ullman (1985) showed that firms are responsive to stakeholder demands. If firms view socially responsible practices as an effective strategy for dealing with stakeholder demands, companies are more willing to engage in these practices (Ullman, 1985). By not taking into account the needs and wants of various stakeholders, companies run the risk of inciting retaliatory and adversarial responses of these stakeholders who perceive their interest as having been violated by the firm (Litz, 1996).

Therefore, rather than seeing environmental and social dimensions of business as a hindrance, firms need to recognise their potential in creating necessary, enduring and unique company resources (Litz, 1996).

Another contribution made in the field of stakeholder theory and CSR is the research of McGuire et al. (1988). They state that stakeholder theory contends that the value of an organisation depends on the cost of implicit and explicit claims or contracts. An example of explicit claims is a wage contract and implicit claims involve, for example, quality service and social responsibility. McGuire et al. (1988) state that if a company does not act socially responsible, stakeholders can attempt to transform implicit claims into explicit claims, which are more costly. An example will clarify this; an employee needs to work 40 hours a week according to his wage contract. He is willing to put in some extra effort and work for 45 hours a week,

although his contract states he only has to work 40 hours a week. When the job requires the employee to work for 50 hours a week, he might feel that his employer takes advantage of his goodwill and flexibility. In response, he can convert an implicit contract into an explicit contract by stating that his contract only requires the employee to work for 40 hours a week. This can be costly for the employer.

The next paragraph defines the concept of corporate social responsibility and explains its background.

2.2   Corporate social responsibility (CSR)

The concept of corporate social responsibility (CSR) has been conceptualised into many different ways over time. In the early 1950s, the concept was defined in a general way as a '*firm acceptance of a social obligation beyond the requirements of the law* (Davis, 1973, pp.313). Definitions became more specific in the 1970s and alternative perspectives started to rise on the role of firms in the social environment (Carroll, 1999). These differences in perspectives have led to multiple different definitions of CSR ranging from an economic concept, i.e. maximizing stakeholder return (Friedman, 1970) to a more proactive responsiveness view i.e. a firm's obligation in the social environment (McGee, 1998).

This study takes a more broad perspective on CSR and therefore adopts another view on the definition of CSR (Carroll, 1979, 1991). Carroll (1979, 1999) intends to give more precision in answering the question of what constitutes CSR exactly and states that firms have four hierarchical responsibilities:

1. *Economic responsibilities*: to provide the society with the needed products and services and to transact business
2. *Legal responsibilities:* to obey the law
3. *Ethical responsibilities:* to do business in a way expected and viewed by society as fair and reasonable, even though it is not legally required
4. *Discretionary responsibilities*: to do business in a way that matches the firm's norms and values. These responsibilities are voluntary and intrinsically guided.

Finally, in the 1990s the CSR concept was coupled to alternative theories such as stakeholder theory (Carroll, 1999, Litz, 1996). In addition, other concepts such as socially responsible purchasing (SRP) were introduced, which were consistent with CSR theory (Carroll, 1999). This study focuses on the concept of SRP, which will be introduced in the next paragraph.

2.3   Socially responsible purchasing (SRP) and its drivers and dimensions

Supply chain management integrates, coordinates and aligns strategic imperatives and business processes throughout the entire supply chain to satisfy the demands of the final customer (Green et al., 2012). Strategic imperatives include the alignment of customer focus and responsiveness, efficiency, quality and sustainability (Zelbst et al., 2010). Business processes include manufacturing, logistics, information systems and purchasing. This thesis combines strategic imperatives such as sustainability with business processes such as purchasing.

Many firms have accepted socially responsible purchasing (SRP), or sustainable purchasing, as a precondition for their business activities, because in an increasingly globalised world, firms cannot only manage their own social and environmental impact (Vasilejou and Morris, 2006). Nowadays, many stakeholders do not distinguish between the socially responsible practices of a firm as such and the socially responsible practices of its supplier (Rao, 2002). Companies cannot escape from the liability and responsibility of socially irresponsible manufacturing processes adopted by suppliers (Rao, 2002). Therefore, to make socially responsible initiatives effective and successful, firms need to unify these practices into strategic relationships with suppliers, business partners and other stakeholders (Vasilejou and Morris, 2006). Without this happening, a firm will not achieve excellence in social and environmental performance, because products are still not produced in a socially responsible way (Mont an Leire, 2009). Individual commitment of both buyer and supplier is hereby essential in implementing sustainable supply chain practices (Vasilejou and Morris, 2006).

Before explaining the benefits of socially responsible purchasing, the concept is defined. When incorporating the broad view of CSR from Carroll (1979, 1991) discussed in the previous paragraph, SRP can be defined as '*purchasing activities that meet the legal, ethical, economic and discretionary responsibilities expected by society*' (Salam, 2008, pp.358). Another definition of SRP is from Pagell et al. (2010, pp. 58). They define sustainable purchasing as '*managing all aspects of the upstream component of the supply chain to maximize triple bottom line performance*'. Triple bottom line is '*a measure of supply chain performance that addresses not just profits, but also supply chain impact on social and environmental systems*' (Pagell et al. 2010, pp. 58). Truly sustainable purchasing practices do not bring any harm to social or natural systems, while at the same time produce profit over an extended period of time (Pagell et al., 2010).

So what does socially responsible purchasing consist of? The types of activities firms choose to incorporate in their sustainable purchasing strategy vary significantly. Some companies employ both environmental and social aspects in their business activities, while others focus solely on green initiatives such as reducing carbon emissions and eliminating waste. Green purchasing has received a large amount of attention in the literature (Green et al.,

2012, Lee et al., 2012, Zhu et al., 2005). Social and ethical issues have not received the same amount of attention than environmental issues have (Mont and Leire, 2009).

Figure 1: Dimensions of SRP (Carter, 2004)

This study includes both the environmental and social aspects of sustainable purchasing. Carter and Jennings (2004) and Carter (2005) found several activities that comprise SRP. They suggest that SRP is a multidimensional, higher-order construct, which consists out of five activities: the environment, human rights, safety, diversity and philanthropy/community.

Figure 1 shows these five dimensions (Carter and Jennings, 2000, Carter, 2004, Carter and Jennings, 2004). Environmental activities include working with suppliers to ensure environmentally friendly products and processes, purchasing recyclable and reusable packaging, conduct life-cycle analyses and design products for reuse and/or recycling. Human rights issues revolve around ensuring that the suppliers maintain humane working conditions and that employees receive a fair pay, while safety issues ensure safe working conditions for employees at supplier facilities and the safe incoming movements of products. Diversity issues centre on programs to encourage business participation and sourcing of both women and minority-owned suppliers. Philanthropy and community activities include activities such as helping the local community and support good causes (Carter and Jennings, 2000).

So far, the concept of SRP is defined and so are the elements of which sustainable purchasing are comprised of. The next question would be why firms engage in SRP. What are the drivers of socially responsible purchasing? Several literature sources (Carter and Jennings, 2004, Mont and Leire, 2009, Salam, 2008) found several drivers. These are summarised below.

1. *People-oriented culture*: a people-oriented culture espouses values like fairness and the desire to be a good corporate citizen, resulting in higher levels of SRP.
2. *Top management leadership*: top management shapes an organisational culture that encourages people-oriented characteristics, which positively affects SRP.
3. *Employee initiatives and individual values*: individual values have a positive effect on employee initiatives, which in turn positively impacts SRP.
4. *Stakeholder pressure*: customer pressure and government regulation are drivers of SRP. This relationship emphasises the importance of responding to consumer demands.

2.4   Benefits of CSR and SRP

Findings in literature on the effects of CSR on financial performance are not consistent. The study of Pava and Krausz (1996) reviewed 21 studies conducted between 1972 and 1992 on the relationship between CSR and firm financial performance. They stated that twelve studies demonstrated a positive relationship between the two constructs, one study demonstrated a negative association and eight studies did not find a significant relationship between CSR and firm financial performance.

The same applies to sustainable supply chain practices. Findings have been mixed regarding the impact of sustainable supply chain practices on firm performance. On the one hand, researchers found that sustainable purchasing practices result in extra costs which do not outweigh the benefits, thereby putting the firm at a disadvantage in comparison with the competition acting less socially responsible (Ullman, 1985, Vance, 1975, Wagner et al., 2002).

On the other hand, some authors argue that SSCP leads to cost reductions and enhanced performance (Green et al., 2012, Lee et al., 2012, Rao, 2002). Rao (2002) found that when a firm aims to greener their supply chain, the company needs to integrate and control the whole supply chain to produce the least amount of waste, air emissions, pollution, energy and water consumption by means of reusing, recycling and the recovery of energy and materials. This ensures maximum conservation of natural resources. Significant cost reduction and greater productivity can be the result when these measures are implemented effectively (Rao, 2002). Green et al. (2012) found that the adoption of sustainable supply chain practices leads to improved environmental and economic performance, which improves operational performance, which in turn enhances organisational performance.

Lee et al. (2012) found that green supply chain practices have a positive effect on business performance through the mediating variables of operational and relational efficiency. This study conducts a similar kind of research as the study of Lee et al. (2012). The main differences between this study and the study of Lee et al. (2012) are threefold. First of all, Lee et al. (2012) conducted a study in the field of green supply chain initiatives, while this study is conducted in the field of socially responsible purchasing. Secondly, the study of Lee et al. (2012) directly couples green supply chain management practices to operational and relational efficiency, while this study includes buyer-supplier collaboration level as a mediating variable. Thirdly, this study includes another variable namely geographical distance as a moderating variable between SRP and buyer-supplier collaboration level.

What is interesting about literature is that more recent sources often find a positive relationship between the constructs of SSCP and firm performance, while older sources found that these sustainable practices only increase costs (Ullman, 1985, Vance, 1975). A possible explanation for these differences is the increased attention for sustainability and corporate social performance from both the government and consumers in the last decade. Companies are increasingly pressured by stakeholders to engage in socially responsible practices and they need to increasingly comply with government regulations (Simpson et al., 2007). In addition, it can be expected that, due to increased consumer attention for CSR and SRP, consumers prefer to buy from socially responsible firms. The study of Sen and Bhattacharya (2001) support this and found that company efforts to become more socially responsible positively affect consumer purchase intentions.

While there might not be a direct, strong relationship between SSCP or CSR and firm financial performance, this does not mean that sustainable practices do not have any benefits. Much research has been conducted in the area of responses to SSCP/CSR practices of stakeholder groups such as employees or customers (Brown and Dacin, 1997, Ellen et al., 2000). For example, Brown and Dacin (1997) show that consumers prefer products from socially responsible firms. This is in line with statements from the business world. Paul Polman, CEO of Unilever, argued that *'firms that fail to conduct business responsibly and make positive contributions to society will suffer a backlash from consumers'* (Leach, 2012). Brown and Dacin (1997) also found that positive CSR associations can improve the actual consumer product evaluation for a firm, while negative CSR associations (e.g. firms that do not comply with child labour laws) can have a detrimental effect on consumer product evaluations. Moreover, the research of Lee et al. (2012) shows that the implementation of green supply chain practices positively influence employee job satisfaction.

In the field of socially responsible purchasing, little research has been conducted on the benefits of SRP. Carter (2005) researched if SRP leads to cost reductions and did not found a direct relationship between SRP and costs. What he did find was that organisational learning and supplier development act as key mediating variables in this relationship. He argues that firms with higher levels of SRP are associated with organisational cultures that have more free-flowing decision-making and entrepreneurial environments. According to the findings of Carter (2005), it can be concluded that SRP can indirectly improve firm performance, although this is not guaranteed. Companies need to effectively learn from SRP activities in order to improve supplier performance and ultimately reduce costs.

The research of Eefting (2010) found that firms can increase their performance with regards to product innovation and cost reduction by engaging in SRP. He states that involving suppliers, sharing knowledge with them and long-term commitment to SRP is crucial within this process. This study was a master thesis and has not yet been published.

The study of Worthington (2009) is another author researching the concept of SRP. He suggests four benefits of supplier diversity, a dimension of SRP. Not only does he argue that supplier diversity leads to cost reductions due to, amongst others, lower inventory costs, more flexible procurement processes and reduced costs of compliance costs, but also that revenues are increased due to improved access and knowledge of growing markets. In addition, according to his exploratory research, risks are spread better due to reduced over-reliance on existing suppliers, improved reputation, enhanced employee commitment and more positive attitudes and behaviours (Worthington, 2009). Finally, Worthington (2009) states that supplier diversity results in a better strategic fit, because there is a greater alignment with a changing external context. Note that the study of Worthington is not empiracally tested.

This study tests whether SRP has a positive effect on the level of buyer-supplier collaboration, which will be explained in the next section.

2.5   Buyer-supplier collaboration

Buyer-supplier collaboration has been studied extensively in prior literature. Collaboration is often used interchangeable with cooperation and coordination, but in this master thesis it is distinguished from these terms. At the one hand, with cooperation or coordination, firms may cooperate to accomplish change in which one or both firms may benefit. Information flows are relatively simplistic and each firms has their own unique resources and capabilities. On the other hand, collaboration is an approach to manage buyer-supplier relationships requiring a pooling of knowledge and a higher level of joint decision-making, goal setting and information sharing (Zacharia et al., 2009).

In this research, buyer-supplier collaboration is defined as *'managing the interdependencies between buyer and supplier that requires a pooling of knowledge, joint decision making, information sharing and joint goal setting aimed at enhancing both shared and individual goals'* (Zacharia et al., 2009, pp. 105).

Dyer and Singh (1998) suggests that firms will collaborate with each other to gain access to unique resources such as specialised knowledge or skills, which are needed for complex problem solving. This is common in the current dynamic and rapidly changing business environment (Hara et al., 2003). Collaboration can bring companies the necessary knowledge and skills, thereby creating unique, inter-firm resources and capabilities (Dyer and Singh, 1998). This creates interdependencies between buyer and supplier, which increases the level of

collaboration. Research found that higher interdependencies lead to a tendency for a deeper and more intense level of collaboration (Zacharia et al., 2009). Mutual recognition of this interdependence enables both buyer and supplier to create value, thereby creating a win-win situation for both firms. This study adopts the view of Dyer and Singh (1998).

High levels of collaboration require significant inputs and commitment of time and resources from both buyer and supplier, but the benefits can be substantial. Enhanced levels of buyer-supplier collaboration can result in higher commitment, joint activities, overlapping relationships and joint operations (Kanter, 1994). These benefits may result in joint decision making, common goals setting and an open exchange of information, knowledge and ideas (Lee and Choi, 2003). Dyer and Singh (1998) suggests that long-term buyer-supplier collaboration leads to higher levels of confidence, fosters learning, eliminates opportunistic behaviour and it helps in building higher levels of trust and commitment between buyer and supplier.

However, prior research also shows that close buyer-supplier relationships are not always synonymous with good relationships. Anderson and Jap (2005) found that some buyer-supplier relationships that appear to be stable and doing well are vulnerable to decline and even destruction. This is referred to as the 'dark side of trust' (Anderson and Jap, 2005). These authors state that buyer and supplier should therefore keep evaluating their relationship and have a back-up plan when the relationship deteriorates. This helps to create an efficient and productive relationship between buyer and supplier that allows partners to take risks, develop creative ways to expand the joint benefits and to try out new ideas.

2.6   The impact of geographical distance

Although the world is becoming more globalised due to, amongst others, breakthroughs in telecommunication and transport modes, distance continues to affect the international development of firms (Bouquet and Birkinshaw, 2008). Firms are doubtful entering foreign markets without sufficient knowledge regarding that country, due to the many costs and risks involved with the supply and distribution of products (Angue and Mayrhofer, 2010). Many of these result from barriers created by geographical distance.

The concept of distance consists of multiple dimensions and it does not only comprise geographical separation (Campbell et al., 2012), although this study concentrates on that aspect of distance. To capture the complex concept of distance and place geographical distance in its context, the CAGE framework of Ghemawat (2001) is used. In the CAGE framework, four types of distances are distinguished: cultural, administrative/political, geographical and economic distance. The types of distances can affect business in different ways.

Cultural distance shows how people interact with firms and with each other. Differences in language, religion or social norms can create a separation between firms and people. Administrative distance refers to differences in institutional and governmental policies and regulations between countries (Campbell et al., 2012). It also encompasses historical and/or political associations that can affect business between countries, firms and people. Governments play a central role in administrative distance. Economic distance is the third type of distance distinguished in the CAGE framework. Consumer income is the most important attribute that creates distance between countries in this type of distance. Richer countries engage more actively in foreign trade than poorer countries do and countries concentrate their business more on other countries with similar economic profiles (Ghemawat, 2001).

The fourth type of distance, geographical distance, is the most visible distance. It refers to the '*physical distance between two countries or geographic spaces in which the partners are operating*' (Angue and Mayrhofer, 2010, pp.10). Geographical distance assumes that the further you are from a country, the harder it will be to conduct business with that country (Ghemawat, 2001). It is not simply a matter of how far away a country is in terms of physical distance. Other factors such as borders, infrastructure, waterways access, communication networks and topography play a role as well. According to the research of Ghemawat (2001), geographical distance has a dampening effect on business between two countries. The attributes creating geographical distance and the type of products that are likely to be affected by this type of distance are shortly explained in table 1.

Attributes creating geographical distance:	Products affected by geographical distance:
• Physical remoteness	• Products that have a low value-to-weight or bulk ratio
• Lack of a common border	• Products that are fragile of perishable
• Lack of sea or river access	• Communication and connectivity is important
• Weak transportation or communication links	• Products with a high need for local supervision and many operational requirements
• Differences in climate	

**Table 1: Geographical distance according to the CAGE framework (Ghemawat, 2001*)*

2.7   Key articles guiding this research

Table 2 describes the purpose, methodology, findings and theory of the ten key articles guiding this research. These are summarised in order to better understand the literature review, the research method choice and the nature of the relationships tested in this study.

Source:	Purpose:	Methodology:	Findings:	Theory
Angue and Mayrhofer (2010)	Measure the influence of cultural, administrative, geographical and economic distance on the choice of the country of partners in international R&D cooperation.	Survey methodology and regression analysis. Data was collected from 1502 European companies in the biotechnology industry.	Administrative, geographical and economic distance significantly influence the choice of the country of partners. Cultural distance does not.	Industry structure view
Campbell et al. (2012)	Investigate how distance between home and host country affect a foreign affiliate CSR activity in the host country.	Survey methodology and regression analysis. The framework of Community Reinvestment Act data for 182 foreign bank affiliates from 32 countries in the United States over 1990-2007 is used to collect data.	Foreign affiliates from more distant home countries are less likely to engage in host country CSR. Host country CSR reputation negatively moderates this relationship.	Not specified
Carter (2005)	Assessing how SRP directly or indirectly affects firms' costs.	Survey methodology and structural equation modelling (SEM). Data was collected from 201 purchasing managers	No direct relationship between SRP and costs are found. However, Organisational learning and supplier performance are two mediating variables between SRP and costs.	Resource-based view (RBV)
Carter and Jennings (2004)	Examine CSR issues in the context of the purchasing function by providing an initial look at the drivers and constructs of SRP.	Mail survey methodology and SEM. Data was collected from 201 surveys from purchase department from consumer products manufacturing firms.	A framework is introduced distinguishing six dimensions namely diversity, environment, human rights, safety, philanthropy/community and ethics and three significant drivers of SRP namely people-oriented culture, top management leadership and employee initiatives. Governmental regulations and employee values were not found to be a significant driver of SRP.	Organisational behaviour and organisational theory
Ghemawat (2001)	To provide firms with a rational approach to evaluate global opportunities.	Theory development with a case study example	Development of the CAGE framework in which four types of distances are distinguished namely cultural, administrative/political, geographical and economic distance, which better helps managers to identify and assess the impact of distance on business.	Not specified
Green et al. (2012)	Relate the impact of green supply chain management (GSCM)	Survey methodology and SEM. Data was	The adoption of GSCM practices leads to improved environmental and economic performance. This	Not specified

	practices to firm performance.	collected from 159 manufacturing managers.	has a positive effect on operational performance, which in turn enhances organisational performance.	
Lee et al. (2012)	Explores the effect of GSCM practices on organisational performance.	Survey methodology and SEM. Data was collected from 223 SME's suppliers in the electronics industry in Korea.	Significant indirect relationships were found between GSCM practices and firm performance through the mediating variables of operational efficiency and relational efficiency.	Resource dependence theory
Salam (2008)	It is a replication research with the basis of Carter and Jennings (2004) and its purpose is to understand the drivers of SRP.	Survey methodology and regression analysis. Data was obtained from 197 purchasing and supply chain managers in Thailand.	The findings suggest that there are six drivers of PSR; people-oriented culture, top management leadership, individual values of employees, employee initiatives, customer pressures and governmental regulations. Individual values and people-oriented organizational culture are the most powerful predictors.	Organisational behaviour and organisational theory
Worthingt on (2009)	Investigate how and when supplier diversity might benefit large purchasing organisations.	Exploratory research and multiple case study design.	Supplier diversity has the potential to improve organisational performance in four ways through increased revenues, reduced costs, better strategic fit and risk spreading.	Resource-based view
Zacharia et al. (2009)	Examines the requirements for success in collaboration efforts between buyers and suppliers and the resulting operational and relational outcomes.	Survey methodology and SEM. Data was obtained from 342 supply chain managers from different industries	Firms that are interdependent in terms of knowledge and skills, and those who share a deep understanding of each other, will likely have a high level of collaboration, which leads to improvements in operational and relational outcomes between the two collaborating firms which will in turn lead to improved business performance.	Resource-based view and relational view

Table 2: Key articles guiding this research

At this stage, all concepts have been defined. The next step is to connect the different concepts by hypothesising relationships between them. This is done in the next section.

2.8 Hypotheses

Based on the literature review and the research question guiding this study, several hypotheses are developed that test the relationship between the different constructs. These are introduced and explained in this section.

2.8.1 SRP and buyer-supplier supplier collaboration

Due to both extrinsic and intrinsic motivations, companies are increasingly engaging in socially responsible purchasing practices. Extrinsic motivations include increased governmental regulations and consumer pressures for firms to act more socially responsible. Intrinsic

motivations include enhanced employee commitment and reduced costs. Prior studies have shown that SRP has implications for all parties in the supply chain and the development of effective SRP practices requires a cooperative effort of both buyer and supplier (Vasileiou and Morris, 2006). This is not only found in academic research, but also increasingly recognised by the business world. The CEO of Unilever, Paul Polman, is convinced of the need for an unified supply chain stating that '*through the supply chain, companies of all types and sizes are interlinked and play a key role in achieving sustainability goals*' (Leach, 2012). An example from the academic world is the exploratory research of Vasileiou and Morris (2006), conducted in the British potato industry. Their study argues that an enhanced unified effort is required of both buyer and supplier in order to be effective and efficient in sustainable supply chain practices and to reduce supply chain risks. A firm can make efforts to become socially responsible, but when its suppliers are not, this will harm the sustainable image of the firm (Vasileiou and Morris, 2006). Supplier's environmental certification, audits and assessments need to be acceptable and conform governmental regulation and society norms, so the buyer firm can receive safe and social and environmentally friendly components and products (Rao, 2002). That is why, to successfully adopt sustainable purchasing practices, both internal SRP management and cooperation with stakeholders is required to be able to comply with governmental regulations (Lamming and Hampson, 1996). This is equally important from the supplier perspective: suppliers may not be knowledgeable regarding governmental regulation in all international markets and therefore need buyer support concerning complex regulations in different countries (Lee et al., 2012).

As has been seen from the literature review and based on the resource-based view, firms collaborate with each other to gain access to specialised knowledge and skills needed for complex problem solving, thereby creating unique resources. This study suggests that engaging in SRP practices gives buyers and suppliers an additional incentive to cooperate with each other. This is due to the fact that stakeholders are increasingly pressuring firms to become more sustainable and a unified effort from both buyer and supplier is required to be more efficient in SRP and to enhance the possibilities for success in these SRP practices. Following the above line of argumentation, it can be expected that SRP lead to a higher level of buyer-supplier collaboration. The corresponding hypothesis is the following:

H1: The level of socially responsible purchasing practices is positively related to the level of buyer-supplier collaboration.

2.8.2 Buyer-supplier collaboration and operational efficiency

In the previous section, it is hypothesised that SRP leads to a higher level of buyer-supplier collaboration. But what are the benefits of an increased level of collaboration between buyer and supplier? Prior research has found both operational and relational benefits (Zacharia et al., 2009). This section will explain the potential operational benefits of more buyer-supplier collaboration, while the next paragraph will go into depth regarding the relational benefits.

The relationship between the level of buyer-supplier collaboration and operational outcomes can be explained according to the RBV. Firms that are able to collaborate intensively with each other have wider access to unique information, knowledge and skills. They can capture and combine the best ideas and learn from each other, gaining unique experiences (Zacharia et al., 2009). These organisations are often better able to tap into the best opportunities and facilitate the implementation of these opportunities in an effective way. According to these prior findings, it can be expected that an increased buyer-supplier collaboration level will result in higher operational efficiency such as lower costs, improved quality, faster project results, improved customer service and enhanced customer value. These items measure the construct of operational efficiency in this study. Following this line of argumentation, the following hypotheses can be derived.

H2: The level of buyer-supplier collaboration is positively related to operational efficiency.

Note that the hypothesis stated above is a replication of the study of Zacharia et al. (2009), which couples collaboration level to operational and relational outcomes. However, the research setting is different, because this research is conducted in the industrial goods and machinery industry in The Netherlands, while the research of Zacharia et al. (2009) was conducted in multiple industries in The United States. Additionally, this study tests this relationship in a different context namely that of SRP. This is explained in section 3.2.4.

2.8.3 Buyer-supplier collaboration and relational efficiency

According to Zacharia et al. (2009), collaboration between firms does not only affect operational efficiency such as quality, cost, lead time and/or customer service, but also has an impact on relational efficiency like the level of honesty, relationship effectiveness, credibility and commitment. As buyer and supplier collaborate more intensively with each other, this results in a greater commitment and solidarity towards each other. Commitment to each other nurtures an atmosphere of honesty and trust. Trust also increases when firms share more sensitive information and knowledge with each other and the change for opportunistic behaviour will therefore decrease (Zacharia et al., 2009). A win-win situation is created for both buyer and

supplier. Nevertheless, buyer and suppliers should keep evaluating their relationship in order to avoid the 'dark side of trust', explained in section 2.5 (Anderson and Jap, 2005).

Moreover, higher levels of collaboration are characterised by higher levels of appreciation and respect for each other. Due to higher levels of collaboration, both partners have a better access to the others knowledge, expertise and capabilities resulting in a higher appreciation and respect for them (Zacharia et al., 2009). The research of Zacharia et al., (2009) also found that when collaborating intensely, buyer and supplier demonstrate their knowledge and expertise to each other and there is an open exchange of ideas. These enhanced collaboration levels are also likely to improve the effectiveness and productiveness of the relationship (Zacharia et al., 2009). Relationship effectiveness emphasises the productivity of interactions between the buyer and supplier and the ease of communication (Kahn et al., 2004). Enhanced levels of collaboration lead to improved communication due to, amongst others, higher levels of trust and a better sharing of information and knowledge. Improved communication results in higher relationship effectiveness and productiveness (Paulraj et al., 2008, Zacharia et al., 2009).

Prior studies have shown that enhanced collaboration leads to higher levels of honesty, an increased respect for the skills and capabilities of the supplier, more sharing of information, a higher commitment towards each other to work together in the future and a more productive and effective working relation between buyer and supplier (Zacharia et al., 2009). This leads to the following hypotheses.

H3: The level of buyer-supplier collaboration is positively related to relational efficiency.

Note again that the hypothesis stated above is a replication of the study of Zacharia et al. (2009), although this research is conducted in a different research setting and context. Hypotheses 2 and 3 are therefore not aimed to be the main contribution of this paper.

2.8.4 The mediating role of buyer-supplier collaboration level

As has been explained in an earlier section, prior research regarding the relationship between SRP and costs have been mixed (Green et al., 2012, Lee et al., 2012, Ullman, 1985). According to the knowledge of the author, no conclusive evidence has been found yet that shows that SRP reduces firm costs. Nevertheless, global electronics firms Samsung and LG Electronics state that their operations are executed more efficiently in all dimensions since the implementation of sustainable supply chain practices including purchasing (Lee et al, 2012). This is due to reduced waste, water and energy consumption, higher productivity, cycle time reduction and saved material usage. Other studies found similar results. Worthington (2009) argues that SRP can

lead to improved operational performance due to lower inventory costs, reduced costs of compliance, gains from new sustainable product and process innovations, more flexible procurement processes and a motivating impact on employees, which results in higher productivity levels. The research of Carter (2005) found an indirect relationship between SRP and firm's costs through the mediating variables of organisational learning and supplier performance. Higher levels of SRP lead to higher levels of organisational learning, which lead to higher supplier performance eventually leading to lower costs (Carter, 2005). Nevertheless, the results from this study also state that firms that engage in socially responsible purchasing are not guaranteed to improve operational outcomes; they need to effectively learn from these SRP practices in order to improve performance (Carter, 2005).

These findings imply that socially responsible purchasing can (indirectly) lead to better operational outcomes. Due to the fact that prior research did not find a direct relationship between SRP and costs, an indirect relationship is expected. Zacharia et al. (2009) found support for the direct positive relationship between buyer-supplier collaboration level and operational efficiency and relational efficiency. Carter (2005) found support for the positive effect of SRP on costs through the mediating variables of supplier performance and organisational learning. This research connects the benefits of SRP, found in the research of Carter (2005), with the benefits of buyer-supplier collaboration, found in the research of Zacharia et al. (2009).

This means that, due to (1) enhanced extrinsic and intrinsic motivations for firms to engage in SRP activities and (2) the need for an unified effort in supply chain activities of both buyer and supplier in order to be more effective and efficient in SRP activities, it can be expected that buyers and suppliers have additional incentives to enhance their collaboration level. This will be tested in the first hypothesis. In addition, a higher level of buyer-supplier collaboration is expected to result in better operational and relational outcomes. This has been hypothesised in hypotheses 2 and 3. Connecting these different hypotheses, it is suggested that the level of buyer-supplier collaboration mediates the relationship between SRP and operational efficiency and the relationship between SRP and relational efficiency. In order to test the mediating role of buyer-supplier collaboration level between the relationship of SRP and operational and relational efficiency, the following hypotheses are designed.

H4a: Buyer-supplier collaboration mediates the relationship between socially responsible purchasing and operational efficiency.

H4b: Buyer-supplier collaboration mediates the relationship between socially responsible purchasing and relational efficiency.

2.8.5 The moderating role of geographical distance

The effect of distance on CSR has not been studied extensively in current literature and there is no literature coupling SRP to geographical distance, to the knowledge of the author. The research paper of Campbell et al. (2012) is the only paper found in current literature sources that investigates the impact of distance on CSR. They show that distance is an obstacle and may lead to costs for obtaining social legitimacy in a country due to less personal contact and social interactions. It should be noted that the main focus of the paper of Campbell et al. (2010) is on CSR and liability of foreignness, while this paper emphasises the relational aspect of SRP.

Due to the lack of research on the role of geographical distance in the field of CSR, this study concentrates on the literature regarding the relationship between geographical distance and buyer-supplier collaboration. Findings in this field are expected to be applicable to this study as well due to its focus on buyer-supplier collaboration.

Geographical distance is likely to reduce the probability of cooperation and the level of buyer-supplier collaboration, because firms prefer partners based in a location that seems close or whom they already know (Angue and Mayrhofer, 2010). This is due to two reasons. First of all, larger geographical distances mean higher costs for long-term buyer-supplier relationships due to the high degree of coordination and additional communication costs. Secondly, prior studies have shown that geographical distance can make the knowledge transfer between firms more difficult, because of a lack of or less frequent face-to-face contact and interaction between the two parties. Reasons for this include the length of transmission channels and time differences between the partners (Ambos and Ambos, 2009). Face-to-face communication is made more difficult with geographic separation, while it is found to be necessary for a successful long-term buyer-supplier relationship (Angue and Mayrhofer, 2010). It offers more opportunities to understand and interpret the partners' behaviour and motivations correctly and it is therefore considered desirable for developing trust in buyer-supplier relationships (Dyer and Chu, 2000). Face-to-face interactions are an effective means for developing personal ties between buyer and supplier, because it increases the involvement between buyers and supplier (Ketkar et al., 2012). Bonte (2008) support these findings and found that inter-firm trust between buyer and supplier is stronger between geographically close partners than inter-firm trust for distance partners. In sum, frequent face-to-face communication is desirable in buyer-supplier relationships, because it provides unique benefits and enhances the quality of the buyer-supplier relationship and that is why buyers prefer to collaborate with suppliers located nearby (Duyer and Chu, 2000).

As has been argued before, this research expects that SRP lead to a higher level of buyer-supplier collaboration due to more incentives to work together. Following the argumentation above, this effect is expected to be stronger for buyer-supplier relationships with a small geographical distance than for buyer-supplier relationships with a larger geographical distance, as buyers tend to prefer to work together with supplier located nearby (Dyer and Chu, 2000). Following this line of reasoning, it can be expected that geographical distance has a negative moderating effect on the relationship between SRP and buyer-supplier collaboration level. The corresponding hypothesis is the following:

H5: The effect of SRP on the level of buyer-supplier collaboration is stronger for a short geographical distance between buyer and supplier than for a large geographical distance between buyer and supplier.

2.9 Conceptual model

The next figure shows the suggested conceptual model, including the hypotheses and their directions, guiding this research.
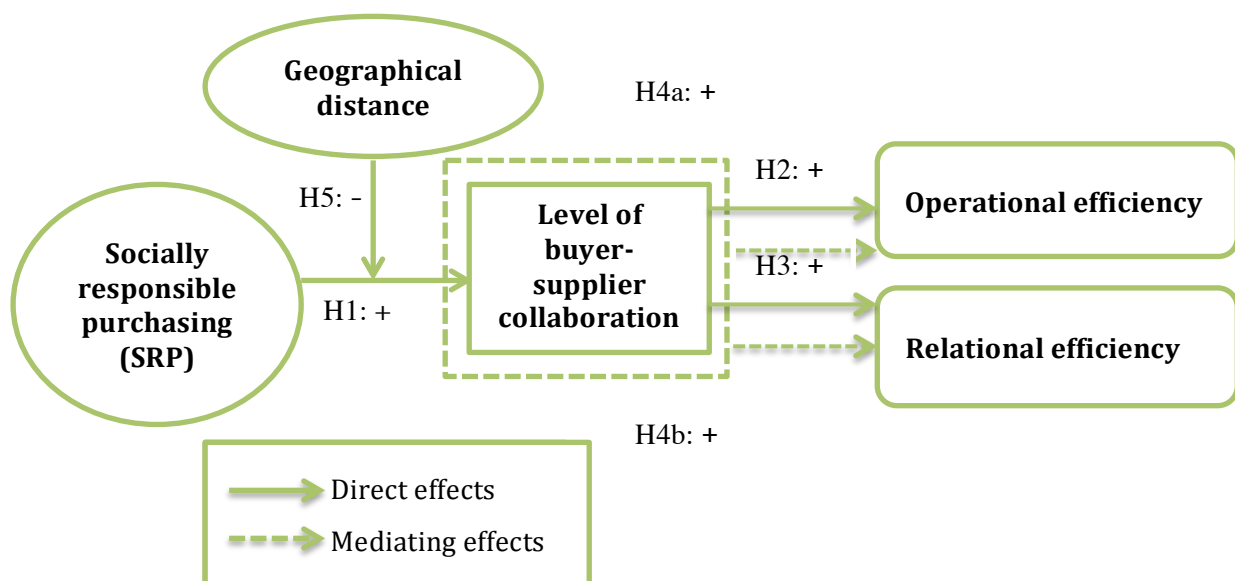
This chapter has conducted a literature review to research the current state of knowledge regarding socially responsible purchasing. The next chapter will explain the methodology of this research.

# 3.	Methodology

This chapter describes the methodology. First of all, a description is given on how the questionnaire was developed. Then, the choice of measurement models is explained. The next part describes the data collection process and the responses to the mail survey. The fourth part of this chapter explains how this study tries to overcome different types of biases such as common method bias, social desirability bias and non-response bias. In addition, a look is taken on whether the assumptions, necessary to conduct a regression analysis, are met.

## 3.1	Unit of analysis

The perspective of the buying organisation is used and the focus is on a recent collaborative effort with a, preferably foreign, supplier. The unit of analysis is the dyadic buyer-supplier relationship. The focus of this study is on inter-firm relationships between buyer and supplier. Most constructs are measured on an individual level. In order to be able to translate these constructs at the dyadic level, it is assumed that the individual views on issues of the purchase professionals are a function of their organisational roles (Paulraj et al., 2008).

## 3.2	Questionnaire development

To test the hypotheses introduced in the previous section, a cross-sectional mail survey was employed to collect data following the total design method of Dillman (1987). The next section explains how this survey was developed and pre-tested.

The survey used (appendix 1) incorporates multiple items for each construct. These items are measured using one or several survey questions. All constructs used are measured using existing scale items developed and tested by prior studies (Lee et al., 2012, Lee and Choi, 2003, Zacharia et al., 2009). This is done to enhance the reliability and validity of the constructs (Paulraj et al., 2008). To further validate the constructs, a pilot study was conducted, which is explained in section 3.4.3.

A total of 30 questions were asked to the respondents in order to measure five different constructs. Another two questions were asked to intend to be control variable namely the number of employees and annual turnover. There were two questions regarding the respondents' involvement and number of years active in the purchasing department. These questions were employed to make sure that respondents were key informants.

Before starting answering the survey questions, a short introduction is given to the respondents. The survey consists out of three parts. The first part of the survey asks questions regarding socially responsible purchasing practices within the purchase department of the

respondents firm. The second part of the survey concerns respondents experiences regarding a recent collaboration with a, preferably foreign, supplier. The final part of the survey asks questions regarding company name, supplier location, company size and respondents' involvement in the purchase department. The questions of each construct, except for geographical distance and the control variable, will be measured using a seven-point Likert scale where 1=to a very great extent and 7=to no extent whatsoever.

3.2.1 Operationalisation of the constructs

All constructs are unidimensional, except for SRP. An unidimensional, or first-order, construct is measured by a single dimension that consists out of a set of indicators (Roy et al., 2012). In addition, all constructs, except for geographical distance are multi-item constructs. Generally, multi-item constructs are inherently preferred over single-item measures due to three reasons (Bergkvist and Rossiter, 2007). First of all, multiple-item constructs are more reliable than single-item measures, because they enable the calculation of correlations between indicators, which indicate internal consistency (measured by Cronbach's alpha). Secondly, multi-items are needed if the construct is abstract. This is the case for the construct of SRP. Thirdly, multiple-item measures capture more information than single-item measures, because they can tap into more facets of the construct.

However, multi-items are neither necessary nor valid when the construct is concrete singular and the indicator is concrete. In this case, single-item measures are preferred (Bergkvist and Rossiter, 2007). This is the case for geographical distance. That is why geographical distance is measured as a single-item construct.

SRP is a second-order construct. It consists out of five dimensions namely the environment, human rights, safety, diversity and philanthropy, according to Carter and Jennings (2004). These dimensions are interrelated and can be grouped together theoretically under the overall construct of socially responsible purchasing. The necessary condition of a second-order construct is that the directions of the relationships between the construct and its dimensions must be theoretically specified (Law et al., 1998). This is the case for SRP as the research of Carter and Jennings (2004) already identified five dimensions of SRP in their exploratory study. This study slightly adapts these dimensions and eliminates the dimension of philanthropy, because it plays no role in the empirical setting of this study as will be explained in the pilot study section (§3.4.3).

Buyer-supplier collaboration level is operationalised according to six existing scale items: joint decision making, free flow of useful ideas, free flow of novel ideas, openness to new ways of thinking, openness to discovering new knowledge and openness to ways to improve

joint performance (Lee and Choi, 2003, Zacharia et al., 2009). Buyer-supplier collaboration is a mediating variable in this research.

Operational efficiency is measured in literature using six existing scale items namely lower costs, improved quality, better customer service, quicker project results, reduced cycle or lead time and improved customer value (Lee et al., 2012, Zacharia et al., 2009). This study slightly adapts these dimensions by eliminating the item cycle or lead-time, based on the results of the pilot study. The next section will go into detail regarding the reason of this change.

Relational efficiency is also operationalized in literature into six existing scale items: improved level of honesty, an increased respect for the skills and capabilities of the supplier, more open sharing of information, a more effective working relationship, enhanced commitment to work together in the future and a more productive working relationship (Lee et al., 2012, Zacharia et al., 2009). According to the pilot study and based on the literature, the item 'level of honesty' is replaced by 'level of trust'. In addition, the item 'open sharing of information' is replaced by 'open sharing of knowledge'. The next section will go into depth regarding the reason of this change.

Geographical distance is operationalised following the paper of Bouquet and Birkinshaw (2008). They measure geographical distance according to the kilometres between the capital cities of both buyer and supplier. All distances are computed with a calculator available at http://www.mapcrow.info/. Geographical distance is a moderating variable.

3.2.2 Pilot study

A pilot study was done in order to further validate the survey to assure face and content validity. In addition, qualitative information was gained regarding SRP. Three interviews were conducted with purchase managers from three different companies (two multinationals and a small company with 21 employees) active in the industrial goods and machinery industry in The Netherlands. All interviews were conducted in Dutch. In the first part of the pilot study, these practitioners were asked how their business was generally involved in SRP activities. Then, the interviewees were asked how their business engaged in SRP practices regarding each dimension of SRP identified by Carter and Jennings (2004). In a second interview, these practitioners were asked to identify any ambiguities in the questionnaire and to offer suggestions for improvement. Additionally, they checked readability, specificity and clarity of the survey questions. The survey was modified according to their comments and suggestions.

Generally, the answers of the purchase managers were in line with each other and with the findings from prior studies. However, there were some differences between the results from the pilot study and findings from prior research.

First of all, the purchase managers indicated that the dimension of philanthropy was not relevant in the purchasing department of their firms. They stated that philanthropy and community initiatives were present in their firm, but were managed from the corporate department. Philanthropy was also excluded in the research of Eefting (2009), a study also conducted in The Netherlands, for the reason that it was a " *typical U.S. based thing*" (Eefting, 2009). Based on the findings from the pilot study and the study of Eefting (2009), the dimension of philanthropy was therefore excluded from the questionnaire.

Secondly, the way Carter and Jennings (2004) measure diversity is not relevant in The Netherlands according to the different purchase managers. The following quote will explain this.

"The policies of Shell regarding diversity are different for different countries. For example, the purchasing department in the United States specifically wants to purchase a certain amount of products from women-owned business enterprise suppliers. This is not the case in Asia or Europe, because it is less relevant in these places" (Cees Doolaard, purchase manager at Shell).

Although the pilot study suggested that diversity is not a relevant construct in The Netherlands, diversity is a relevant dimension in the majority of other studies regarding SRP. For example, the study of Worthington (2009) showed the importance and potential benefits of supplier diversity. For this reason, it was decided to keep the construct of diversity into the questionnaire. However, the way it was measured was changed. In the survey used in this study, diversity was measured by one question (does the organisation has a formal minority/women owned supplier purchase program?). The questions whether the organisation purchases from minority/women owned supplier was deleted, because the findings of the pilot study showed that this question is rarely applicable in The Netherlands.

Thirdly, the questions measuring the dimension 'environment' of SRP were slightly adapted based on the finding of the pilot study. The question whether a firm 'participates in the design of product for disassembly' was deleted and replaced by the question whether the firm 'aims to reduce the amount of water and/or energy used in the last two years'. This following quote explains this in further detail.

"The focus points of 'green' purchasing within DSM are the following: carbon footprint, water control, waste reduction and recycling. In addition, in the qualification process for potential suppliers, we look how environmental friendly potential suppliers are. 'Green' suppliers have an advantage over supplier who are less environmental friendly" (purchase manager at DSM).

Moreover, the question whether the purchase department 'ensures that suppliers comply with child labour laws', a question partly measuring the SRP dimension 'human rights', was slightly adapted. According to the findings of the pilot study, this question was not specific enough and in reality often applies to Dutch, American or European labour laws. The question therefore was adapted into: 'the purchase department needs to ensure that suppliers comply with European labour laws'. European labour laws were used, because this study is conducted in The Netherlands, which is part of the European Union. An example is given in the next quote.

"We look at three main aspects regarding human rights: fair wages, the use of child labour and the working hours of employees working for the supplier. Next to that, we demand that the supplier monitors that the law, norms and values of other countries are complied with. Are the U.S. laws observed for suppliers delivering to companies located in the United States?" (Cees Doolaard, purchase manager at Shell)

Furthermore, the pilot study showed that the item cycle/lead time measuring operational efficiency is very specific and not applicable to all respondents in the sample frame. That is why the item was deleted from the survey.

Regarding the construct relational efficiency, the pilot study showed that this construct was not complete and one question was missing. According to the experiences of two purchase managers, high relational efficiency includes the possibility to exchange confidential information with the supplier. This question was therefore included in the survey. In addition, the item 'level of honesty' was replaced by 'level of trust' and the item 'open sharing of information' was replaced by 'open sharing of knowledge'. Knowledge sharing better fits the construct of relational efficiency. This was suggested by one of the purchase managers in the pilot study. He stated that higher level of buyer-supplier collaboration almost automatically leads to a higher level of information sharing, because more collaboration requires more joint-business which in turn requires a higher degree of information sharing. The same applies for the level of honesty.

3.3   Choice of measurement models

This section will explain the choice of measurement models. This will help in providing an understanding as to how to generate a set of measures that accurately represent the construct domain (Freeze and Raschke, 2007).

A construct can be modelled in two different ways: reflective or formative (Roy et al., 2012). With a reflective construct, changes in the latent construct are reflected in a change in the observable indicators, while with a formative construct changes in the indicators determine a change in the value of the latent variable (Diamantopolous and Siguaw, 2006). This means that with reflective constructs, causality flows from the latent construct to its indicators, while with

formative constructs, causality flows from the indicators to the latent construct (Freeze and Raschke, 2007). Differences between reflective and formative constructs are shown in table 3.

Reflective construct	Formative construct
Direction of causality is from construct to indicators	Directions of causality is from indicators to construct
Indicators are manifestations of the construct	Indicators are defining characteristics of the construct
Changes in the construct causes changes in the indicators	Changes in the indicators causes changes in the construct
Dropping an indicator should not alter the conceptual domain of the construct	Dropping an indicator may alter the conceptual domain of the construct
Measures expected to be correlated with each other (means of internal consistency analysis)	No reason to expect that the measures are correlated (internal consistency is not implied)
Measurement error must be taken into account at the indicator level	Measurement error must be taken into account at the construct level

Table 3: Differences reflective and formative constructs (Jarvis et al., 2003, Freeze and Raschke, 2007)

All constructs used in this study are first order reflective constructs, except for SRP. This means that an increase in, for example, buyer-supplier collaboration is reflected in an increase in the six items that measure this construct. The same applies for operational efficiency, relational efficiency and geographical distance.

SRP, on the other hand, is claimed to be a second-order, formative construct. Changes in the dimensions of SRP cause a change in the level of SRP. However, this is contrasting the research of Carter and Jennings (2004). They argue that socially responsible purchasing is a second-order reflective construct. They state that the five dimensions of SRP together make up the construct of socially responsible purchasing (see figure 3). According to

Figure 2: SRP as a reflective construct (Carter and Jennings, 2004)

their research, companies that fail in one area of SRP such as safety may harm their overall reputation regarding CSR. This would mean that a change in the level of SRP also automatically trigger a change in e.g. human rights of safety. This study argues it is the other way around; the dimensions influence the construct of SRP. The dimensions define the characteristics of SRP, not the other way around.

Although the four dimensions of SRP are formative, the indicators making up the dimensions are reflective. The indicators are manifestations of the dimensions and changes in the dimensions cause changes in the indicators. These indicators are assumed to highly correlate and a change in the level of one of the dimensions is assumed to trigger a change in the

indicators used to measure that dimension. This is in line with the research of Carter and Jennings (2004) and Eefting (2009). For example, it is assumed that a change in the level of human rights performance of a firm is reflected in a change in the level of compliance with European child labour laws.

How can a second-order formative measurement model with first-order reflective dimensions be measured and assessed? According to the taxonomy of multidimensional constructs proposed by Law et al. (1998), SRP can be classified as an aggregate model. Measurement models which are formative, second-order constructs with reflective first-order dimensions can be classified as the aggregate model (Law et al., 1998, Polite et al., 2012). Because SRP can be classified as an aggregate model, the dimensions of SRP can be combined algebraically and they form an represenatation of the overall construct of SRP (Law et al., 1998). This study classifies four dimensions of SRP, which are all unobservable latent variables. You cannot observe the level of SRP, human rights or safety in a firm. The dimensions measuring SRP therefore need to be estimated by a number of observable items or indicators.

Figure 3 shows the operationalisation of the constructs according to the explanation above.
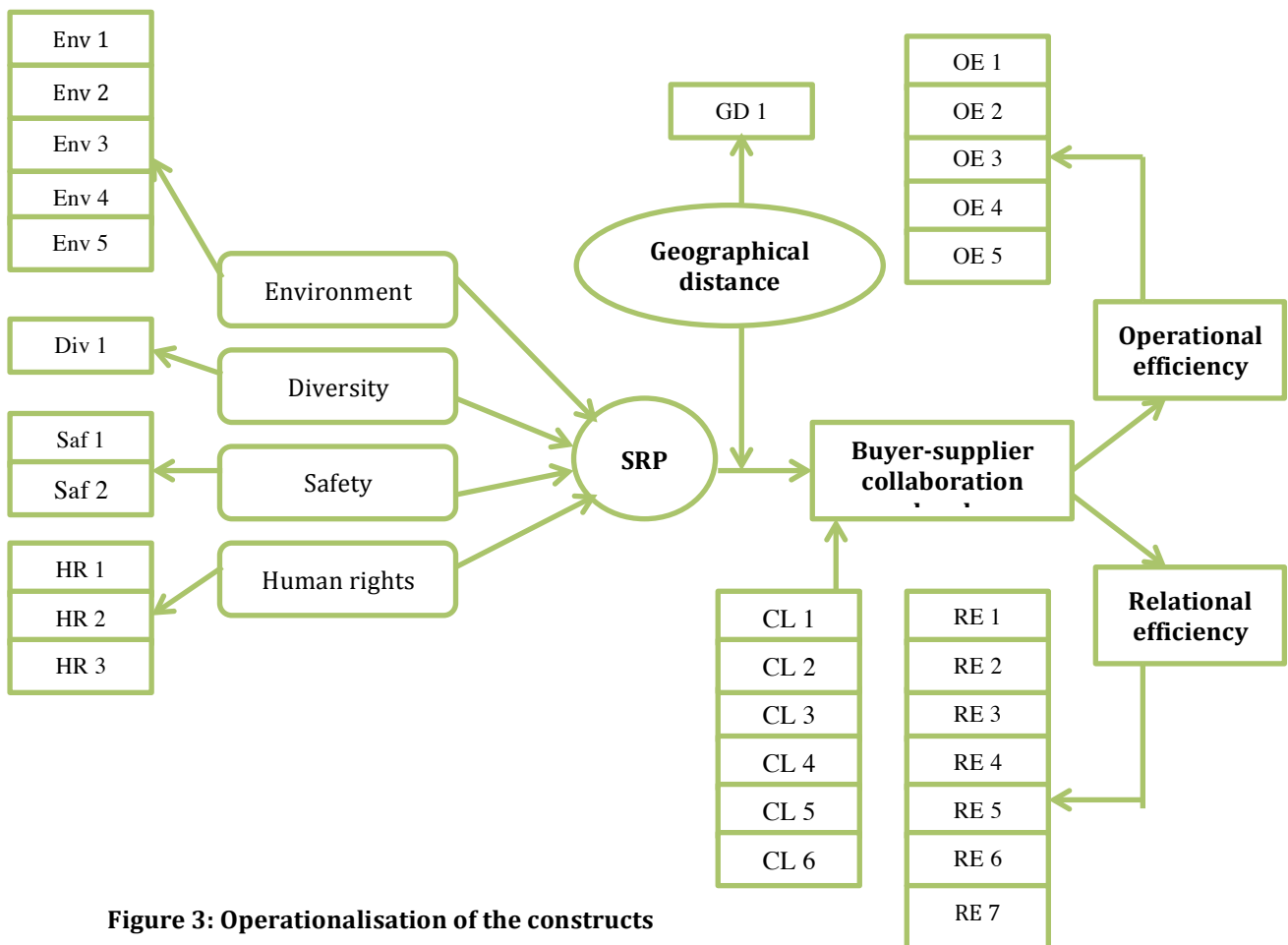
Figure 3: Operationalisation of the constructs

3.4 Key informant issue and control variable

Two measures are used to ensure that the respondents were knowledgeable enough and therefore appropriate key informants. First of all, results from the pilot study confirmed that purchasing managers are qualified enough to answer the survey questions. Secondly, there are two questions included in the survey, which assess the level of involvement of the respondent in SRP (Carter and Jennings, 2004). The first question to control for this key informant issue was the number of years the respondent has been active in the purchase department of the firm and the second question revolves around the degree of involvement of the purchase manager. The last question was measured on a seven-point Likert scale where 1=not involved whatsoever and 7=very involved. Respondents who are not involved, to a very small extent and to a small extent are eliminated from the sample due to assumed limited knowledge. The same applies for respondents who were less than one year active in the purchase department.

Some variables can have an effect on the outcomes and therefore a control variable is included in the study. As has been indicated before, prior studies found mixed results on the relationship between SRP and performance. This may be due to differences in firm size. In this study, the number of employees is included to control for any effect of firm size on performance outcomes (Paulraj et al., 2008).

3.5 Sampling frame

This survey was sent out to purchasing managers. The population of which a sample is drawn from has two distinct characteristics. They are all industrial goods and machinery companies, and they are active in the B2B industry.

The purchasing managers are chosen for two reasons. First of all, purchasing managers have an integral role within the firm, because they create a link between internal functions and external stakeholders (Carter and Jennings, 2004). Secondly, purchase professionals have a critical position in influencing the size of the overall social and environmental impact of their operations, because they are advantageously positioned and can affect a firm involvement in SRP (Carter and Jennings, 2004, Lee et al., 2012). The reason this study chooses firms in the industrial goods and machinery industry is that products often have a higher social and environmental impact than service firms do, due to e.g. production methods, the level of waste, water and energy consumption. Finally, companies operating B2B value other aspects of business than companies operating B2C. For B2C firms, consumer reputation is important. Additionally, these firms have a large group of customers, often without a personal connection. However, in the B2B industry, buyer-supplier relationships are often long-term and personal in nature. This thesis concentrates on the relational aspect of SRP, because relationships are far more common in the B2B industry than in the B2C industry.

3.6   Response rate

To increase the response rate, certain aspects of the tailored design method of Dillman (1978) were used. The total design method states that, to optimise the response rate, the rewards for the respondents need to be maximised while minimising the costs. In addition, trust needs to be established with the potential respondents. Several steps are taken to do this.

First of all, the design, lay out and length of the questionnaire (34 questions) are made as attractive as possible for the potential respondents to answer the survey questions. In addition, the survey was sent out to respondents in two versions: a Dutch version and an English version. The respondents targeted in the sample frame all worked for companies located in The Netherlands and that is why the majority of the respondents were Dutch. However, in order to not exclude purchase professionals who did not speak Dutch from the questionnaire, an English version of the survey was included as well. A total of eleven people filled out the English version and the rest participated in the Dutch questionnaire. The English version was translated to Dutch using the decentering method of Werner and Campbell (1970). Decentering allows for a culturally and linguistically equivalent translation and therefore this translation instrument is considered more appropriate in this study. The survey questions developed by Carter and Jennings (2004) are based on a U.S. research setting, while this study is being conducted in The Netherlands. There are some cultural and linguistic differences between The Netherlands and The United States. Therefore, a translator was used who translated the English survey into Dutch and who changed certain grammatical structures or wordings of the original survey in order to better fit the cultural group in this study. The original survey was therefore slightly adapted to reflect the linguistic and cultural characteristics in The Netherlands.

Moreover, a cover letter was included in the survey explaining the background and relevance of the study and its objectives and benefits. The cover letter also ensured that confidentiality was guaranteed to the respondents. The sponsors of the thesis are shortly introduced as well to enhance the professionalism of the survey (i.e. Rotterdam School of Management). Two reminders were sent to non-respondents after the first mail survey, kindly requesting again the respondent to participate. In addition, an incentive was provided to the respondents in the form of sharing the project results of this study with them. The project results were sent to the respondents who were interested in the results and who filled in their contact details.

Furthermore, the survey was sent out using a personalised mailing. The email was sent to the general email address of a firm, but directed towards the purchase manager of that firm. The survey consisted out of a Dutch cover letter with a link to the Dutch survey, followed by an English cover letter with a link to the English survey.

3.7 Data collection

The database of Kompass was used to create the target frame sample for this research. Kompass is an extensive business-to-business database in which contact information is based of 3 million Dutch and international companies. The Erasmus University Rotterdam is a member of Kompass, so the author had the authority to make use of this database. A list was created of firms active in the industrial goods and machinery industry in The Netherlands with more than ten employees. General email addresses of these firms were provided even as the names of their purchase managers. The mail survey was sent out to 2,237 purchase professionals.

The survey software program Qualtrics was used to send out the questionnaire at the end of October 2012. Two reminders were sent to non-respondents and an additional reminder was sent to respondents who did not complete the survey. The timeframe for the data collection was three weeks.

3.9 Response

Out of the 2,237 surveys that were sent out to purchase professionals, 357 emails bounced due to incorrect email addresses or spam filters from the receivers. This resulted in an adjusted sample of 1,880 purchasing professionals within the target sample frame. Out if this resulting sample, 381 responses were received, which is a response rate of 20.3%.

Generally, responses were positive and respondents were often involved in the topic. A total of 126 respondents or 33.1% were interested in the results of this research. This shows that SRP is an increasingly important aspect of business for companies. What was also interesting is that 187 people responded by e-mail or by phone on the reason why they could not cooperate in the mail survey. The main reasons included lack of time, lack of knowledge regarding the topic, restructuring within the company or a policy of not cooperating in surveys. An e-mail response was sent to the majority of these e-mails, which argued why these people were appropriate for this study and emphasised the need to participate in the survey in order for the research to be as representative as possible. Comments given on the questionnaire were that there was not a 'non applicable' answer box and there was no box for the possibility to explain certain questions.

Out of the 381 responses received, thirteen were excluded from the sample because they were less than one year active in the purchasing department. Another fourteen respondents were excluded because they were not or to a small extent involved in the purchasing department. Finally, it was decided that a respondent was deleted from the sample when there were more than five values missing, which is little under 15% of the total number of questions. As a result, an additional 90 respondents were deleted from the sample. The majority of these

respondents did not finish the questionnaire, resulting in more than five missing values. A visual check was performed on the remaining sample. From the remaining 264 respondents, seven more were excluded due to extreme values. The answers of these respondents were not considered truthful. Therefore, these respondents were excluded from the survey. For example; two respondents responded to all questions with "to no extent whatsoever".

After 'cleaning' the dataset, the final sample included 257 respondents, which is an effective response rate of 13.7%. A summary of the profiles of the respondents is displayed in table 4.

Dimension:	Profile:
Years active in purchasing	**9.8%** 1-3 years **13.8%** 3-5 years **76.4%** More than five years
Involvement purchasing	**59.5%** To a very great extent **25.1%** To a great extent **10.5%** To a fairly great extent **4.9%** To a moderately great extent
Number of employees	**86.2%** Less than 500 employees **13.8%** More than 500 employees
Annual turnover	**85.2%** Less than EUR100 million **14.8%** More than EUR100 million

Table 4: Summary of survey respondents

3.8   Missing values analysis

After cleaning the dataset, 73 missing values were still present. These missing values were distributed among respondents where per respondent a maximum of five values were missing. In order to manage missing values, several approaches exist. It was decided to apply Expectation Maximisation (EM) using SPSS to deal with these missing values.

To apply the EM-technique, preliminary data analysis needs to provide evidence that scores are missing randomly. The chi-square statistic for testing whether values are missing completed at random (MCAR) was not significant at 99% significance level ($p<0.147$), so the data is assumed to be missing at random. All scores obtained from the missing value analysis using Expectation Maximisation are within the range of the original scales used in the survey. Therefore, this is a suitable approach for dealing with missing values. Missing data can be assumed not to be a problem in this study.

3.9 Selection and response bias

There are several types of selection and response biases that may occur in the sampling process. For each type of bias, an approach is taken to control for that bias.

3.9.1 Non-response bias

To control for non-response bias, an approach is taken based on the research of Rogelberg and Stanton (2007). This study uses wave analysis to check for non-response bias. There are two groups of respondents; the group of respondents who responded after the first email (115 respondents) and the group of respondents who replied after one of the two reminders (142 respondents). These groups are compared to each other to control for any response differences. Armstrong and Overton (1977) shows that late respondents are more characteristic of non-respondents than early responders. A multivariate t-test using SPSS was conducted to test for significant differences between the early and late respondents. All items of the survey that are measuring the different constructs used in this research were included in the t-test. The multivariate t-test did not yield statistically significant differences between the first group of early respondents and the second group of late respondents at a 99% confidence level.

A second approach was taken to control for non-response bias. A correlation matrix was derived from SPSS followed by a regression analysis that tested all hypotheses. This was done separately for early respondents and late respondents. Results are displayed in table 2a in appendix 2. The same conclusions can be drawn from early and late respondents. Section 4.3.3 will go more into depth regarding the results.

According to the tests done above, there is no indication of non-response bias.

3.9.2 Social-desirability bias

Due to the topic of this thesis (socially responsible purchasing), social-desirability bias may occur. Social-desirability bias occurs when respondents inaccurately respond to questions conform social norms or perceived expectations of the researcher, because they want to portray themselves more favourable (Carter and Jennings, 2004). To control for social-desirability bias, respondents will be asked to answer the questions in terms of activities done by the purchase department of their firm instead of individual actions, thoughts and beliefs. Armacost et al., (1991) showed that this type of 'other-based' questioning is effective in lowering social-desirability bias, because the sensitivity of the questions can be lowered and the underreporting of sensitive behaviour can be reduced.

In addition, respondents are given assurance for anonymity. Guaranteed anonymity should motivate respondents to participate and to answer the survey questions truthfully (Paulraj et al., 2008).

3.10   Outlier analysis

An outlier is a case with such an extreme value on a variable or such a strange combination of scores on several variables that that it distorts the statistics (Tabachnick and Fidell, 2007). By means of SPSS, the 5% trimmed mean has been found for all items in the survey. This value shows what the mean would be if the bottom 5% and top 5% of all values would be deleted. Comparing these scores to the mean of each item did not reveal significant differences within the dataset.

3.11   Normal distribution

Normality is the assumption that each variable and all linear combinations of the variable are normally distributed (Tabachnick and Fidell, 2007). Screening variables for normality is an important early step in multivariate data analysis. When constructing a histogram for all constructs every construct, except for geographical distance, is fairly normally distributed. Geographical distance is non-normally distributed. The reason for this is that the difference in kilometres between the values is sometimes very large and sometimes small (many suppliers are based in The Netherlands or Germany, some in Asia and the United States). It was therefore expected that geographical distance is non-normally distributed. A common technique to transform a non-normally distributed item into a normally distributed item is to take the log of the data. After taking the log of the item of geographical distance, it is fairly normally distributed when looking at the histogram (see table 2b in the appendix 2). Additional checks for skewness and kurtosis (values between -1 and 1) were done in SPSS. This test also shows that all constructs are fairly normally distributed.

3.12   Common method variance

Common method variance is the variance that is attributable to the measurement method instead of the construct of interest (Podsakoff et al., 2003). It can cause systematic measurement error and bias the results of this research, because it can be an alternative explanation for a correlation between two variables (Podsakoff et al., 2003).

For these reasons, it is important to evaluate the conditions under which the data are obtained and to assess whether common method bias is present in the dataset. Common method bias might be a problem in this research, because data is self-reported and cross-sectional. It is collected during the same time period and through only one survey. There are two ways to control for common method bias: the design of the study's procedures and statistical control tests (Podsakoff et al., 2003).

The study is designed in a way that minimises common method bias. Respondent's anonymity is ensured by repeatedly stating that the survey is completely anonymous; filling in the respondents name and company name is optional. In addition, scale items are constructed

based on literature. These scale items have been validated before. To further improve these scale items, a pilot study has been conducted. These measures could neutralise some of the common method bias.

To further address and reduce the potential impact of common method bias, two statistical control tests have been carried out. First of all, a Harman's single-factor test is done to assess if common method bias might pose a problem. A Harman's single factor test tests whether the majority of the variance can be explained by one factor (Podsakoff et al., 2003). If common method bias is an issue, a single factor should emerge from a factor analysis. This factor will account for the majority of the variance in the model (Podsakoff et al., 2003). By means of principal component analysis, with eigenvalues greater than one, five factors were revealed. The first factor explains 39.3% of the variance. The five factors together explain 66.9% of the variance. This is in line with the literature review. The first factor did not account for the majority of the variance (39.3%), meaning that no single factor is apparent. It should be noted that the variance accounted for the first factor is relatively high. Therefore, another test was conducted to check whether common method bias poses a problem.

The partial correlation procedure has been carried out in SPSS to assess for common method bias. The correlation matrix of the items did not indicate high correlations ($r > 0.7$) among the items from the different constructs. High correlations between items indicate that they are measuring the same thing. Evidence of common method bias often results in high correlations between items that should not correlate with each other. Results indicate that there is no evidence that common method bias might (partially) account for this study's result.

Based on the design of the survey and the results of statistical tests, common method bias is assumed not to pose a problem in this study.

After, cleaning the dataset and screening the data, the next step is data analysis and hypotheses testing, which is done in the next chapter.

4.   Analysis

This chapter analyses the data obtained in this study. First, the measurement models are assessed on validity and reliability. In the second part of this chapter, the different analyses are carried out in SPSS in order to test the hypotheses.

4.1 Assessment of the measurement models

As has been explained before, this study consists out of both first-order reflective constructs and a second-order formative construct with first-order reflective dimensions. The next section shows how these different constructs are assessed for validity and reliability.

4.1.1   Assessment of reflective constructs

Reflective models have their foundation in classical test theory and have well-developed testing criteria (Roy et al., 2012). These testing criteria can be applied to the constructs of buyer-supplier collaboration level, relational efficiency, operational efficiency and geographical distance.

For reflective models, convergent and discriminant validity can be tested by means of an exploratory factor analysis. This factor analysis was conducted to validate the scales used in this study that measure the first-order reflective constructs. The items measuring the constructs of buyer-supplier collaboration level, operational efficiency and relational efficiency are included.

Geographical distance is excluded, because it is measured by only one item. This construct will therefore not be identified as a single factor in exploratory factor analysis. Validity and reliability cannot be tested statistically with single-item measures and needs to be decided by expert judgement (Bergkvist and Rossiter, 2007). Since geographical distance has been validated before in prior research, it is assumed that the measure is valid and reliable. In addition, the question is fact-based. It is not a perception or opinion question, because the supplier location is asked for. Therefore, the single-item construct geographical distance is assumed to be reliable and valid.

Factor analysis is done by demonstrating that the indicators, or items, load on the same factor and by dropping proposed scale items that cross-load on more than one factor. In this study, factor loadings of 0.4 are considered strong enough to include the item as a defining part of the factor (Field, 2005).

A principal component analysis was conducted in SPSS. The first step is to scan the significance values (>0.05) and the correlation coefficients (<0.7). All significance values are significant and all Pearson's correlation coefficients are below the threshold of 0.7 (Field, 2005). This means that all questions correlate fairly well and none of the correlation coefficients are too large. The second step is to check the Kaiser-Meyer-Olkin measure of sampling adequacy (KMO

statistic) and Bartletts test of Sphericity. These two tests need to be carried out first to be able to provide a minimum standard to conduct the analysis. The KMO statistics varies between zero and one, with values close to one as being preferred. The KMO statistic of this analysis is 0.934 (see table 3a in appendix 3). Bartletts test of Sphericity is significant. A significant test means that there are some relationships between the variables, which is desired in this study. Factor analysis can be considered appropriate.

The next step is to look at the output of the rotated component matrix (see appendix 3a). This matrix shows the factor loadings for each variable onto each factor. Three factors are derived from the matrix namely buyer-supplier collaboration level, relational efficiency and operational efficiency. All loadings are relatively high. The factors derived are in line with existing theory. Therefore, no items are deleted at this point.

Internal consistency reliability can be checked for by means of a Cronbach's alpha. Therefore, a reliability analysis is conducted for all factors extracted from the factor analysis. All measured constructs have a very high Cronbach's alpha. In this study, Cronbach's alpha needs to be at least 0.7 in order for the construct to be considered reliable (Field, 2005). Table 5 shows the Cronbach's alpha for all reflective constructs.

Construct	Cronbach's alpha	Highest Cronbach's alpha if item deleted
Buyer-supplier collaboration level	0.926	0.926
Operational efficiency	0.844	0.840
Relational efficiency	0.921	0.916

Table 5: Cronbach's alpha for all reflective constructs

An alpha-if-item-deleted analysis was conducted to investigate whether reliability can further be improved by removing an item. This analysis showed that none of the construct could be improved by deleting an item.

The results from the above analyses support the appropriateness of the first-order constructs used in this study and suggest that all items are good indicators of their respective construct. In addition, all constructs are reliable, internally consistent and have discriminant validity.

4.1.2 Assessment of the formative construct

For formative constructs, classical test theory of construct validity and reliability are not appropriate (Diamantopoulos and Winklhofer, 2001). Reliability testing of indicators is difficult for formative constructs due to fact that the indicators are not observable reflections of the underlying dimension (Diamantopoulos and Siguaw, 2006). In addition, convergent validity is not relevant for formative constructs, because formative construct indicators are not necessarily correlated with each other. This brings us to the question how formative constructs can be

validated. One of the key operational issues in the use of formative second-order constructs is that no simple and universally accepted criteria exist for assessing their reliability (Coltman et al., 2008). Nevertheless, this study attempts to establish reliability and validity by combining different researches and taking multiple approaches to establish validity and reliability of the second-order formative construct of SRP.

First of all, it is important to understand the contextual domain of the construct (Diamantopoulos and Winklhofer, 2001). Reliability and content validity with formative constructs needs to be established in the pre-testing phase by assuring that all dimensions and indicators of the construct are captured (Diamantopolous, 2006). This study has done this by conducting an extensive literature review. Scales are used which have been validated in prior research. In addition, a pilot study among purchasing professionals has been conducted to validate the constructs even more. Therefore, the second-order construct can be assumed to be valid and reliable.

Nevertheless, validity and reliability for second-order constructs should not only be checked at a construct level, but also at a dimension level (Coltman et al., 2008). Although classical test theory may not be appropriate for formative constructs such as SRP, it is appropriate for the first-order, reflective dimensions measuring SRP. Together with an extensive literature review and validated scales, classical test theory can therefore be used to establish reliability and convergent, discriminant and nomological validity for the dimensions of SRP (Coltman et al., 2008). The separate dimensions together make up the construct of SRP. They should be assessed first for reliability and validity. Therefore, another exploratory factor analysis was conducted for all first-order reflective dimensions of SRP.

All significance values are significant at 99% confidence level and all Pearson's correlation coefficients are below the threshold of 0.9. Multicollinearity is therefore not a problem at this stage. The value of the KMO statistic is 0.911, which is a good value. Bartletts test is significant at 99% significance level (see table 4a in appendix 4). Therefore, factor analysis can be considered appropriate for these data.

When looking at the rotated component analysis, two factors can be extracted. The content of the items of each factor show that there are two dimensions making up the construct of SRP namely an environmental and a social dimension. The environmental dimension has been predicted and explained by literature. However, this is not the case for the social dimension. The social dimension consists out of diversity, safety and human rights, which are separate

dimensions according to the research of Carter and Jennings (2004). It should be noted that diversity could not be identified as a factor in itself, because it is measured by only one item.

Other studies, such as the study of Mont and Leire (2009) and Lobel (2006), suggested two dimensions of SRP. Therefore, following these prior studies and according to the results of the factor analysis, the items measuring diversity, safety and human rights are clustered together into a social dimension. The environmental dimension remains unchanged. This means that for the remaining of this thesis, SRP is considered to exist out of two dimensions; an environmental and a social dimension. The discussion section will further elaborate on this.

When continuing with the results of the factor analysis, there are two items that load on both the environmental dimension and on the social dimension. These items ask whether the purchasing function 'uses a life-cycle analysis to evaluate the friendliness of supplier products' and whether the purchasing function 'asks supplier to commit to waste reduction goals'. These cross-loadings are therefore deleted in the rest of the analyses.

The next step is to check for internal consistency reliability by means of Cronbach's alpha of each reflective dimension of SRP. Table 6 shows the Cronbach's alphas for both dimensions. As you can see, Cronbach's alpha for each dimension exceeds 0.7 and all dimensions are therefore considered reliable. The alpha-if-item-deleted analysis showed that only the social dimension of SRP can slightly be improved by deleting the item measuring diversity. As this improvement is only marginal, and deleting an item is throwing away information, no items were deleted.

Construct	Cronbach's alpha	Highest Cronbach's alpha if item deleted
Environment	0.712	0.673
Social	0.847	0.854 (delete diversity item)

Table 6: Cronbach's alpha for reflective dimensions of SRP

The results from the above analyses support the appropriateness of the second-order formative construct of SRP. The results further suggest that all items are good indicators of their respective dimension and the dimensions cumulatively make up the construct of SRP. SRP is claimed to be reliable, internally consistent and have discriminant validity.

This paragraph has assessed reliability and validity of the reflective and formative measurement models. Table 7 provides a summary of this assessment on which measures have been taken to establish reliability and validity of the different constructs.

	Formative constructs	Reflective constructs
Reliability	Literature review and Cronbach's alpha of each reflective dimension	Cronbach's alpha
Content validity	Literature review Using existing scales Pilot study	Literature review Using existing scales Pilot study
Convergent validity	Exploratory factor analysis for the reflective dimensions	Exploratory factor analysis
Discriminant validity	Exploratory factor analysis for the reflective dimensions	Exploratory factor analysis

Table 7: Assessment of validity and reliability of constructs

4.2 Assessment of the structural model

After having validated all constructs used in this research, the structural model can be assessed by testing the different hypotheses. This is done in this section.

4.2.1 Descriptive of constructs

Before testing the different hypotheses, the descriptive table and the correlations between the constructs are assessed. The correlations are used to measure the size and direction of the linear relationships between two variables (Tabachnick and Fidell, 2007). Results from the descriptive and correlation table are displayed in table 8.

Construct		1	1a	1b	2	3	4	5	6
1	SRP	1							
1a	Environment	N/A	1						
1b	Social	N/A	0.531*						
2	Buyer-supplier collaboration level	0.497*	0.334*	0.526*	1				
3	Operational efficiency	0.341*	0.193*	0.393*	0.583*	1			
4	Relational efficiency	0.296*	0.200*	0.312*	0.648*	0.632*	1		
5	Geographical distance	-0.043	0.119	-0.179*	-0.033	0.088	0.148**	1	
6	Number of employees	-0.061	-0.027	-0.076	-0.135**	-0.061	-0.116	0.016	1
	N	257	257	257	257	257	257	227	257
	Mean	3.952	3.887	4.018	3.336	3.521	2.605	2.834	1.139
	Std deviation	1.138	1.228	1.373	1.214	1.067	0.820	0.700	0.297

*Significant at 99% significance level
** Significant at 95% significance level

Table 8: Correlations between constructs (Pearson *r*)

The above table shows that almost all relationships correlations are strong, except for the relationships of the constructs with geographical distance and the number of employees. This means that changes in one variable are strongly correlated with changes in the other variable. The control variable number of employees correlates significantly with SRP. This reason for this correlation and the relationship between these two constructs are further

investigated in a later section. It should be noted that correlations cannot be used to infer a causal relation between two constructs. This does not mean that correlations cannot indicate an existence of a causal relation; it means that the causes underlying the correlation may be indirect or unknown.

The correlation matrix can also be used to spot multicollinearity between constructs. The highest correlation coefficient is 0.648, which is below the threshold of 0.7. The correlation table therefore does not indicate multicollinearity.

4.2.2 Influence of control variable

This study has identified one control variable, which is firm size measured by the number of employees (Paulraj et al., 2008). The direct effect of this control variable on the structural model is measured by doing two regression analyses. These analyses provide insight on the effect of the control variable in the model. The results of these analyses are displayed in table 9.

Dependent:	Operational efficiency	Relational efficiency
Constant	3.698 (13.981*)	2.940 (14.513*)
Number of employees	-0.227(-1.000)	-0.267 (-0.1532)
R²	0.004	0.014
Model F	0.523	1.756
*Significant at 99% significance level (two-tailed)		

Table 9: Influence of control variables

As you can see from the table above the number of employees does not have a significant effect on neither operational efficiency nor relational efficiency.

Additionally, for each model the multiple coefficient of determination (R^2) is calculated. This value describes the proportion of the variability in the dependent variable that can be explained by the independent variable(s). The higher the value of R^2, the greater the explanatory power of the model (Hair et al., 1998). The R^2 value in this model is considered very low and has no explanatory power. The results from this regression analysis indicate that the number of employees is not an alternative explanation for a relationship between two constructs. The control variable will be included in all regression analyses in order to make sure, firm size does not form an alternative explanation for any significant relationships.

4.2.3 Hypotheses testing

Regression analysis in SPSS is used to test the different hypotheses. Regression is used to predict a score on one variable from a score on the other (Tabachnick and Fidell, 2007).

4.2.3.1 Direct effects

All hypotheses can be tested using regression analysis. Within this study, hypotheses have been tested two-tailed at a minimum of 90% significance level, but mainly on a 99% significance level. The control variable number of employees is included in all regression analyses. Results of the regression analyses conducted in SPSS are displayed in table 10.

Dependent:	Buyer-supplier collaboration	Operational efficiency	Relational efficiency	Operational efficiency	Relational efficiency	Operational efficiency	Relational efficiency
	Model 1	*Model 2*	*Model 3*	*Model 4*	*Model 5*	*Model 6*	*Model 7*
Constant	1.691 (5.082*)	1.714 (6.741*)	1.233 (6.621*)	2.410 (7.561*)	2.047 (8.251*)	1.590 (5.500*)	1.291 (6.183*)
SRP	0.524 (9.069*)			0.317 (5.736*)	0.210 (4.864*)	0.063 (1.153)	-0.025 (-0.623)
Buyer supplier collaboration		0.515 (11.388*)	0.436 (13.377*)			0.485 (9.335*)	0.447 (11.920*)
Number of employees	-0.375 (1.934**)	0.056 (0.348)	-0.072 (-0.614)	-0.127 (-0.683)	-0.238 (-1.652)	0.055 (0.340)	-0.071 (-0.609)
R²	0.258	0.340	0.421	0.118	0.098	0.344	0.422
F	44.223*	65.564*	92.434*	16.986*	13.733*	44.209*	61.603*

* Significant at 99% significance level (two-tailed)
** Significant at 90% significance level (two-tailed)

Table 10: Results regression analysis

As can be seen from the above table, all hypothesised direct relationships are highly significant. Model 1 shows the relationships between SRP and buyer-supplier collaboration level (hypothesis 1). The result of this analysis shows a strong positive relation between SRP and buyer-supplier collaboration level (ß= 0.524, t=9.069). Therefore, hypothesis 1 is supported in this study. In addition, a very strong relationship was found in model 2 between buyer-supplier collaboration level and operational efficiency (ß=0.515, t=11,388). Additionally, the relationship between buyer-supplier collaboration level and relational efficiency (ß= 0.436, t=13,377) is strongly significant at a 99% significance level, as can be seen in model 3. These results give support for hypotheses 2 and 3.

Furthermore, the results indicate a moderate explanatory power for the direct effects of SRP and buyer-supplier collaboration level (R² = 0.258), buyer-supplier collaboration level and operational efficiency (R² =0.340) and buyer-supplier collaboration level and relational efficiency (R² =0.421).

Moreover, the F-value determines whether the model is statistically significant. The F-value is a test of significance for the whole regression model. When the F-value is significant, the model can be considered valid and the regression equation gives us a good understanding of the relationship between the dependent and the independent variable. When looking at the results from the regression analysis. All F-values are significant at a 99% significance level and the models can therefore be considered valid.

Moreover, multicollinearity was tested. This is done by looking at the Variance Inflation Factors (VIF's) and tolerance values (Hair et al. 1998). Guidelines on multicollinearity are a Variance Inflation Factor (VIF) less than 3.3 and a tolerance value close to one (Diamantopoulos and Siguaw, 2006). All VIF and tolerance values are close to one, so there are no signs of multicollinearity between the constructs.

When looking at the effect of the control variable, only the effect of the number of employees is negatively significant at a 90% significance level in model 1, which investigates the effect of SRP on buyer-supplier collaboration level. This effect asks for a deeper investigation of the underlying reason for this. Therefore a multivariate t-test was conducted to test for significance differences between SME's firms and large firms. This test showed that there was a significant difference between large and small and medium sized firms (SME's) for buyer-supplier collaboration level at a 95% significance level (two-tailed); smaller firms have a higher level of buyer-supplier collaboration then large firms do. Additionally, there was a significant difference between large and small and medium sized firms at a 90% significance level (two-tailed) for the construct of relational efficiency; smaller firms have a higher relational efficiency than larger firms do. These effects indicate that smaller firms have a stronger emphasis on buyer-supplier collaboration and receive higher relational efficiency from them. This is in line with the results from the pilot study. The purchase manager of Shell indicated that there is less emphasis on relationship building and more on gaining operational efficiency within relationships. The discussion section will elaborate in further detail on this.

A second test was conducted to investigate whether there is a difference in the hypothesised results for large firms. Correlation tables were constructed and regression analyses were done in order to test for the direct and moderating effects. Results are displayed in table 5a in appendix 5. As can be seen from these results, the effects were stronger for SME's regarding all the hypothesised relationships. Nevertheless, significance in results was the same for large firms and SME's and therefore the same conclusions can be drawn. It should be noted that the sample size of large firms was 34. This sample size is too small to draw accurate conclusions from.

4.2.3.2   Mediation analysis

This study measures buyer-supplier collaboration level as a mediating variable between SRP and operational and relational efficiency in hypothesis 4a and 4b. These relationships are tested following the approach of Baron and Kenny (1986). They compare alternative models to the initial model in their study. The t-values and R^2 values will be assessed for both the initial and alternative models in order to better understand the role of the proposed mediator. But before

analysing any further, the concept of a mediating variable needs be understood. Baron and Kenny (1986) state that a mediating variable have an effect on the relation between the independent (predictor) and dependent (criterion) variable. This means that M is a mediating variable when if X would affect Y indirectly through M, when looking at the relationship between predictor X and criterion Y. When X leads to M and M leads to Y, M is not a mediating variable. This is because X does not affect Y through M.

In order to assess the role of buyer-supplier collaboration level as a mediating variable on the relation between SRP and relational efficiency and operational efficiency, two alternative models need to be analysed. Model 1, 2 and 3 form the base line models, as hypothesised in hypotheses 1,2 and 3. Model 4 and 5 are a model that excludes buyer-supplier collaboration level and includes a direct relationship between SRP and relational efficiency and a direct relationship between SRP and operational efficiency. Model 6 and 7 include buyer-supplier collaboration level and there are direct lines from both SRP and buyer-supplier collaboration level to relational efficiency and operational efficiency. SPSS regression analysis is used to estimate the different effects. Table 10 displays the results of the regression analysis done for the different models.

First of all, when looking at the explained variance, all R^2 values have a moderate to strong explanatory power, except for model 4 and model 5. In these models, the R^2 values have a weak explanatory power, but this is expected, because of the suggested mediating role of buyer-supplier collaboration level between SRP and operational and relational efficiency. F-values are significant, indicating that the different models are all valid. Finally, there are no signs of the presence of multicollinearity, because VIF and tolerance values are all close to one.

The next step is to assess the results of the different analyses. The results of these analyses can assess the mediating effect of buyer-supplier collaboration level, using the four conditions of Baron and Kenny (1986). These conditions are the following:

1. SRP must have a significant effect on operational efficiency and relational efficiency in model 4 and model 5
2. SRP must have a significant effect on buyer-supplier collaboration level in model 1
3. Buyer-supplier collaboration level must have a significant effect on operational efficiency and relational efficiency in model 6 and model 7
4. The effect of SRP on operational efficiency and relational efficiency must be lower in model 6 and model 7 than in model 4 and model 5

When the effect of SRP on operational and relational efficiency is not significant in model 6 and model 7, there is perfect mediation. Condition 1 is met, because SRP has a significant effect on both operational and relational efficiency. Condition 2 is met, because SRP has a significant effect on buyer-supplier collaboration level. Condition 3 is also met, because buyer-supplier collaboration level has a significant effect on both operational and relational efficiency at 99% confidence level. Condition 4 is met, because the effect of SRP on both operational and relational efficiency is lower in model 6 and model 7 than in model 3 and model 4. Finally, the effect of SRP on relational and operational efficiency is not significant in model 6 and model 7 at a 99% confidence level.

This means that all conditions are met and buyer-supplier collaboration level is a perfect mediator in the relationship between SRP and relational efficiency and the relation between SRP and operational efficiency. Therefore, hypothesis 4a is supported at a 99% significance level meaning that buyer-supplier collaboration level is a perfect mediating variable in the relationship between SRP and operational efficiency. Hypothesis 4b is also supported at a 99% significance level; buyer-supplier collaboration level is a perfect mediator in the relationship between SRP and relational efficiency.

4.2.3.3   Moderation analysis

Hypothesis 5 states that geographical distance has a positive moderating effect on the relationship between SRP and buyer-supplier collaboration level. This study tests for two-way interaction. Two-way interaction involves a dependent variable (buyer-supplier collaboration level) and an independent variable (SRP), moderated by a third variable (geographical distance). A regression analysis is run including SRP, geographical distance and the interaction term. The interaction term is SRP multiplied by geographical distance. Before calculating the interaction term, both the variables SRP and geographical distance were standardised. In order to find support for hypothesis 5, the interaction term need to be significant and negative in the regression equation. Table 11 displays the results of the regression analysis. The model has a moderate explanatory power (R^2 = 0.248) and the model is valid (significant F-value).

Dependent:	Operational efficiency
Constant	1.885 (0.147)
SRP	0.477 (0.120)
Geographical distance	-0.126 (0.763)
Interaction term	0.027(0.788)
Number of employees	-0.320 (0.125)
R^2	0.275
Model F	21.046*
*Significant at 99% significance level (two-tailed)	

Table 11: Results moderation analysis

The above table does not show a significant effect of geographical distance on the relation between SRP and buyer-supplier collaboration level. Therefore, this study cannot find support for hypothesis 5.

Additional tests where done for moderation with different scales for geographical distance to make sure geographical distance does not have any moderating effects. When constructing a 7-point Likert scale of geographical distance with countries clustered together according to their relative distance from the Netherlands, geographical distance did not have a moderating effect on the relation between SRP and buyer-supplier collaboration level. Results are displayed in table 5b in appendix 5.

When testing for the direct effects for the different countries of supplier, the results showed an interesting effect. Correlations between the different constructs of respondents with suppliers located in the Mediterranean and Eastern Europe disappeared. The regression analysis confirms this and none of the hypothesised effects were significant anymore for these respondents, except for the relation between buyer-supplier collaboration level and operational efficiency. This will not be deeper investigated, because it is not the focus of this study. It is offered as a suggestion for future research, as will be explain in section 5.3.2.

To conclude this chapter, table 12 shows an overview of the results.

Hypothesis	Support
H1: The level of socially responsible purchasing practices is positively related to the level of buyer-supplier collaboration	Yes*
H3: The level of buyer-supplier collaboration is positively related to operational efficiency.	Yes*
H3: The level of buyer-supplier collaboration is positively related to relational efficiency.	Yes*
H4a: Buyer-supplier collaboration mediates the relationship between socially responsible purchasing and operational efficiency.	Yes*
H4b: Buyer-supplier collaboration mediates the relationship between socially responsible purchasing and relational efficiency.	Yes*
H5: The effect of SRP on the level of buyer-supplier collaboration is stronger for a short geographical distance between buyer and supplier than for a large geographical distance between buyer and supplier.	No
*Significant at a 99% significance level (two-tailed)	

Table 12: Results overview

As a result of the analyses conducted, the final model has been created including all significant effects. This model shows the effect sizes (ß), *t*-values and the explained variance (R²).
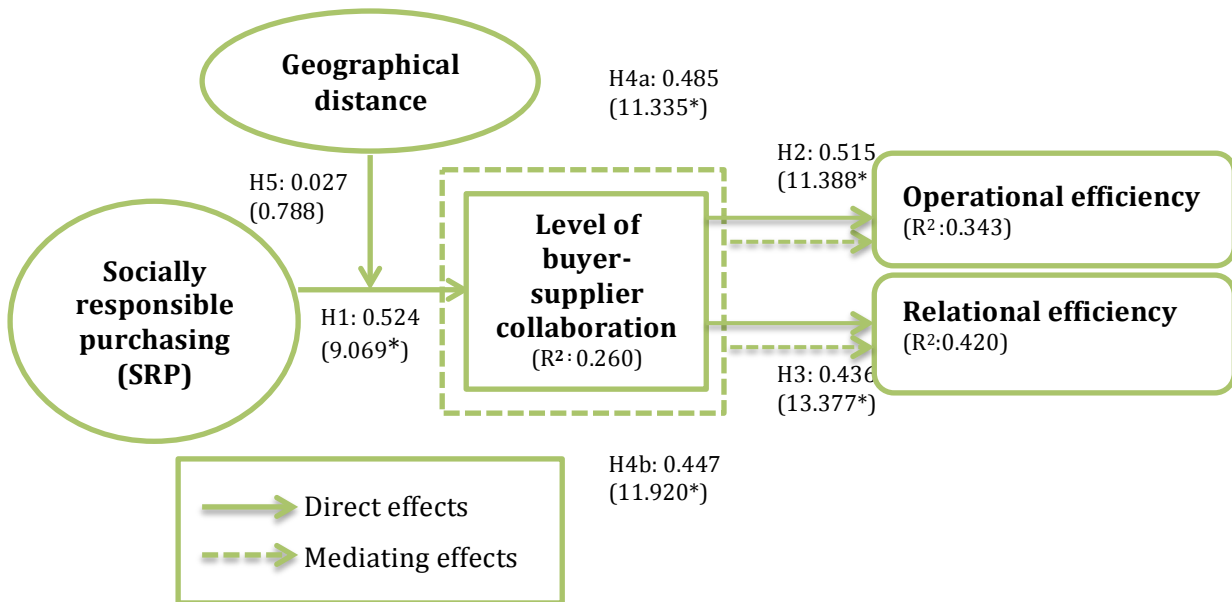
5. Discussion

This chapter will translate the results, given in the previous chapter, into conclusions and managerial implications. In addition, the results will be coupled back to the initial research question. The end of chapter will discuss the limitations and give some future research directions.

5.1 Research implications

The purpose of this study was to contribute to existing theory regarding socially responsible purchasing and firm benefits. This is done by building on the research of Carter (2005) and connecting this research to the study of Zacharia et al. (2009). This chapter will focus on answering the research question stated in the introduction of this study, which is the following:

'What is the effect of socially responsible purchasing on operational and relational efficiency of a buyer-supplier relationship and does geographical distance influence the strength of this relationship?

By means of a mail survey amongst 257 purchasing professionals working for B2B firms in the industrial goods and machinery industry in The Netherlands, this study analysed whether SRP leads to enhanced operational and relational efficiency through the mediating variable of buyer-supplier collaboration level. Additionally, the moderating effect of geographical distance on the relation between SRP and buyer-supplier collaboration level was empirically tested. All relationships were tested using regression analysis in SPSS.

After having tested and evaluated the results of the different hypotheses, the main research question guiding this paper can be answered. Socially responsible purchasing has a direct positive effect on both operational and relational efficiency. Next to this, buyer-supplier collaboration level acts as a perfect mediator in both the relationship between SRP and operational efficiency and SRP and relational efficiency. Geographical distance is not found to influence the strength of this relationship.

The next section will explain the results in more detail. Before concluding on the relationship between SRP and performance outcomes, the conceptual model is evaluated. In addition, a panel discussion is conducted in order to further validate and strengthen the results of this study.

5.2   The conceptual model

First of all, conclusions regarding the conceptual model can be made by looking at the R^2 values of the different constructs in the model. Note that only dependent constructs can have such a score. The R^2 value indicates the level of explained variance in the dependent variable and is an indication of how well the models is able to explain these variances. The model has been moderate in its ability to explain for the variance. As SRP and its impact on performance outcomes have not yet been investigated to a large extent in research, the explained variance by the model is considered to be satisfactory.

Secondly, when looking at the F-values of the different relationships, it can be concluded that all hypotheses tested have a significant F-value at a 99% significance level, meaning that the models can be considered valid. This means that the regression equation gives us a good understanding of the relationship between the dependent and the independent variables.

5.3   Managerial implications

SRP is gaining attention in both the academic and the business world. The next section will translate the results of this study into theoretical and practical implications. Before that, the results from this study are connected to experiences from the business world by means of a panel discussion among purchasing professionals. This is done in order to further verify the results.

5.3.1   Panel discussion

A panel discussion was conducted with a purchasing manager and a purchasing consultant. Both of them have much experience in purchasing within B2B industries. The panel discussion started by asking about the definition of SRP in the business world and the motivations for firms to engage in SRP. Results support the claims made in this study that firms have both intrinsic and extrinsic motivations to engage in SRP. The following quote will elaborate.

'On the one hand, SRP is internally motivated, because firms believe that SRP enhance profits in the long-term and benefits the quality of business. On the other hand, sometimes firms have to engage in SRP, because of government or consumer pressures. They have to respond and mitigate risk. My experiences are that firms who are internally motivated are more successful in SRP, than firms who are pressured to engage in SRP' (purchasing consultant, Inkoop Academie)

This quote shows that companies that are internally driven are often more successful in implementing SRP than for, who are externally driven.

An interesting finding from the panel discussion can be seen from the following quote.

'Environmental aspects of SRP have an impact on social aspects. It is not really possible to make a clear distinction between the two, because the processes are evident to each other. If a firm engages in green purchasing, they need to take the social aspect into account as well' (Marieke van Veelen, People Group)

This shows the interrelatedness of the dimensions. The results of the correlation table among the dimensions support this claim (table 8). Significant correlations exist between the environmental and social dimension. This implies that these dimensions influence each other. These results show that the concept of SRP still needs further refinement and empirical testing on what constitutes SRP and how these dimensions influence each other.

The next step was to discuss the benefits of SRP, which will be clarified by the following quote.

Implementing SRP takes time, effort and money, but the benefits absolutely outweigh the costs. Benefits of SRP are twofold; they impact the bottom line, because of costs reductions and improved product quality and they motivate employees and make them proud to work for the company. Companies are starting to recognise this, but at a very slow pace. Many companies still see SRP as a large investment without clear-cut benefits' (purchasing consultant, Inkoop Academie)

This quote shows that the business world is increasingly recognising the benefits of SRP, but it is not commonly accepted yet.

After shortly discussing the concept of SRP and the motivations of SRP, the results were presented. Generally, results of the study did not surprise the purchasing professionals, because they have similar experiences in the business world. Regarding the relationship between SRP and buyer-supplier collaboration level, the following two quotes will explain the views of the purchasing professionals.

'SRP is concerned with the whole supply chain and not only with the company itself. Many organisations do not realise that SRP is not only a part of the company itself, but impacts other partners in the supply chain as well. By collaborating with suppliers, joint benefits can be obtained by a better control, higher efficiency and quality of the different activities' (Marieke van Veelen, People Group)

The other purchasing professional support this and adds the following to this quote.

'If you want to improve the SRP results of your company, you need to cooperate with other partners in the supply chain. By sharing your knowledge, you can find the optimal solution for implementing SRP. You cannot successfully engage in SRP, without the cooperation of others (purchasing professional, Inkoop Academie)

The purchasing professionals believed that adding the variable geographical distance to the conceptual model was interesting. What was surprising for one of the purchasing professionals was the absence of the moderating effect of geographical distance on the relation between SRP and buyer-supplier collaboration, as can be seen from the following quote.

'What surprises me about the results is that geographical distance does not have an effect on SRP. You can see that firms know how to deal with geographical distances between them and their suppliers, but there are often still problems with suppliers located further away' (Marieke van Veelen, People Group)

This panel discussions shows that results are generally in line with experiences in the business world. By connecting the results of the literature review, statistical analyses and the panel discussion, managerial implications can be drawn which are explained next.

5.3.2   Collaborative efforts as a prerequisite of SRP

As has been explained in the literature review, stakeholders such as consumers and the government are increasingly expecting and pressuring firm to engage in socially responsible purchasing practices. These practices have implications for all parties in the supply chain. This study found that an enhanced unified effort is required of both buyer and supplier in order to be effective and efficient in sustainable supply chain practices and to reduce supply chain risks. A firm can make efforts to become socially responsible, but when its suppliers are not, this will harm the sustainable image of the firm. Many stakeholders do not distinguish between the SRP practices of a firm as such and the socially responsible practices of its supplier. Firms cannot escape from the liability and responsibility of socially irresponsible manufacturing processes adopted by suppliers. Therefore, to make socially responsible initiatives effective and successful, firms need to unify these practices into strategic relationships with suppliers, business partners and other stakeholders. Without this happening, a firm will not achieve excellence in social and environmental performance, because products are still not produced in a socially responsible way. Individual commitment of both buyer and supplier is hereby essential. For these reasons, the development of effective SRP practices requires a cooperative effort of both buyer and supplier.

5.3.3   Benefits of SRP

When buyers collaborate more intensively with their supplier in order to make socially responsible purchasing practices more effective, this can have both operational and relational benefits for firms. Regarding the relational benefits, this study finds that higher levels of SRP lead to higher levels of buyer-supplier collaboration. Higher levels of buyer-supplier collaboration in turn lead to significant relational efficiencies, including a higher level of trust between buyer and supplier, more respect for the skills and capabilities of the supplier, a higher level of knowledge sharing and commitment and a more effective and productive working relation between buyer and supplier. However, close buyer-supplier relationships are not always synonymous with good relationships. Anderson and Jap (2005) found that some buyer-supplier relationships that appear to be stable and doing well are vulnerable to decline and even destruction. That is why buyer and supplier should keep evaluating their relationship. This helps to create an efficient and productive relationship between buyer and supplier that allow partners to take risks, develop creative ways to expand the joint benefits of SRP and to try out new ideas.

Regarding the operational benefits of SRP, a direct effect was found between buyer-supplier collaboration level and reduced costs, enhanced quality, improved customer service, faster project results and higher customer value. This means that a higher level of buyer-supplier collaboration does not only lead to higher relational efficiencies, but also affects the bottom line of a firm.

In sum, the results of this study show that purchase managers should not be reluctant to engage in socially responsible purchasing practices. They should know that SRP is not only the 'right thing to do'. Instead, firms should understand that implementing these practices could significantly impact performance. It is important that firms are internally motivated and these practices should be implemented correctly and effectively. Short-term investments are needed to be able to receive long-term benefits. The initial costs of implementing socially responsible purchasing practices are high and often act as an internal barrier for firms to start implementing SRP (Mont and Leire, 2010). Nevertheless, purchase managers should understand that SRP can actually lead to cost reductions in the long-term. Therefore, purchase managers should invest in socially responsible purchasing practices of both their own firm and that of their suppliers. Long-term commitment and a unified cooperative effort of both buyer and supplier is required. Firms should invest time and money in intensifying the level of collaboration with their supplier. This applies for both large companies and SME's.

5.3.4 The effect of geographical distance

Geographical distance was introduced as a new construct in the topic of socially responsible purchasing. This thesis argued that SRP leads to a higher level of buyer-supplier collaboration due to more incentives to work together. This effect was expected to be stronger for buyer-supplier relationships with a small geographical distance than for buyer-supplier relationships with a larger geographical distance, as buyers tend to prefer to work together with supplier located nearby (Dyer and Chu, 2000). This study could not find support that geographical distance has a negative moderating effect on the relationship between SRP and the level of buyer-supplier collaboration.

When further investigating the effect of supplier geographical distance, an interesting result was found. All direct effects of the hypothesised relationships, except for the relationship between buyer-supplier collaboration level and operational efficiency, turned insignificant for respondents with suppliers located in the Mediterranean and Eastern Europe.

A potential reason for this effect lies in the cultural differences between The Netherlands and these countries. The cultural map displayed in figure 5, which will be explained in §5.5.4, shows a relatively large distance between The Netherlands, where this study was conducted, and Mediterranean countries such as Portugal, Italy and Spain (Waarts and Everdingen, 2006). Cultural distances between The Netherlands, German speaking countries and Scandinavia are smaller and the regression analyses of the hypothesised relationships yielded similar results for these countries. This implies that cultural distance might moderate the effect between SRP and buyer-supplier collaboration, instead of geographical distance. Section 5.5.2 will elaborate further on this.

5.3.5 Other effects

Next to the hypothesised relationships, some other effects were found to be significant in the model. First of all, the control variable firm size had a significant effect on buyer-supplier collaboration level in the regression analysis conducted for the relation between SRP and buyer-supplier collaboration level. When comparing large and SME's to each other, results indicated smaller firms have a higher level of buyer-supplier collaboration then large firms do. Additionally, smaller firms have a higher relational efficiency than larger firms do.

These effects indicate that smaller firms tend to focus more on intensifying the level of buyer-supplier collaboration. They receive higher relational efficiencies from these relationships. Literature supports this and states that SME's have potentially more to gain from partnerships than large firms do, due to their ability to use external networks more efficiently (Nooteboom, 1994). In addition, collaboration is a method for small firms to increase their purchasing power and reducing dependencies on larger firms (Morressey and Pittaway, 2006).

Large firms, on the other hand, tend to focus more on gaining operational efficiencies in these relationships instead of strengthening the level of buyer-supplier collaboration. This is in line with the results from the pilot study. The purchase manager of Shell indicated that there is less emphasis on relationship building and more on gaining operational efficiencies within relationships. The following quote will elaborate on this.

'*Shell aims to establish partnerships, but unfortunately these are mostly not long-term, because every X amount of years we look for other suppliers that can deliver better products at lower prices. I believe this is the case for all large firms' (Cees Doolaard, Shell)*

Secondly, the results of this study are not in line with the results of the study of Carter and Jennings (2004), who state that SRP consists out of five dimensions; environment, diversity, human rights, safety and philanthropy. It should be noted that the study of Carter and Jennings (2004) was an exploratory research and therefore not empirically tested.

Findings of this study from both the mail survey and the pilot study suggested that SRP only consist out of a social and an environmental dimension. The factor analysis showed that the social dimension comprises the items measuring diversity, human rights and safety. Philanthropy is not relevant in a Dutch setting according to the findings of the pilot study and was therefore excluded from the survey.

A potential explanation for the differences in results between this study and the study of Carter and Jennings (2004) is the fact that the study of Carter and Jennings (2004) was conducted in the United States, while this study was carried out in The Netherlands. Differences in corporate and national culture exist between these two countries. The cultural distance between The United States and The Netherlands is relatively large, as can be seen in figure 5. This was also suggested during an interview with a purchase manager in the pilot study.

Although the findings of this research are not in line with the study of Carter and Jennings (2004), prior research does exist which assumes that socially responsible purchasing consists out of two dimensions namely a green dimension and a social dimension. For example, Mont and Leire (2009) differentiate between green and social aspects of SRP. They argue that the social aspect of SRP focuses on upstream life cycle stages, such as production methods and conditions. They state that health and safety, human rights and diversity are aspects of the social dimensions of SRP. Green purchasing concentrates on environmental aspects of production, such as environmental features and use phase (Mont and Leire, 2009). Lobel (2006) also considers human rights, safety and diversity to fall into the same dimension in his research regarding CSR.

Finally, another unexpected effect found in this study is a direct positive effect between SRP and operational efficiency and SRP and relational efficiency. According to the knowledge of the researcher, this is the first study that found this direct effect. These effects were not expected, based on prior research, and therefore not hypothesised. Although these effects are not as strong as the effects of SRP on operational and relational efficiency through the mediating variable of buyer-supplier collaboration level, they are still significant at a 99% significance level.

All these results imply that SRP can indirectly and directly lead to substantial relational and operational benefits, when implemented successfully. The question on how firms can implement these practices successfully and efficiently remains. The next section will give a five-step approach on how firms can successfully implement SRP.

5.4   Implementation of SRP

The implementation of SRP is a long-term process and firms can expect both internal and eternal barriers on the way. Mont and Leire (2010) developed five steps on how to implement socially responsible purchasing. The steps are shown in figure 4. Four out of the five steps are conducted internally. This shows that the initiative of engaging in SRP lies at the buying organisation.

The first step is to develop and actively use an internal policy document that includes social aspects such as a code of conduct and a purchasing policy. This can be attached to the procurement contract between buyer and supplier. The policies need to include the main values of the firm and provide the purchasing department with more specific directions regarding SRP. It is important that top management understands these policies and supports them. In addition, the firm

Figure 4: Steps in implementing SRP (Mont and Leire, 2009)

should adopt a company mission that support SRP and these policies should be aligned with the firms' strategic objectives.

The second step is to develop purchasing criteria and integrate them into the specifications of the procurement contract with the supplier. The goals of the criteria should be expressed in specific measures and need to include steps in order to be able to incorporate SRP into daily routines and decisions.

The next step is to assure that the socially responsible practices are actually carried out by the firm. In an ideal situation, all suppliers are audited at least once a year. Both internal and

external auditors should be used to do this. A corrective action plan needs to be applied in case of non-compliance.

Following the results of the audits, buyers can choose whether or not to establish and built a long-term relationship with the supplier. This is needed in order to be more effective in the compliance of the SRP practices. Results of this study show the mutual benefits of working more intensively with suppliers, because it will enhance the effectiveness of SRP practices. Long-term monitoring and a frequent evaluation of the buyer-supplier relationship is important to maintain a stable and productive relationship. Sanctioning actions are sometimes needed to be able to improve the social performance of the supplier. Buyers therefore should develop clear routines and well-defined sanctions.

The last step in monitoring and strengthening SRP in the supply chain is to adjust the buyers' own internal practices in order to ensure fair working conditions for the suppliers. Due to rapidly changing business environments, suppliers are often pressured due to reduced lead times and higher quality demands. Therefore, buying firms should keep evaluating their own social practices as well.

Marieke van Veelen, expert in socially responsible purchasing, suggests that the implementation of SRP can happen top-down or bottom up, but it is important to involve all employees and supply chain partners in the process. She further states that: '*Specific measures are needed, but they need to be functional and flexible as well. The business world is rapidly changing and firms need to be able to rapidly adapt to these changes*'.

5.5   Limitations and future research suggestions

This study is subject to several limitations that are addressed in this section. Future research suggestions are given as well. Finally, generalisability of the results is discussed.

5.5.1   The concept of SRP

SRP has been measured as a second-order formative construct in this study. This differs from the approach of Carter (2005), who measured SRP as a second-order reflective construct. Although several arguments have been given that justify why SRP is claimed to be a formative construct instead of a reflective construct, the concept of SRP still needs further improvement and empirical testing. This also appeared from the results of the panel discussion.

Moreover, the factor analysis for the formative measurement model found that SRP consist out of two dimensions namely a social and environmental dimension, while the literature review suggested that SRP consisted out of five dimensions (Carter and Jennings, 2004). Future research could further empirically test and confirm whether SRP, as a higher-order construct, consist out of two dimensions instead of five.

5.5.2 Geographical distance

This study could not find support for the moderating role of geographical distance. Nevertheless, further investigation of the effect of geographical distance resulted in an interesting finding, as has been shortly explained in §5.2.3. All direct effects between the hypothesised relationships, except for the relationship between buyer-supplier collaboration level and operational efficiency, turned insignificant for respondents with suppliers located in the Mediterranean and Eastern Europe, while the same conclusions can be drawn for respondents with suppliers located in Scandinavia and German speaking countries. The cultural distance between these countries and The Netherlands is smaller than the cultural distance between The Netherlands and Mediterranean countries. This may imply that a potential moderator might be cultural distance instead of geographical distance.

It should be noted that the regression analyses also yielded similar results for respondents with suppliers based in Asia, while cultural distance is considered to be larger between Asia and The Netherlands. Future research should investigate these results to a greater extent and identify the underlying reasons for these effects.

5.5.3 Data collection

Data was collected from single respondents. They provided all information for all constructs. In addition, the sample consisted solely out of buyers and therefore adopted a buyers' perspective. Future research can conduct a similar research, but then focus on the suppliers' perspective. In this way a joint perspective can be obtained regarding the collaboration process in the context of SRP.

Another limitation of this study is the focus on a static and cross-sectional perspective. Improvements in buyer-supplier relationships can therefore not be seen and measured. If this study was replicated with the same sample, with respondents providing an initial perspective, before the joint effort to engage in SRP and their perspective after some time, this could add credibility to the results. That is why a longitudinal study might be of added value.

Moreover, although steps have been taken to make sure that non-response bias is not a problem in this study, no rigorous tests have been conducted to strengthen this type of validity. The non-response bias assessment strategy of Rogelberg and Stanton (2007) offers nine ways to reduce and check for non-response bias. This study adopted one way of Rogelberg and Stanton (2007) strategy in order to reduce non-response bias namely wave analysis. Future research can adopt the other proposed ways as well to reduce non-response bias, thereby strengthening the validity even further.

5.5.4 Generalizability

The results of this study cannot be generalizable to all other industries and/or countries, because cultural differences exist between countries. The pilot study revealed that the dimensions philanthropy is not relevant in a Dutch setting. That is why this dimension has been deleted from the survey. The same applies more or less to the dimensions of diversity. This dimension has been adapted in the survey in order to fit the country where the study took place, which was The Netherlands.

The question then remains to where the results can be generalised. The study is conducted in the industrial goods and machinery industry in The Netherlands. It is assumed that the research sample accurately represents this population, so the results are generalisable over Dutch B2B firms. Although the results cannot be generalised to all countries, they are assumed to be valid in countries with similar cultural characteristics for the following reasons.

When comparing the results of this study with the studies of Mont and Leire (2009, 2010), there are some similarities. Mont and Leire (2009) assume that SRP falls into two separate dimensions, just like this study found. In addition, the way Mont and Leire (2010) suggest to implement socially responsible purchasing practices is similar to the way it was suggested during the panel discussion with Dutch purchasing professionals.
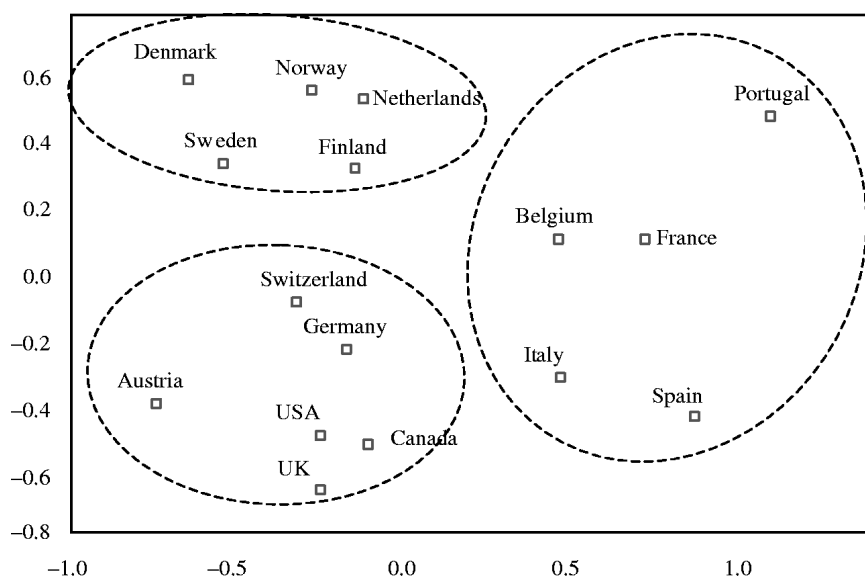
Figure 5: Cultural clusters based on Hofstede and Hall scores (Waarts and Everdingen, 2006)

Next to the similarities in results, similarities exist between corporate and national cultures of Sweden and The Netherlands according to Hofstede (1983), Hall (1976) and Waarts and Everdingen (2006). It can be expected that results are generalisable to countries with similar national and/or organisational cultures.

Figure 5 shows the map for countries with national cultures similar to the Dutch culture. As can be seen from this figure Denmark, Norway and Finland are grouped together with The Netherlands and Sweden. They are all grouped in the same cultural cluster. This map therefore provides support for the suggestion that Sweden and the Netherlands have a similar national

culture. In addition, the map shows that Finland, Denmark and Finland belong to the same cultural cluster.

Note that the dimensions on the horizontal and vertical axis are not single-item dimensions, but are composed of underlying multiple items of dimensions identified by Hall (1976) and Hofstede (1983). Therefore, the map dimensions do not have single labels, since the distance of items on a map reflect a compound measure of similarity (Waart and Everdingen, 2006).

According to these findings, it is assumed that the results from this study are generalizable for firms active in the industrial goods and machinery industry of these countries. Nevertheless future research needs to confirm this.

In sum, future research can further test and improve the concept of SRP. In addition, this research can be replicated in other industries and countries in order to further generalize the results. Despite these limitations and limited generalizability, the results of this study clearly show that SRP can lead to significant performance benefits for the buying company. The limitations and future research suggestions indicate potential for further improvements of the measurement models and the structural model. The study in itself is a compelling case for the operational and relational benefits firms can obtain by engaging in SRP practices.

6. Conclusion

The on-going debate on whether socially responsible supply chain practices lead to enhanced performance has been going on since Friedman (1970). He claimed that firms do not have a social responsibility to anyone else but its shareholders. However, the business world has changed since 1970. Customers and governments are increasingly expecting and demanding firms to take responsibility for their actions. Corporate social responsibility has gained increased attention in the past decade in both the academic and the business world, but findings on the benefits of engaging in socially responsible practices have been mixed. In line with the mixed findings in the academic world, purchase managers do not always see the potential benefits of engaging in SRP practices. Understanding that SRP can actually improve performance outcomes can be an eye opener for many purchase managers and an incentive for firms to start implementing socially responsible purchasing practices.

The results of this study are therefore relevant, because it shows how SRP can directly and indirectly lead to improved relational and operational outcomes. These results should therefore trigger purchase managers to see the benefits and to engage in these practices. This is simply because the long-term operational and relational benefits outweigh the short-term costs.

7. References

Alexander, J.G. and Buchholz R.A. (1978). Corporate social responsibility and stock market performance, *Academy of Management Journal,* 21(3), pp. 479-486

Alvarez-Gil, M.J., Burgos-Jimenez, J. and Cespedes-Lorente, J.J. (2001). An analysis of environmental management organizational context and performance of Spanish hotels, *Omega,* 29(1), pp. 457-471

Ambos, T.C. and Ambos, B. (2009). The impact of distance on knowledge transfer effectiveness in multinational corporations, *Journal of International Management,* 15(1), pp. 1-14

Anderson, E. and Jap, S.D. (2005). The dark side of close relationships. *MIT Sloan Management Review*, 46(3), pp. 75-82

Angue, K. and Mayrhofer, U. (2010). International R&D cooperation: the effects of distance on the choice of the country of partners, *Management,* 13(1), pp. 2-37

Armacost, R.L., Hosseini, J.C., Morris, S.A. and Rehbein K.A. (1991). An empirical comparison of direct questioning, scenario and randomized response methods for obtaining sensitive business information, *Decision Sciences,* 22(5), pp. 1073-1090

Armstrong, J.S. and Overton, T.S. (1977). Estimating nonresponse bias in mail surveys, *Journal of Marketing Research,* 14(3), pp. 396-402

Barney, J.B. (1991). Firm resources and sustained competitive advantage, *Journal of Management*, 17(1), pp. 99-120

Barney J.B., Wright, M. and Ketchen, D.J. (2001). The resource-based view of the firm: Ten years after 1991, *Journal of Management,* 27(1), pp. 625-641

Baron, R.M. and Kenny, D.A. (1986), 'The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations," *Journal of Personality and Social Psychology*, 51 (6), pp. 1173-1182

Bergkvist, L. and Rossiter, J.R. (2007). The predictive validity of multiple-item versus single-item measures od the same construct, *Journal of Marketing Research,* 44(2), pp. 175-184

Bonte, W. (2008). Inter-firm trust in buyer-supplier relations: Are knowledge spillovers and geographical proximity relevant? *Journal of Economic Behavior & Organization,* 67(3/4), pp. 855-870

Bouquet, C. and Birkinshaw, J. (2008). Weight versus voice: How foreign subsidiaries gain attention from corporate headquarters, *Academy of Management Journal*, 51(3), pp. 577-601

Brown, T.J. and Dacin, P.A. (1997). The company and the product: Corporate associations and consumer product responses, *The Journal of Marketing,* 61(1), pp. 68-84

Campbell, J.T., Eden, L. and Miller, S.R. (2012). Multinationals and corporate social responsibility in host countries: Does distance matter? *Research Paper 2012-51, forthcoming in Journal of International Business Studies*

Carroll, A.B. (1979). A three-dimensional conceptual model of corporate social performance, *Academy of Management Review,* 4(4), pp. 497-505

Carroll, A. B. (1991). The pyramid of corporate social responsibility: Toward the moral management of organizational stakeholders, *Business Horizons*, 34(1), pp. 39-48

Carroll, A.B. (1999). Corporate social responsibility: Evolution of a definitional construct, *Business and Society*, 38(3), pp. 268-295

Carter, C.R. and Jennings, M.M. (2000). Purchasing contribution to the socially responsible management of the supply chain, *Center for Advanced Purchasing Studies*

Carter, C.R. (2004). Purchasing and social responsibility: A replication and extension, *Journal of Supply Chain Management*, 40(4), pp. 4-16

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(3/4), pp. 177-194

Carter, C.R. and Jennings, M.M. (2004). The role of purchasing in corporate social responsibility: A structural equation analysis. *Journal of Business Logistics,* 25(1), pp. 145-186

Coltman, T., Devinney, T.M., Midgley, D.E. and Venaik, S. (2008). Formative versus reflective measurement models: Two applications of formative measurement, *Journal of Business Research,* 51(1), pp. 1250-1262

Davis, K. (1973). The case for and against business assumption of social responsibilities, *Academy of Management Journal*, 2(3), pp. 312-322

Diamantopoulos, A. and Siguaw, J.A. (2006). Formative versus reflective indicators in organisational measure development: A comparison and empirical illustration, *British Journal of Management,* 17(1), pp. 263-282

Diamantopoulos, A. and Winklhofer, H.M. (2001). Index construction with formative indicators: An alternative to scale development, *Journal of Marketing Research*, 38(2), pp. 269-277.

Dillman, D.A. (1978). Mail and telephone surveys: The Total Design Method, *Wiley,* New York

Donaldson, T. and Preston, L.E. (1995). The stakeholder theory of the corporation: Concepts, evidence and implications, *Academy of Management Review,* 20(1), pp. 65-91

Dyer, J. and Chu, W (2000). The determinants of trust in supplier-automaker relationships in the U.S., Japan and Korea, *Journal of International Business Studies,* 31(2), pp. 259–285

Dyer, J.H. and Sing, H. (1998). The relations view: co-operative strategy and sources of inter-organizational competitive advantage, *Academy of Management Review,* 23(4), pp. 660-679

Eefting, M. (2010). Socially responsible purchasing and firm benefits: A relational view on buyer-supplier knowledge sharing and supplier performance, *Master thesis Rotterdam School of Management*

Ellen, P.S., Mohr, L.A. and Webb, D.J. (2000). Charitable programs and the retailer: Do they mix? *Journal of Retailing,* 76(3), pp. 393-406

Field, A. P. (2009). Discovering statistics using SPSS, *SAGE,* London: England

Freeman, E. (1994). The politics of stakeholder theory: Some future directions, *Business Ethics Quarterly,* 4(4), pp. 409-421

Freeze, R.D. and Raschke, R.L. (2007). An assessment of formative and reflective constructs in IS research, *Research Paper,* pp. 1481-1492

Friedman, M. (1970). The social responsibility of business is to increase profits, *New York Times Magazine*, pp. 32-33, 122, 126

Gold, S. Seuring, S. and Beske, P. (2009). Sustainable supply chain management and inter-organisational resources: A literature review, *Corporate Social Responsibility and Environmental Management,* 17(1), pp. 230-245

Ghemawat, P. (2001). Distance still matters: The hard reality of global expansion, *Harvard Business Review,* 79(8), pp. 137-147

Green Jr. K.W., Zelbst, P.J., Meacham, J. and Bhadauria, V.S. (2012). Green supply chain management practices: impact on performance, *Supply Chain Management: An International Journal,* 17 (3), pp. 290 – 305

Hair, J.F., Anderson, R.E., Tatham, R.L. and Black, W.C. (1998). Multivariate data analysis, *Upper Saddle River*, NJ: Prentice Hall

Hall, E.T. (1976). Beyond culture, *Anchor Press,* Garden City, NY

Hara, N., Solomon, P., Seung, K. and Sonnewald, D.H. (2003). An emerging view of scientific collaboration: Scientists perspectives in collaboration and factors that impact collaboration, *Journal of the American Society for Information Science and Technology,* 54 (10), pp. 952-965

Hofstede, G. (1983). National cultures in four dimensions: A research-based theory of cultural differences among nations, *International Studies of Management & Organization,* 13(1/2), pp. 46-74

Jarvis, C.B., MacKenzie, S.B. and Podsakoff, P.M. (2003). A critical review of the construct indicators and measurement model misspecification in marketing in consumer research, *Journal of Consumer Research,* 30(2), pp. 199-218

Kahn, K.B., Reizenstein, C. and Rentz, J.O. (2004). Sales-distribution inter-functional climate and relationship effectiveness, *Journal of Business Research,* 57(10), pp. 1085-1091

Kanter, R.R. (1994). Collaborative advantage: The art of alliances, *Harvard Business Review,* 72(7/8), pp. 96-108

Ketkar, S., Kock, N., Parente, R. and Verville, J. (2012). The impact of individualism on buyer-supplier relationship norms, trust and market performance: an analysis of data from Brazil and the U.S.A., *International Business Review,* 21(5), pp. 782-793

Koufteros, X.A., Vonderembse, M.A. and Doll, W.J. (2002). Examining the competitive capabilities of manufacturing firms, *Structural Equation Modelling,* 9(2), pp. 256-282

Law, K.S., Wong, C. and Mobley, W.H. (1998). Towards a taxonomy of multidimensional constructs, *Academy of Management Review,* 23(4), pp. 741-755

Lamming, R. and Hampson, J. (1996). The environment as a supply chain management issue, *British Journal of Management*, (71), pp. 45-62

Leach, A. (2012). Sustainable sourcing vital to attract customers, *Supply Management Daily,* November 20th 2012

Lee, H. and Choi, B. (2003). Knowledge management enables, processes and organizational performance: An integrative view and empirical examination, *Journal of Management Information Systems,* 20(1), pp. 179-228

Lee, S.M., Kim, S.T. and Choi, D. (2012). Green supply chain management and organizational performance, *Industrial Management & Data Systems*, 112(8), pp. 1148 - 1180

Litz, R.A. (1996). A resource-based view of the socially responsible firm: Stakeholder interdependence, ethical awareness and issue responsiveness as strategic assets, *Journal of Business Ethics,* 15(2), pp. 1355-1363

Lobel, O. (2006), Sustainable capitalism or ethical transnationalism: Offshore production and economic development, *Journal of Asian Economics*, 17(1), pp. 56-62

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(1), pp. 641-648

Manuj, I. and Mentzer, J. (2008). Global supply chain risk management, *Journal of Business Logistics*, 29(1), pp. 133-55

McGee, J. (1998). Commentary on 'Corporate strategies and environmental regulations: An organizing framework' by A.M. Rugman and A. Verbeke, *Strategic Management Journal*, 19(4), pp. 377-87

McGuire, J.B., Sundgren, A. and Schneeweis, T. (1988). Corporate social responsibility and firm financial performance. *Academy of Management Journal,* 31(4), pp. 854-872

Mont, O. and Leire, C. (2009). Socially responsible purchasing in supply chains: drivers and barriers in Sweden, *Social Responsibility Journal*, 5(3), pp. 388-407

Mont, O and Leire, C. (2010). The implementation of socially responsible purchasing, *Corporate Social Responsibility and Environmental Management,* 17(1), pp. 27-39

Morrissey, J.W. and Pittaway, L. (2006). Buyer-supplier relationships in small firms: The use of social factors to manage relationships, *International Small Business Journal*, 24(3), pp. 272-298

Nooteboom, B. (1994). Innovation and diffusion in small firms: Theory and evidence, *Small Business Economics*, 6 (1), pp. 327–347

Paulraj, A. and Chen, I.J. (2004). Strategic purchasing, supply management and firm performance, *Journal of Operations Management,* 25(5), pp. 505-523

Paulraj, A., Lado, A.A. and Chen, I.J. (2008). Inter-organizational communication as a relational competency: Antecedents and performance outcomes in collaborative buyer-supplier relationships, *Journal of Operations Management,* 26(1), pp. 45-64

Pava, M.L. and Krausz, J. (1996). Corporate social responsibility and financial performance: The paradox of social cost, *Quorum books*, Westport, CT

Podsakoff, P.M., MacKenzie, S.M., Lee, J. and Podsakoff, N.P. (2003). Common method variance in behavioral research: A critical review of the literature and recommended remedies, *Journal of Applied Psychology*, 88 (1), pp. 879-903

Polite, G.L., Roberts, N. and Thatcher, J. (2012). Conceptualising models using multidimensional constructs: a review and guidelines for their use, *European Journal of Information Systems,* 21(1), pp. 22-48

Priem, R. and Butler, J. (2001). Is the resource-based view an useful perspective for strategic management research? *Academy of Management Review,* 26 (1), pp. 22–40

Rao, P. (2002). Greening the supply chain: A new initiative in South East Asia, *International Journal of Operations & Production Management*, 22(6), pp. 632 – 655

Rogelberg, S.G. and Stanton, J.M. (2007). Understanding and dealing with organizational survey non-response, *Organizational Research Methods*, 10(2), pp. 195-209

Roy, S, Tarafdar, M., Ragu-Nathan, T. and Marsilac, S. (2012). The effect of misspecification of reflective and formative constructs in operations and manufacturing management research*, Journal of Business Research Methods,* 10(1), pp. 34-52

Ruiz, D.M., Gremler, D.D., Washburn, J.H. and Carrion, G.C. (2008). Service value revisited: Specifying a higher-order, formative measure, *Journal of Business Research,* 61(1), pp. 1278-1291

Sakai, M. (2010). Towards a holistic theory of corporate social responsibility excellence: An examination of the attributes and roles if organisational learning and stakeholder engagement, *Dissertation,* University of Minnesota

Schmidt, J.A. (1999). Corporate excellence in the new millennium, *Journal of Business Strategy*, 20(6), pp. 39-43

Sen, S. and Bhattacharya, C.B. (2001). Does going good always lead to doing better? Consumer reactions to corporate social responsibility, *American Marketing Association,* 38(2), pp. 225-243

Simpson, D., Power, D. and Samson, D. (2007). Greening the automotive supply chain: a relationship perspective, *International Journal of Operations and Production Management*, 27(1), pp. 28-48

Straub, G., Gefen, D. and Boudreau, M. (2000). Structural equation modelling and regression: Guidelines for research practice, *Communications of AIS*, 7(1), pp. 1-78

Tabachnick, B.G. and Fidell, L.S. (2007). Using multivariate statistics. *Pearson Education,* United States

Ullman, A. (1985). Data in search of a theory: A critical examination of the relationship among social performance, social disclosure, and economic performance, *Academy of Management Review,* 10(3), pp. 540-77

Waarts, E. and Everdingen, Y.M. (2006). Fashion retailers rolling out across multi-cultural Europe, *International Journal of Retail & Distribution Management*, 34 (8), pp. 645–657

Wagner, M., Van Phu, N., Azomahou, T. and Wehrmeyer, W. (2002). The relationship between the environmental and economic performance of firms: An empirical analysis, *Corporate Social - Responsibility and Environmental Management,* 9(3), pp. 133-146

Werner, O. and Campbell, D.T. (1970). Translating, working through interpreters and the problem of decentering: A handbook of methods in cultural anthropology, *American Museum of Natural History*, New York, NY

Wernerfelt, B. (1984). A resource-based view of the firm, *Strategic Management Journal,* 5(2), pp. 171-180

Worthington, I. (2009). Corporate perceptions of the business case for supplier diversity: How socially responsible purchasing can 'pay', *Journal of Business Ethics,* 90(1), pp. 47-60

Vance, S. (1975). Are socially responsible corporations good investment risks? *Managerial Review*, 64(8), pp. 18-24

Vasileiou, K. and Morris, J. (2006), The sustainability of the supply chain for fresh potatoes in Britain, *Supply Chain Management: An International Journal*, 11(4), pp. 317-327

Zacharia, Z.G, Nix, N.W. and Lusch, R.F. (2009). An analysis of supply chain collaboration and their effect on performance outcomes, *Journal of Business Logistics,* 30(2), pp. 101-124

Zelbst, P., Green, K. Jr, Sower, V. and Abshire, R. (2010). Relationships among market orientation, JIT, TQM, and agility, *Industrial Management & Data Systems*, 110(5), pp. 637-58

Zhu, Q., Sarkis, J. and Geng, Y. (2005). Green supply chain management in China: Pressures, practices and performance, *International Journal of Operations & Production Management,* 25(5/6), pp. 449-468

8. Appendices

Appendix 1: Survey

The next tables show the survey questions for each scale item for the different constructs. The survey consists out of 34 questions. Before starting the questionnaire, some instructions are given to the respondents, which are shown below. Seven–point Likert scales are anchored by *to no extent whatsoever* to *to a very great extent* for each construct except for the construct of geographical distance, the key informant issue variables and the control variable.

Scale used: Seven-point Likert scale:

1	2	3	4	5	6	7
To no extent whatsoever	To a very small extent	To a small extent	To a moderate extent	To a fairly great extent	To a great extent	To a very great extent

Instructions for respondents:

Some companies integrate environmental and social aspects in a wide range of their business activities including purchasing activities with strategic suppliers. Can you indicate to what extent the purchasing function of your company engages in the following business activities?

Construct: Sustainable purchasing (SP)

SP1	Environment: 1. Our purchasing function uses a life-cycle analysis to evaluate the environmental friendliness of products and packaging 2. Our purchasing function participates in the design of products for recycling or reuse 3. Our purchasing function asks suppliers to commit to waste reduction goals 4. Our purchasing function reduces packaging material 5. Our purchasing function has reduced the amount of energy and/or water consumption over the past two years **6.** Our purchasing function participates in the design of products for disassembly (deleted from questionnaire according to results of the pilot study)	Carter and Jennings (2004) Carter, 2005 Pilot study
SP2	Diversity: 1. Our purchasing function has a formal minority/women owned business enterprise supplier purchase program 2. Our purchasing function purchases from minority/women owned business enterprise (MWBE) suppliers (deleted from questionnaire according to results of the pilot study)	Carter and Jennings (2004) Carter, 2005 Pilot study
SP3	Safety: 1. Our purchasing function ensures that suppliers'	Carter and Jennings (2004)

	locations are operated in a safe manner 2. Our purchasing function ensures the safe incoming movement of products to our facility	Carter, 2005 Pilot study
SP4	Human rights: 1. Our purchasing function visits suppliers' plants to ensure that they are not using sweatshop labour 2. Our purchasing function ensures that suppliers comply with **European** child labour laws (adapted in questionnaire according to results of the pilot study) 3. Our purchasing function asks suppliers to pay a "living wage" greater than a country's or region's minimum wage	Carter and Jennings (2004) Carter, 2005 Pilot study
SP5	Philanthropy/community (construct deleted from questionnaire according to results of the pilot study): 1. Our purchasing function volunteers at local charities 2. Our purchasing function donates to philanthropic organisations	Carter and Jennings (2004) Carter, 2005 Pilot study

As you respond to the following questions, think about your most recent collaboration effort with another, preferably foreign, strategic supplier.

Construct: Level of Collaboration (CL)

CL1	Joint decision making: 1. We made joint decisions on most issues when working together with this supplier	Lee and Choi, 2003 Zacharia et al., 2009 Pilot study
CL2	Free flow of novel ideas: 1. There was a free flow of novel ideas when working together with this supplier	Lee and Choi, 2003 Zacharia et al., 2009 Pilot study
CL3	Openness to new ways of thinking: 1. There was an openness to new ways of thinking when working together with this supplier	Lee and Choi, 2003 Zacharia et al., 2009 Pilot study
CL4	Openness to discovering new knowledge: 1. There was an openness to exchanging information when working together with this supplier	Lee and Choi, 2003 Zacharia et al., 2009 Pilot study
CL5	Free flow of useful ideas: 1. Together with this supplier, we actively produced useful ideas	Lee and Choi, 2003 Zacharia et al., 2009 Pilot study
CL6	Openness to ways to improve joint performance: 1. There was an openness to ways to improve joint performance when working together with this supplier	Lee and Choi, 2003 Zacharia et al., 2009 Pilot study

As you respond to the following questions, think about the outcomes of the collaboration effort with this strategic supplier.

Construct: relational efficiency

RE1	Level of trust: 1. This supplier is considered trustworthy	Lee et al., 2012 Zacharia et al., 2009 Pilot study
RE2	Respect for the skills and capabilities 1. Our firm has respect for the skills and capabilities of the supplier	Lee et al., 2012 Zacharia et al., 2009 Pilot study
RE3	Open sharing of knowledge: 1. This supplier shares its knowledge with us	Lee et al., 2012 Zacharia et al., 2009

	2. There is a possibility with this supplier to exchange confidential information	Pilot study
RE4	Effectiveness working relationship: 1. We have an effective working relationship with this supplier	Lee et al., 2012 Zacharia et al., 2009 Pilot study
RE5	Commitment to work together in the future: 1. There is a commitment to work together in the future	Lee et al., 2012 Zacharia et al., 2009 Pilot study
RE6	Productiveness working relationship: 1. The time and effort maintaining this supplier relationship is worthwhile	Lee et al., 2012 Zacharia et al., 2009 Pilot study

Construct: operational efficiency

OE1	Costs: 1. Total costs have been reduced since working with this supplier	Lee et al., 2012 Zacharia et al., 2009 Pilot study
OE2	Quality: 1. Overall product quality has been improved since working with this supplier	Lee et al., 2012 Zacharia et al., 2009 Pilot study
OE3	Customer service: 1. Customer service has improved since working with this supplier	Lee et al., 2012 Zacharia et al., 2009 Pilot study
OE4	Speed project results: 1. Project duration has been reduced since working with this supplier	Lee et al., 2012 Zacharia et al., 2009 Pilot study
OE5	Cycle or lead time: 1. Cycle time has been reduced since working with this supplier (Deleted from questionnaire according to results of the pilot study)	Lee et al., 2012 Carter, 2005 Zacharia et al., 2009 Pilot study
OE6	Customer value: 1. Our firm has delivered greater value to our customers since working with this supplier	Lee et al., 2012 Zacharia et al., 2009 Pilot study

Construct: Geographical distance

	Question for respondent	Operationalisation:	
GD1	In which country and city is this supplier located?	Distance in kilometres between the two cities of the buyer and supplier	Bouquet and Birkinshaw, 2008

Key informant issue and control variable

1.	How many years have you been active in the purchasing department of this organisation?	1= Less than 1 year 2= 1-3 years 3= 3-5 years 4= More than 5 years	Carter and Jennings, 2004 Pilot study
2.	How involved do you consider yourself to be in the purchasing department?	1=Only somewhat involved 7=Very much involved	Carter and Jennings, 2004 Pilot study
3.	What is the number of employees working for this organisation?	1= Less than or equal to 500 employees 2= More than 500 employees	Paulraj et al., 2008 Pilot study
4.	What is the annual sales volume?	1= Less than or equal to €100 million 2= More than €100 million	Paulraj et al., 2008 Pilot study

Appendix 2: Data cleaning

Table 2a: Test for non-response bias

Correlation table: early respondents

Construct		1	2	3	4
1	SRP	1			
2	Buyer-supplier collaboration level	0.422*	1		
3	Operational efficiency	0.379*	0.560*	1	
4	Relational efficiency	0.237*	0.622*	0.605*	1
	N	115	115	115	115
	Mean	4.064	3.497	3586	2.674
	Std deviation	1.122	1.258	1.033	0.844
* Significant at 99% significance level					

Correlation table: late respondents

Construct		1	2	3	4
1	SRP	1			
2	Buyer-supplier collaboration level	0.553*	1		
3	Operational efficiency	0.308*	0.602*	1	
4	Relational efficiency	0.338*	0.667*	0.653*	1
	N	142	142	142	142
	Mean	3.861	3.206	3.469	2.549
	Std deviation	1.147	1.655	1.094	0.800
* Significant at 99% significance level					

Regression analysis for early versus late respondents

	Early respondents			Late respondents		
Dependent:	Collaboration	Operational efficiency	Relational efficiency	Collaboration	Operational efficiency	Relational efficiency
	Model 1	*Model 2*	*Model 3*	*Model 1*	*Model 2*	*Model 3*
Constant	2.284 (4.363*)	1.952 (4.985*)	1.506 (5.012*)	1.205 (2.828*)	1.560 (4.494*)	1.020 (4.312*)
SRP	0.479 (5.087*)			0.557 (7.694*)		
Collaboration		0.461 (7.081*)	0.408 (8.161*)		0.567 (8.869*)	0.460 (10.540*)
Number of employees	-0.651 (-2.082**)	0.019 (0.080)	-0.227 (-1.224)	-0.132 (-0.545)	0.079 (0.363)	0.048 (0.749)
R^2	0.209	0.314	0.3895	0.307	0.363	0.416
F	14.786*	25.655*	36.617*	30.839*	39.524*	55.912*
* Significant at 99% significance level (two-tailed)						
** Significant at 95% significance level (two-tailed)						

Moderation analysis

	Early respondents	Late respondents
Dependent:	Collaboration	Collaboration
Constant	2.248 (2.695*)	1.006 (1.569)
SRP	0.534 (5.000*)	0.569 (7.186*)
Geographical distance	-0.011 (-0.062)	-0.008 (-0.059)
Interaction term	-0.030 (-0.272)	0.059 (0.595)
Number of employees	-0.782 (-2.252**)	0.017 (0.067)
R²	0.255	0.311
Model F	7.880*	14.103

*Significant at 99% significance level (two-tailed)
** Significant at 95% significance level (two-tailed)

Table 2b: Normality of data: Geographical distance
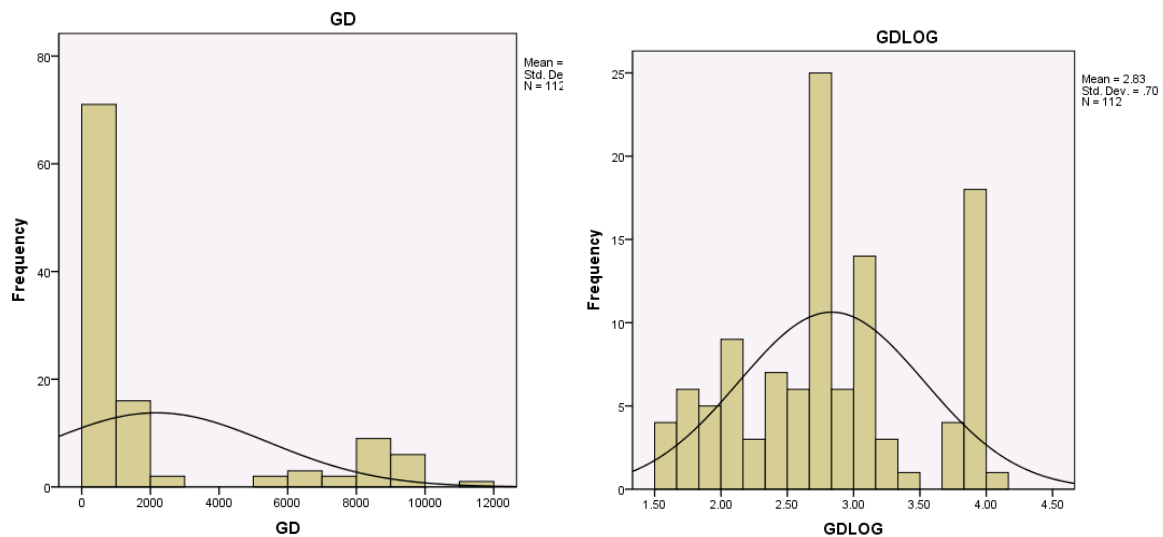
After transformation into a log of the data of geographical distance.

Table 2c: Common method variance

Total variance explained		
Factor	**% of Variance**	**Cumulative %**
1	39.299	39.299
2	12.874	52.173
3	5.773	57.946
4	5.289	63.235
5	3.676	66.911

Appendix 3: Assessment reflective constructs

Table 3a: Factor analysis reflective constructs

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.934
Bartlett's Test of Sphericity	df	153
	Sig.	.000

Rotated Component Matrix[a]		
	Component		
	1	2	3
RE1	.845		
RE2	.820		
RE5	.792		
RE6	.752		
RE7	.711		
RE3	.660		
RE4	.649		
CL2		.866	
CL3		.841	
CL1		.777	
CL4		.772	
CL5		.765	
CL6		.649	
OE3			.813
OE4			.801
OE5			.737
OE2			.655
OE1			.502

Appendix 4: Assessment formative construct

Table 4a: Factor analysis first-order reflective dimensions of SRP

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.911
Bartlett's Test of Sphericity	df	55
	Sig.	.000

Rotated Component Matrix[a]		
	Component	
	1	**2**
HR2	.837	
SAF1	.799	
HR1	.795	
HR3	.774	
SAF2	.533	
DIV1	.492	
ENV4		.771
ENV5		.769
ENV2		.712
ENV1	.549	.632
ENV3	.574	.600

Appendix 5: Hypotheses testing

Table 5a: Differences in results for small-medium sized firms versus large firms

Correlation table: SME's

	Construct	1	2	3	4	5
1	SRP	1				
2	Buyer-supplier collaboration level	0.479*	1			
3	Operational efficiency	0.350*	0.581	1		
4	Relational efficiency	0.319*	0.644*	0.638*	1	
5	Geographical distance	-0.008	-0.026	0.107	0.128	1
	N	213	213	213	213	213
	Mean	3.989	3.393	3.553	2.625	
	Std deviation	1.146	1.218	1.080	0.833	

* Significant at 99% significance level

Correlation table: large firms

	Construct	1	2	3	4	5
1	SRP	1				
2	Buyer-supplier collaboration level	0.487*	1			
3	Operational efficiency	0.159	0.465*	1		
4	Relational efficiency	-0.132	0.501*	0.615*	1	
5	Geographical distance	-0.316	-0.126	0.033	0.288	1
	N	34	34	34	34	30
	Mean	3.791	2.935	3.366	2.364	3.074
	Std deviation	1.052	0.789	0.994	0.603	0.524

* Significant at 99% significance level

Regression analysis for small-medium sized firms versus large firms

	SME's			Large firms		
Dependent:	**Collaboration**	**Operational efficiency**	**Relational efficiency**	**Collaboration**	**Operational efficiency**	**Relational efficiency**
	Model 1	*Model 2*	*Model 3*	*Model 1*	*Model 2*	*Model 3*
Constant	1.360 (5.102*)	1.807 (10.094*)	1.133 (8.725*)	1.550 (3.409*)	1.645 (2.746*)	1.241 (3.495*)
SRP	0.510 (7.936*)			0.365 (3.156*)		
Collaboration		0.515 (10.363*)	0.440 (12.215*)		0.586 (2.971*)	0.383 (3.273*)
R^2	0.230	0.337	0.414	0.237	0.216	0.251
F	62.973*	107.382*	149.196*	9.963*	8.824*	10.713*

* Significant at 99% significance level (two-tailed)
** Significant at 95% significance level (two-tailed)

Moderation analysis for small-medium sized firms versus large firms

	SME's	Large firms
Dependent:	**Collaboration**	**Collaboration**
Constant	1.413 (2.957*)	1.322 (1.170)
SRP	0.531 (7.508*)	0.464 (3.024*)
Geographical distance	-0.041 (-0.329)	-0.022 (-0.078)
Interaction term	-0.030 (-0.376)	0.123 (0.911)
R²	0.237	0.273
Model F	19.005*	3.256**
*Significant at 99% significance level (two-tailed) ** Significant at 95% significance level (two-tailed)		

Table 5b: Moderation analysis alternative scale geographical distance

Dependent:	**Operational efficiency**
Constant	1.3294 (2.790*)
SRP	0.514 (6.205*)
Geographical distance	-0.017 (-0.400)
Interaction term	-0.016 (-0.162
Number of employees	-0.096 (-0.162)
R²	0.278
Model F	11.166*
*Significant at 99% significance level (two-tailed)	