SOCIALLY RESPONSIBLE SUPPLIER DEVELOPMENT AND ORGANIZATIONAL PERFORMANCE: EVIDENCE FROM CHINA MANUFACTURERS

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CERTIFICATE OF ORIGINALITY

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ABSTRACT

Some recent ethical incidents such as melamine-tainted milk, lead-tainted toys, and fake medicines reveal that suppliers' unethical behaviour not only badly impact on their own performance, but also cause significant and broad damage to the buying firms. Existing research, however, offers very limited insights into categorizing this kind of supply chain risk and mitigating it effectively. Based on the literature on supply chain risk and stakeholder theory, we develop a new category of supply chain risk called supply ethical risk, which is about the possibility that suppliers engage in unethical behaviours because of their lack of concerns towards stakeholders. Regarding the means for mitigating supply ethical risk, corporate social responsibility (CSR) is a widely recognized approach for organizations to enhance ethical performance, whereas supplier development (SD) is considered as an effective approach for buying firms to improve the capabilities of their suppliers. By integrating the concepts of CSR and SD, we propose that buying firms can enhance suppliers' CSR adoption capabilities and ethical performance by adopting a new approach called socially responsible supplier development (SRSD), which refers to a buying firm's concerted supplier development efforts on improving its important suppliers' CSR adoption capabilities.

We then develop a number of hypotheses concerning the direct relationships between SRSD adoption, CSR adoption, and various performance-related outcomes (e.g., supply ethical risk, operational performance, financial performance) of the buyer and supplierinvolved in the SRSD programme. In order to provide more precise insights to the literature and practitioners, we also develop several hypotheses on how some of the

hypothesized direct relationships are moderated by various pertinent organizational theories, including social capital and market turbulence.

To test the hypotheses, we collect survey data from four manufacturing industries, namely food, pharmaceutical, automotive and clothing industries, in China. We employ both qualitative (e.g., expert panel discussions and a pilot test) and quantitative (e.g., statistical techniques such as reliability test and confirmatory factor analysis) approaches to develop the research instruments. In total, we collected survey data from 200 matching pairs of buyers and suppliers. We use Structural Equation Modelling (SEM) to analyze the data and test the hypotheses of this research.

The results concerning the direct-effect hypotheses indicate that buyer's CSR adoption is an antecedent to its SRSD adoption and that its SRSD adoption leads to supplier's CSR adoption. We also find that supplier's CSR adoption directly or indirectly leads to a reduction in supply ethical risk and improvements in several performance outcomes of both the buyer and the supplier. Regarding the analyses on the moderating-effect hypotheses, the results indicate that some of the examined theories have moderating effects on the direct relationships concerned. Overall, this research offers concrete empirical evidence that SRSD is an effective approach to mitigate supply ethical risk and enhance the performance of the organizations involved. The results regarding the moderating-effect hypotheses extend the literature on four examined theories and provide guidelines to practitioners on the important factors to consider when making SRSD-adoption decisions.

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LIST OF ABBREVIATION

NGOs	Non-GovernmentOrganizations
CSR	Corporate Social Responsibility
SD	Supplier Development
SRSD	Socially Responsible Supplier Development
SEM	Structural Equation Modelling
OM	Operations Management
TCE	Transaction Cost Economics
SAIC	State Administration for Industry and Commerce of the People's Republic of China
SFDA	State Food and Drug Administration
CFIN	China National Food Industry Association
CAAM	China Association of Automobile Manufacturers
GFI	Goodness of Fit Index
RMSEA	Root Mean Square Error of Approximation
NFI	Normed Fit Index
TLI	Tucker-Lewis Index
NNFI	Non-normed Fit Index
CFI	Comparative Fit Index
CFA	Confirmatory Factor Analysis
AVE	Average Variance Extracted
CR	Construct Reliability

CHAPTER 1: INTRODUCTION

1.1 Background

Many ethical scandals have recently come to light in China and resulted in detrimental consequences to both organizations and customers. For instance, it has been revealed that in order to accelerate the growth of animals and obtain more profits from lean meat, farmers in China tainted meat products with clenbuterol which created many toxic pig products (The Washington Times, 2011). Other similar incidents include the scandal of melamine in dairy products and ingredients (BBC, 2009) and the product recalls associated with lead-tainted toys (Teagarden and Hinrichs, 2009). Investigations suggest that the problems start from suppliers. Indeed, these suppliers' buying firms such as Shuanghui (a large-scale meat-processing company), Sanlu (a state-owned dairy products company) and Mattel (a multinational toy company) have suffered broad and long-term damage on the corporate performance and reputation. Thus, it is suggested that the unethical behaviours of suppliers could be critical threats for buying firms. In this study we argue that such supplier-related threats should be a critical category of supply chain risk and conceptualize them as supply ethical risk which refers to the possibility that suppliers simply fulfil the technical requirements of direct customers but fail to address the concerns of relevant stakeholders, including product end-users, employees, the general public, regulators, and non-government organizations (NGOs).

The literature relating to supply chain risks in general focuses on offering ideas on how to manage and mitigate risks associated with material disruptions (e.g., Kleindorfer and Saad, 2005; Craghead et al., 2007; Hendrick et al., 2009). Despite the importance of

supply ethical risk, studies on supply ethical risk have been scant. Indeed, some organizations have intended to manage the unethical behaviour of suppliers by specifying ethical standards as a precondition for tendering to supply, or as part of the assessment in the purchasing decision (Baden et al., 2009). However, Lee and Kim (2009) have pointed out that suppliers may still have difficulties in improving ethical performance according to buyers' requirements because they lack social responsibility consciousness, the knowledge and/or capital required in implementing the necessary changes.

Within the literature of management, corporate social responsibility (CSR) is the most widely recognized approach to improve the ethical performance of organizations, and supplier development (SD) is considered as an effective approach for buying firms to improve the capabilities of suppliers. Indeed, much empirical evidence has been available in the literature to support the effectiveness of CSR and SD in enhancing corporate ethical performance (e.g., Lockett e al., 2006) and supplier capabilities (e.g., Krause et al., 2007) respectively. Yet the literature provides very little empirical evidence on how buying firms can implement SD practices to improve their key suppliers' CSR adoption capabilities. By integrating the concepts of SD and CSR, we propose that buying firms could induce suppliers to implement CSR by adopting a new approach called socially responsible supplier development (SRSD), which refers to concerted supplier development efforts to improve the key suppliers' capabilities in implementing CSR practices and their ethical performance.

1.2 Research Objectives

The objective of this study is to investigate the relationships between SRSD adoption, CSR adoption and the performance of both buyers and suppliers involved. We also intend to offer more precise insights to the literature and practitioners by exploring how some of the more important direct relationships are moderated by the concepts of some relevant organizational theories. More specifically, we attempt to achieve the following four research objectives:

(1) To develop an instrument for measuring SRSD adoption and test its relationship with CSR adoption;

(2)To propose and empirically test the relationship between CSR adoption in the supplier and a series of performance outcomes in the buyer and supplier;

(3) To examine the moderating effect of social capital theory on the relationship between buyer's CSR adoption and SRSD adoption;

(4)To examine the moderating effect of market turbulent on the relationship between SRSD adoption and supplier's CSR adoption;

The expected contributions of this research to theory and practice are four-fold. First, it addresses therecent supplier-related ethical problems by developing an approach of SRSD that offers practicalinsights to practitioners on how to take a proactive role in enhancing the ethical practices andperformance of suppliers. Second, it extends both the operations and supply managementliterature and the business ethics literature by introducing and developing the SRSD concepts. Third, it offers empirical evidence to

demonstrate the performance implicationsof SRSD practices in settings of buyer-supplier relationships. Finally, detailed insights concerning how theories including social capital and market turbulence may moderate the linkages between SRSD and other major constructs of this research are provided as well.

1.3 Research Setting

The setting of this research is he manufacturing industries in China. China is the largest emerging economy in the world with exports of US$428.6 billion (Zhao et al., 2008). As a primary location for international outsourcing, China accounts for over 50% of total output value in the global manufacturing industry (Zhao et al., 2006; Liu et al., 2009). Since China's accession to the World Trade Organization in 2001, the government of China started to pay increasing attention to organizations' CSR practices implementation in order to address problems relating to product safety and enhance the reputation of Chinese organizations in the global market (Ip, 2009). For instance, the State Council started to require state-owned enterprises in China to incorporate social responsibility concerns into their business strategies and regularly issue CSR and sustainability reports from 2008 (SASAC, 2011). In addition, more efforts have been made on ethical standard establishment and product safety inspection by most organizations in China (Gao, 2009). Thus, manufacturing industries in China might have been under pressure to improve ethical performance and are willing to spend resources exploring different means, such as supplier collaboration, for achieving better performance in this respect.

Specifically, four industries in China were selected including food, pharmaceutical, automotive and clothing based on two reasons. First, the product safety incidents occurred in these industries may lead to severe crisis as their end-products are daily supplies to consumers including children or infants. Thus, developing social and environmental considerations in these industries is of great importance. Second, according to the information from the *China Statistics Yearbook* in 2010, the value of export products in 2009 was US$7.1 billion in food, US$2.2 billion in pharmaceutical, US$4.3 billion in automotive and US$26.1 billion in clothing. The data indicates the important role of these four industries in the international markets.

1.4 Research Plan

The hypotheses of this research were developed primarily based on an intensive review of the relevant literature. When developing the concepts and survey items for the two new concepts (i.e. SRSD and supply ethical risk), we also used the information collected through a panel discussion with a number of experts in China, including two senior managers, one university professor two government officials and one publisher editor. In order to examine all survey instruments, a pilot study with 40 managers of 20 pairs of buyers and suppliers in the four selected manufacturing industries was conducted. After revising the survey instruments by using feedback from the pilot study, the buyer survey was first conducted. The buyers participated in the survey were requested to focus on an important supplier when filling in the survey items and to provide contact information of that particular supplier. Based on the supplier information provided by the buyers, a supplier survey was then conducted. Data of a total of 200 pairs of buyer-supplier

relationships was collected. In the data analysis stage of this research, we first examined data accuracy by using a number of validation techniques such as reliability test and the measurement model analysis of Structural Equation Modelling (SEM). Second, we tested the direct-effect hypotheses of this research by using the structural analysis of SEM. Finally, the moderating-effect hypotheses were tested by using the multiple-group analysis of SEM.

1.5 Organization of the Thesis

There are six chapters in this research and the overview of each chapter is presented as follows:

Chapter 1 introduces the background, objectives, research objectives, and outlines the research plan and structure of this thesis. The ethical incidents and supply ethical risk in China are discussed in details.

Chapter 2 is a review of the literature about supply ethical risk, CSR, and SRSD in the fields of Operations Management (OM), supply chain management, organizational behaviour and marketing. The theories ofsocial capital and market turbulence at the organizational level are addressed as the moderators on some of the major relationships in the conceptual model.

Chapter 3 describes the instrument used for measurement development and the methodology adopted in the data analysis. Issues concerning the research design,

questionnaire development and distribution, sample characteristics, instrument development, data validation are discussed in details.

Chapter 4 reports the results of the structural analysis test. Using SEM, the hypothesized relationships between SRSD, CSR adoption level and organizational performance of buyers and suppliers are analyzed. Implications of the results are also presented.

Chapter 5 examines the moderating effects of social capital and market turbulence by using the multiple-group analysis of SEM. The results of analysis and interpretations are then discussed.

Chapter 6 concludes the key findings in this research and emphasizes the significance of this research. The implications for both academics and practitioners are presented concerning how to mitigate supply ethical risk and improve organizational performance by adopting SRSD. Directions for further research are also identified.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of the relevant literature to provide the theoretical background and empirical evidence for this study. It consists of four parts. The first part introduces the concepts and constructs of supply ethical risk, socially responsible supplier development (SRSD) and corporate social responsibility (CSR). In the second part, in order to investigate the effectiveness of SRSD in enhancing suppliers' CSR adoption capabilities and organizational performance, we develop a number of hypotheses concerning the relationships among SRSD adoption, buyer's CSR adoption, supplier's CSR adoption and various performance outcomes. The third part provides more precise information about SRSD adoption by developing hypotheses on how the relationships between buyer's CSR adoption and SRSD adoption and between SRSD adoption and supplier's CSR adoption are moderated by factors pertinent to theories includingsocial capital and market turbulence. Finally, we conclude the chapter by summarizing all hypotheses posited and presenting them in a conceptual model in Figure 2.1.

2.2 Conceptual Background

2.2.1 Supply ethical risk

The importance of and the increasing number of incidents involving supply chain risk has attracted increasing attention of operations and supply chain management researchers. For instance, Wagner and Bode (2008) labelled supply chain disruptions as supply chain risk sources and empirically tested the relationships between supply chain

disruptions and supply chain performance. Kleindorfer and Saad (2005) proposed frameworks for analyzing and mitigating disruption resulting from supply chain risk. Craghead et al. (2007) suggested how the severity of supply chain disruption is related to the design characteristics and mitigation capabilities of a supply chain. Jiang et al. (2009) explored the labour problems in China's export factories and ways to assist managers in dealing with labour-related disruption problems. Ellis et al. (2010) identified and tested the relationships among representations of supply disruption risk, the situational factors that drive these representations, and buyers' decisions to search for alternate suppliers. Some other studies include Hendricks et al. (2009), Braunscheidel and Suresh (2009), Tang and Tomlin (2008), and Blackhurst et al. (2005). The extant literature on supply chain risk in general focuses on risks relating to material disruptions.

Nonetheless, an examination on many recent supply chain risk incidents reveals that ideas on managing disruption risk may not be effective. For instance, the meat products tainted with toxic lean meat powders (The Washington Times, 2011), the scandal of melamine in dairy products and ingredients (BBC, 2009), the product recalls associated with lead-tainted toys (Teagarden and Hinrichs, 2009) and pet foods (Roth et al., 2008), and other product safety incidents including toxic toothpaste, defective tires, and fake medicine (Ip, 2009; Lu, 2009) are supply chain risk incidents that are not related to material disruptions. In these incidents, the focal organizations (i.e., manufacturers or distributors) were likely not aware of the problems during the receiving and inspection processes of the products or materials concerned. Rather, problems were discovered and reported by product end-users. We argue that the major reason behind these incidents

was a lack of ethics in the suppliers – suppliers focused on fulfilling the specification requirements of the direct customers and ignored the responsibilities towards their stakeholders.

Stakeholders refer to those individuals or groups who may affect or are affected by the organization (Donaldson and Preston, 1995). From this perspective, we observe that some risk incidents caused by the unethical suppliers have resulted in serious losses to the focal organizations. For instance, the organizational performance and reputation of Adidas, Nike, and Sainsbury have been very badly affected because of the criticisms on their failure to control labour abuses in their suppliers (Baton, 2007; Yu, 2008; Emmelhainz and Adams, 1999). That is, socially responsible organizations may suffer from ethics-related criticisms because of unethical behaviour (e.g. using child labour, non-environmental materials, etc.) of their suppliers. In this study, we conceptualize this kind of risk from the perspective of focal organizations and call it supply ethical risk which refers to the possibility that suppliers do not have adequate concerns for business ethics and fail to recognize the needs and interests of stakeholders such as product end-users, employees, the general public, regulators, and non-government organizations (NGOs) (Donaldson and Preston, 1995).

The concept of corporate social responsibility (CSR), which is often associated with the discussions of business ethics in the literature (e.g., Lockett e al., 2006), is closely relevant to the current study. This is because the belief behind CSR is that companies should consider the needs and interests of multiple stakeholder groups, not just those with a direct financial stake in the organization's profits and losses (Maignan et al.,

1999). Thus, we provide a brief review in the following section to explore the role of CSR adoption in mitigating supply ethical risk.

2.2.2 Corporate social responsibility

In the management literature, concerns for managing business ethics typically refer to the approach of corporate social responsibility (CSR) (e.g., Lockett, 2006). A number of researchers have explored the concepts of CSR from different perspectives. CSR was initially identified as the engagement of activities to increase business profits once they stay within the rules of the game – as the symptom of an agency problem between the interests of managers and shareholders (Friedman, 1970). Davis and Blomstrom (1975) then broadly conceptualized CSR as "the managerial obligation to take action to protect and improve both the welfare of society as a whole and the interest of organizations". A similar view was expressed by Freenman (1984) who emphasized that beyond managing the relationships with shareholders, CSR also embraces the responsibilities toward multiple stakeholders which affect and are affected by the actions of the organization. The early usage of this CSR definition from the stakeholder perspective indicated that strengthened relationships with stakeholders can positively influence organizations' trustworthiness (Clarkson, 1995). Furthermore, in the recent triple bottom line theory, CSR was defined as the corporate concerns about their economic profitability, environmental sustainability and social performance (Elkington, 1998). In addition, McWilliams and Siegel (2001) used a broad perspective to describe CSR as "actions that appear to further some social good, beyond the interest of the firm and that which is required by law" in their supply-demand model. Consistent with this definition, the review study conducted by Beurden and Gössling (2008) suggested that the three

elements involved in the concept of CSR were legitimacy, public responsibility and managerial discretion. In sum, these reviews show that in the past decades, researchers of business ethics paid great attention to the conceptualization of CSR and most studies attributed the essentials of CSR to the stakeholders and social concerns.

Concerning the performance impacts of CSR adoption, different theories provide distinct explanations for its beneficial returns. By integrating the propositions in the agency theory, the beneficial returns of CSR are identified to be agency and transaction costs reduction which is derived from mutual trusts and cooperative relationships between organizations and their stakeholders (Jones, 1995). From the resource-based view, CSR engagement is strongly linked to the creation of corporate reputation, which is considered to be an intangible resource leading to a sustainable competitive advantage (Russo and Fouts, 1997). With the mounting importance of CSR in the international market, based on the institutional theory, the adoption of CSR can help organizations become isomorphic with current institutional environment and catch more business opportunities (Doh and Guay, 2006). From the stakeholder perspective, CSR helps build better relations with primary stakeholders, increase employee commitment and customer satisfaction (Maignan and Ferrell, 2004).

Except for concerns regarding such performance-related influences, CSR has also been suggested as an important element in risk management in organizations (e.g., Godfrey et al., 2009; Story and Price, 2006). Specifically, CSR adoption is considered to be an effective approach to detect and prevent risk caused by the unauthorized discharge of hazardous substances into the environment and products by the organization's subsidiaries and supply chain members (Tate et al., 2010). Yet how CSR can be used as

a means to reduce ethical risk in supply chains remains a relatively unexplored area. In this study we argue that, if a supplier is committed to implementing CSR, its possibility of committing unethical behaviour should be significantly reduced. Because of the improved ethical behaviour in the supplier, supply ethical risk of the buyer should be reduced significantly. In light of these potential associations, we suggest that, in order to reduce supply ethical risk, a buyer should strategically improve important suppliers' capabilities of and commitment to CSR adoption. In the literature of supply management, a number of researchers have offered ideas on incorporating CSR concerns in various supply management activities. Carter and Jennings (2004) investigated the role of CSR in purchasing with respect to the assessment dimensions such as community, workplace, safety, and human right. Some other researchers offered more detailed ideas such as purchasing from minority business enterprises (e.g., Carter et al., 1999), and concerns for the environment (e.g., Carter and Carter, 1998) and human rights (e.g., Emmelhainz and Adams, 1999). Yet advice on how to more directly influence suppliers' ethical behaviour is very limited in the literature. There is one relevant approach in the supplier management literature –supplier development which describes the efforts by buyers to improve suppliers' performance (Krause et al., 2007). The following section discusses how to improve suppliers' CSR adoption capabilities and ethical performance by adapting the practices of supplier development.

2.2.3 Socially responsible supplier development

The term supplier development (SD) was introduced by Leenders (1966) to represent the efforts made by manufacturers to improve their suppliers' performance. More recently, SD has been widely considered as an effective approach for buyers to improve their

suppliers' capabilities and performance (Krause et al., 2007). A number of studies have offered empirical evidence that SD is effective in solving productivity and quality problems (Krause et al., 1998), and improving buyers' operational performance (Humphreys and Chan, 2004; Krause et al., 2000). Further, with increasing reciprocal interdependence between suppliers and buyers, much responsibility for supply chain performance has been placed on suppliers (Krause et al., 2000). In response to this concern, many buying firms increasingly use SD strategies to improve their suppliers' performance, through which enhances the competitiveness of the whole supply chain. In a similar vein, Humphreys and Chan (2004) provided evidence that performance improvement of both buyers and suppliers occurred as a result of SD implementation. Elements of SD could consist of knowledge transfer, performance measurement, supplier training and evaluation activities (Krause et al., 2007). Therefore, SD can facilitate the flow of tacit manufacturing and operations knowledge across organizational boundaries through diverse activities and resource allocation (Modi and Mabert, 2007). Because of the effectiveness of SD implementation, we believe that it is an appropriate base to develop a new management approach - socially responsible supplier development (SRSD) to help suppliers enhance their commitment and capabilities in CSR adoption.

We define SRSD as concerted supplier development efforts to improve the key suppliers' capabilities in implementing CSR practices and their ethical performance. Some researchers have recognized the importance of CSR adoption in key suppliers (Baden et al., 2009; Lee and Kim, 2009). Indeed, some organizations have benefitted from investing in suppliers' CSR improvement. For instance, by providing extensive training,

regular auditing, and long-term contracts incentives to key suppliers, IKEA has successfully achieved sustainability and long-term success by embedding CSR practices within the entire supply chain (Andersen and Skjoett-Larsen, 2009). In this study the dimensions entailed in the concept of SRSD are developed based on the work of Krause et al. (2007) which include information sharing, supplier evaluation and supplier development with important suppliers. In the dimension of information sharing, appropriate ethical practices are established and well interpreted between firms. Such information sharing may occur at different levels of management to facilitate the transfer of CSR knowledge in each function and the attitude change of suppliers toward CSR adoption. In the dimension of supplier evaluation, buyers put effort on assessing how suppliers implement different practices of CSR and providing feedback for future improvement. Specifically, suppliers with satisfactory implementation can receive incentives in the form of increasing order quantities. The last dimension of supplier development is concerned with a fundamental way to improve the supplier's ethical performance with direct involvement. Specifically, buyers can affect suppliers' motivation to learn and adopt CSR knowledge through face-to-face interactions in regular site visits, develop the required skills in implementing CSR practices through SRSD training activities, and foster the ethical performance goals through education provided by a dedicated supplier development team. We propose that SRSD could consist of information sharing that helps communicate the CSR knowledge between buyers and suppliers, supplier evaluation that helps disclose and guideline the improvements of CSR adoption issues, and supplier development that helps develop CSR capabilities through direct involvement from buyers.

2.3 Development of direct relationship hypothesis

2.3.1 The antecedent of SRSD adoption in the buyer

If a buying firm can successfully develop CSR capabilities internally and realize the market value of CSR adoption in the whole supply chain, it is likely that this buyer has strong willingness and adequate resources in facilitating its key suppliers to develop CSR capabilities (Andersen and Larsen, 2009). In addition, when buying firms have effectively adopted CSR practices, this implies that they have advanced knowledge and sufficient expertise to serve as a role model to demonstrate how to effectively implement CSR, and can help work jointly in solving ethical problems at different levels. If CSR adoption has been undertaken by different functions in the buying firms, this indicates that the strategic needs of CSR have been fully recognized by the top management level so that much more support will be given on the resources and time allocation specifically for improving suppliers' CSR adoption in various SRSD activities. In other words, a buying firm with a high adoption level of CSR is more likely to put more efforts on adopting SRSD for achieving collective sustainability and ethical risk reduction in the supply chain. Thus, hypothesis 1 is developed:

H1: A buyer's CSR adoption is positively related to its SRSD adoption

2.3.2 The adoption of buyer's SRSD and supplier's CSR

Based on Krause et al. (2007), three dimensions of SRSD are developed including information sharing, supplier evaluation and supplier development. Information sharing includes various communication activities of disclosing and sharing CSR knowledge to facilitate the development of CSR adoption capabilities at suppliers. Supplier evaluation includes the assessment activities which help understand the CSR adoption status and

related ethical performance of suppliers via pre-specified requirements. Some feedback can be given to the suppliers for identifying problems and solving them accordingly. Supplier evaluation also includes activities of developing and implementing an incentive mechanism. Supplier development includes varying activities directly involved by buyers for developing the CSR adoption capabilities at suppliers, such as dedicated training activities for developing required skills and knowledge in CSR adoption; joint problem solving activities for aligning strategic understanding of CSR and achieving shared ethical visions between buyers and suppliers. In sum, we argue that the adoption of SRSD can result in the development of supplier's CSR adoption capabilities and leads to improvements in ethical performance in the supplier. Thus, we propose a positive relationship between buyer's SRSD adoption and supplier's CSR adoption.

H2: A buyer's SRSD adoption is positively related to the supplier's CSR adoption.

2.3.3 Supplier's CSR adoption and supplier opportunism

In the transaction cost economics (TCE) theory, Williamson (1985) defined opportunism as "self-interest seeking with guile…the incomplete or distorted disclosure of information, especially to calculated efforts to mislead, distort, disguise, obfuscate, or otherwise confuse". Luo et al., (2009) have provided empirical evidence based on the data from China that better buyer-supplier partnerships can result in supplier opportunism reduction. The perspective of stakeholder theory suggests that CSR adoption represents the development of closer relationships between an organization and its stakeholders. Given the strong emphasis of CSR on ethics and discretionary responsibilities towards stakeholders, an organization with high CSR initiatives are logically expected to be less self-interested. Thus, when a supplier adopts CSR, it is less

likely to behave opportunistically towards its buyer. We propose that improved CSR adoption in the supplier could reduce the level of supplier opportunism.

H3: A supplier's CSR adoption is negatively related to supplier opportunism.

2.3.4 Supplier's CSR adoption and supplier's organizational performance

Facing the recent ethical incidents related to product safety and quality, much research argued that CSR adoption can facilitate the launching of high environmental standards and CSR codes (e.g. Marcus and Anderson, 2006; Lee and Kim, 2009). Further, a number of ethical-related problems can be solved so that efficiency in production and operation is improved. Thus, CSR adoption leads to better operational performance. In addition, other beneficial returns of CSR adoption include increased customer satisfaction and loyalty (Luo and Bhattacharya, 2006), enhanced employee commitment and corporate reputation (Lo et al., 2008), low financial risk and great market value (McGuire et al., 1988). These benefits together with the improved operational performance may lead to the improvement on the financial performance. Specifically, many studies have empirically linked the operational performance and financial performance with the argument that operational effectiveness enhances an organization's chances for growth and survival so as to facilitate the achievement of superior financial returns (Rosenzweig et al., 2003; Kristal et al., 2010). All these arguments lead to the following hypotheses:

H4: A supplier's CSR adoption is positively related to the supplier's financial performance.

H5: A supplier's CSR adoption is positively related to the supplier's operational performance.

H6: A supplier's operational performance is positively related to the supplier's financial performance.

2.3.5 Impacts of supplier's performance on the buyer's performance

2.3.5.1 Supplier opportunism and supplier ethical risk

In this study, we argue that supply chain risk is caused by suppliers who fail to address the concerns of stakeholders such as product end-users, employees and the general public. When opportunistic behaviour is derived from an organization's self-interests seeking without concerns of its multiple stakeholders (Williamson, 1985), we argue that the supply ethical risk for the buyer is related to the level of supplier opportunism. That is, when a supplier reduces its engagement in activities concerning self-interests seeking, it is less likely that this supplier engages in activities that may harm the benefits of different stakeholders, which consequently results in a low level of supply ethical risk for the buyer. Thus, we propose a positive relationship between supplier opportunism and supply ethical risk as follows:

H7: Supplier opportunism is positively related to the supply ethical risk.

2.3.5.2 Supplier's organizational performance and buyer's organizational performance

From the perspective of supply chain management, the organizational performance of different channel members is interdependent (Yeung, 2008). In terms of buyer-supplier relationship, buyer's organizational performance can be influenced by different competitive dimensions of its key suppliers including cost, quality, technology, delivery,

flexibility and profits (Krause et al., 2000). Specifically, suppliers' performance problems may increase buyers' transaction costs and uncertainty while capable suppliers can help establish and maintain competitive advantages of buyers (Krause, 1999; Humphreys and Chan, 2004). For example, by continuously collaborating closely with its key suppliers, Siemens successfully achieved cost saving of $1.7 billion in 2009 compared to fiscal 2007 (Siemens Sustainability Report, 2009). Thus, we expect that the improvement on a specific dimension of the buyer's organizational performance can occur as a direct result of the supplier's organizational performance improvements in that particular dimension.

Indeed, many buying firms directly suffer from the unethical behaviour of suppliers. For instance, Mattel's financial health and reputation have been severely influenced because its suppliers tainted some toy products with lead (Teagarden and Hinrichs, 2009); the disclosure of melamine-tainted milk issue not only damaged the reputation of Sanlu, but the whole dairy industry in China (BBC, 2009). This kind of ethical incidences revealed that a low level of CSR adoption at suppliers can strongly damage the reputation of buying firms. Thus, a positive relationship between suppliers' CSR adoption and buyers' corporate reputation is expected. These arguments lead to the hypotheses as follows:

H8: Supplier's financial performance is positively related to its buyer's financial performance.

H9: Supplier's operational performance is positively related to its buyer's operational performance.

H10: Supplier's CSR adoption is positively related to its buyer's corporate reputation.

2.3.5.3 Relationships between organizational performances within the buyer

A high level of supply ethical risk in buying firms shows that their suppliers are highly possible to commit unethical behaviour. Kaptein (2008) reported that the unethical behaviour committed by suppliers could include deliberately adding toxic elements into products for passing inspection and making more profits, fabricating or manipulating product quality or safety test results, violating contract terms with buying firms, violating environmental standards and regulations, providing inappropriate information to the buying firms, falsifying time and expense reports and so on. It was found that such supplier-related ethical incidences could badly affect the financial performance and corporate reputation of buyers (Ip, 2009; Lu, 2009; Teagarden and Hinrichs, 2009). It is argued in this study that a lower supply ethical risk due to reduced supplier unethical behaviours can lead to superior performance in the buyer with respect to important dimensions including financial performance and corporate reputation. We propose the following hypotheses to be tested:

H11a: Supply ethical risk is negatively related to an organization's financial performance.

H11b: Supply ethical risk is negatively related to an organization's corporate reputation.

Many studies have empirically tested financial returns as the final performance outcomes (e.g.Rosenzweig et al., 2003; Luo and Bhattacharya, 2006). For instance, Kristal et al., (2010) provided empirical evidence on the relationship between an organization's operational performance (i.e. quality, delivery speed, process flexibility and low cost) and financial performance assessed by profit level. Much research also

investigates corporate reputation as the final outcome of different performance improvements (e.g. Fombrun and Shanley, 1990; Love and Kraatz, 2009). Rindova et al., (2005) suggested that both organizational reputation and profit returns were the final outcomes of various factors such as quality of productivity assets and quality of inputs. Thus, in this study we propose that buyers' operational performance is positively related to both its financial performance and corporate reputation.

H12a: Buyer's operational performance is positively related to the buyer's financial performance.

H12b: Buyer's operational performance is positively related to the buyer's corporate reputation

2.4 Development of moderating effect hypothesis

The previous section outlines the hypotheses regarding the relationships between SRSD, CSR adoption level and organizational performance of buyers and suppliers (see Figure 2.1). This section explores the boundary conditions under which buyers are more likely to adopt SRSD and suppliers may respond to buyers' SRSD practices more positively by adopting a higher level of CSR. In exploring such conditions, we identify social capital as relevant theory in the discussion. To examine the conditions under which suppliers may respond to buyers' SRSD practices more positively, we consider market turbulence as a relevant theory in the discussion.

2.4.1 Moderating effects between buyer's CSR adoption and SRSD adoption

Social capital refers to "the aggregate of resources embedded within, available through, and derived from the network of relationships possessed by an individual or organization" (Inkpen and Tsang, 2005). It has been considered to be related to the organizational advantages generated from corporate capabilities in knowledge creation and exchange (Nahapiet and Ghoshal, 1998). Three dimensions of social capital havebeen widely investigated, including social capital, relational capital and cognitive capital (e.g. Nahapiet and Ghoshal, 1998; Tsai and Ghoshal, 1998). Specifically, structural capital originally describes the properties of inter-firm ties as a whole and is derived from frequent information sharing and joint problem solving among network actors (Burt, 1992). Relational capital refers to the quality of dyadic relationship and is characterized by trustworthiness which determines the extent of obligation and expectations within different network actors (Coleman, 1988). Cognitive capital is defined as the resources that provide shared values, interpretations and systems of meaning among parties (Nahapiet and Ghoshal, 1988). Several studies have empirically examined the influence of social capital on knowledge transfer among different parties in the supply chain (Inkpen and Tsang, 2005; Bernardes, 2010). It is argued that knowledge transfer is enhanced when channel members have strong social capital to help them facilitate information and resources exchange as well as establish trusts and mutual understanding (Maurer and Ebers, 2006).

In this study SRSD is adopted to transfer the CSR knowledge between buyers and suppliers. Based on the theory of social capital, we believe that strong social capital in the buyer-supplier networks can help reduce information asymmetries and exchange

costs, establish common languages and values of CSR, and consequently facilitate the implementation of CSR knowledge transfer activities of SRSD. Thus, buyers are more willing to put investments and efforts to implement SRSD with specific suppliers that have stronger social capital in their networks. Since strong social capital can increase the likelihood that buyers adopt SRSD, we argue that organizational social capital could be the boundary condition which can affect the effectiveness of SRSD adoption. That is, moderating effects of social capital (i.e. structural capital, relational capital and cognitive capital) are expected on the association between buyers' CSR adoption and SRSD adoption. The following hypotheses are therefore developed:

H13a: Structural capital positively moderates the relationship between buyer's CSR adoption and SRSD adoption.

H13b: Relational capital positively moderates the relationship between buyer's CSR adoption and SRSD adoption.

H13c: Cognitive capital positively moderates the relationship between buyer's CSR adoption and SRSD adoption.

2.4.2 Moderating effects between SRSD adoption and supplier's CSR adoption

Market turbulence is defined as the perceived inability of an individual or organization to understand the direction in which an environment might be changing, the potential impact of those changes and whether or not particular responses to the environment might be successful (Milliken, 1987). In the literature of management, market turbulence is an important factor used to assess the effectiveness of learning programmes under different levels of market uncertainty (Hult et al., 2007). Findings of

a number of studies help practitioners distinguish the approach of implementing learning programmes and managing learning outcomes in a stable and turbulent market (e.g. Lichtenthaler, 2009). Specifically,regarding knowledge transfer between suppliers and buying firms, evidence showed that learning advantages would be greater under a turbulent market (Hult et al., 2007).

Facing the ethical problems in the supply chain, organizations tend to develop standardized codes of conduct and conduct compliance audit about ethical issues for achieving a high level of CSR practice. When the changes within the environment are expected, the current practices of organizations are effective because the norms and related audits could be adequate to identify and mitigate these foreseeable risks. However, when the environment becomes more uncertain and turbulent, there could be some ethical problems that are beyond the managing scope of the current codes of conduct or the compliance audit, making such common practices ineffective. Indeed, the implementation of these practices represents an organization's adoption of a corrective approach to manage the supplier-related ethical problems which cannot help suppliers develop capabilities or relevant corporate culture to enhance their own ethical behaviour. In contrast, SRSD implementation can be considered as a proactive approach to solve fundamental ethical problems, develop discretionary responsibilities toward stakeholders and cultivate CSR culture in the suppliers with a long-term view. Thus, under a more turbulent market, suppliers involved in SRSD adoption may achieve better ethical performance by matching the environment's complexity with their developed CSR knowledge and strategies. We propose that when the market becomes more

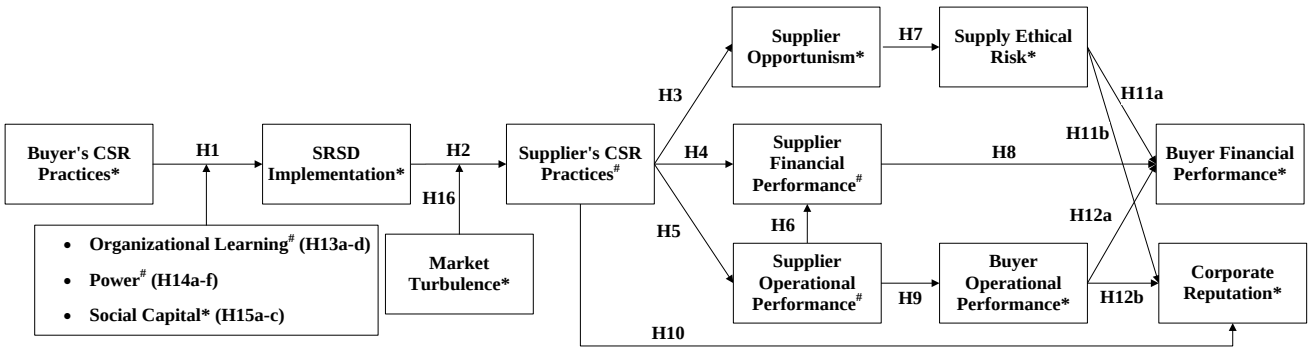
uncertain, the improvement of the supplier's CSR adoption level as the direct outcome of SRSD implementation becomes greater. The last hypothesis is developed:

H14: Market turbulence positively moderates the relationship between SRSD adoption and supplier's CSR adoption.

2.5 Conclusion

This chapter first reviews the literature relevant to the key concepts such as supply ethical risk, CSR and SRSD. We argue that the use of SRSD can improve CSR adoption capabilities and ethical performance of suppliers, and consequently mitigate the supply ethical risk and lead to superior performance in buyers. In order to investigate the effectiveness of SRSD adoption, we proposed a number of hypotheses regarding the relationships between SRSD adoption, CSR adoption and different organizational performance. Further, firms may be affected by different organizational concerns when making the decisions on whether they have to adopt SRSD or not. Similarly, the effectiveness in adopting SRSD may be influenced by certain environmental concerns. In order to examine SRSD adoption, we identified several moderators based on the reviews oftheories including social capitaland market turbulence, and proposed their moderating effects on the major relationships of the conceptual model. The conceptual model involving all hypotheses is presented in Figure 2.1. In the subsequent chapters, we first report the research methodology and instrument development of this study. Next, the hypotheses of this study are tested by using structural equation modelling to provide new insights to the literature and practitioners.

Figure 2.1: Conceptual Model



CHAPTER 3: RESEARCH METHODOLOGY AND INSTRUMENT DEVELOPMENT

3.1 Introduction

Research methodology is a way to systematically solve research problems (Kumar, 1993). When dealing with practically relevant research problems, operations management researchers in general employ an empirical approach by using data collected from a relevant research context. Common empirical research methods include qualitative methods such as case study, in-depth interview and field experiment, and quantitative methods such as survey, systematical observation and secondary data analysis. Qualitative methods are used to explore new concepts via an in-depth assessment of specific research questions, whereas quantitative methods are used to generate insights that are applicable to a population through a collection and analysis of data from a large sample size (Flynn et al., 1990). In this study we develop new concepts including SRSD and supply ethical risk, and investigate their relationships with CSR adoption and various performance outcomes among a number of manufacturing firms in China. Since the measurement scales of SRSD and supply ethical risk are not available in the literature, in-depth interviews were used in the process of scale development. When examining the relationships between SRSD, CSR and other related factors among the manufacturing firms in China, surveys were used to collect data for testing the hypotheses posited. Thus, both qualitative and quantitative methods were employed in this study. The following sections first present the research design and instrument development based on a review of the relevant literature. The reliability and validity of the collected data are then examined, followed by a conclusion.

3.2 Research Design

3.2.1 Research context

China has been a primary location for international outsourcing with its over 50% total output value in the global manufacturing industry (Zhao et al., 2006; Liu et al., 2009). However, there have been quite a number of incidents occurred in China mainly because of the unethical behaviour of suppliers. As the current study intends to provide more insights into ways to mitigate the supplier-related ethical problems, China was chosen as the research domain. As the products of certain industries are daily supplies with direct influence on the public, it is also of great value to investigate the CSR and ethical issues in such industries. Thus, four industries were identified as relevant to the current study, which are food, pharmaceutical, automotive and clothing. The sample firms were randomly selected from the database combined with different authorized sources, including State Administration for Industry and Commerce of the People's Republic of China (SAIC, 2011), State Food and Drug Administration (SFDA, 2011), China National Food Industry Association (CFIN, 2011) and China Association of Automobile Manufacturers (CAAM, 2011). Additionally, since CSR adoption is more likely to be considered as an important practice or a source competitive advantage in larger organizations, the firms with thirty million or more annual sales volume (in RMB) are identified as our target sample firms (Gao, 2009).

3.2.2 Data collection method

In order to collect data to test the hypotheses of this study, two questionnaire surveys were conducted with the buying firms and suppliers (see Appendix 1). The English version of the draft questionnaires for both buyers and suppliers was first developed and

then translated into Chinese. They were then back-translated into English and checked against the original English version for accuracy (Liu et al., 2009). We then distributed and collected data from both buyers and suppliers for hypothesis testing. The buyer questionnaire was first distributed and the respondents were asked to complete it based on their practices and the perceptions toward one key supplier. At the end of the questionnaire, respondents were required to share the contact information of that specific supplier. According to the information given, the questionnaire designed for suppliers was mailed with a description of the purposes of the project and how we obtained their contact information. After completing the supplier survey, a dyadic data set was obtained.

The study generally followed the recommendations of Dillman (2007) to ensure a high response rate. First, before the questionnaire distribution, we contacted the potential respondents through phone calls or face-to-face meetings and explained the background of our study and the importance of their participation. Second, it was emphasized in each questionnairethat the data is kept strictly confidential and merely used for academic purposes. Third, the respondents were entitled to obtain an executive summary reporting the study findings and a gift with a choice between a pen and a USB memory stick. Fourth, clear information about the research design and explanations about the newly-developed variables including SRSD and supply ethical risk were given to facilitate the completion of the questionnaire.

3.3 Sample

Based on our database which was developed by integrating company information of several authorized directories of our target industries, 1,000 buying firms were invited to participate in this study. There were 312 questionnaires returned (buyer response rate = 31.2%) and 32 of them were invalid because of incomplete information. Next, we conducted a supplier survey based on the valid information provided by 280 (i.e., 312-32) buyers. We collected 200 valid questionnaires from suppliers (supplier response rate = 71.2%) and there were finally 200 pairs of buyer-supplier data set with buying firms evenly distributed in the four target industries (food = 24%; automotive = 26%; pharmaceutical = 25%; clothing = 25%). A descriptive analysis on our data set suggested that the collaboration years in the buyer-supplier relationships ranged from 1 to 20 with an average value of 4. With respect to the positions of the respondents, 4% of them were officers (e.g., purchasing officers or administrative officers), 59% were managers of a business function (e.g. production managers or purchasing managers), 28% were corporate-level managers (e.g., assistant general managers, general managers, or CEOs) and 9% were other members of the top management (e.g., manufacturing directors or supply chain presidents). The profile of respondents and selected manufacturing industries of buyers are presented in Table 3.1.In order to make sure that the respondents were sufficiently knowledgeable toward our concerned research issues, we also examined the respondents' tenure by collecting their years of working experience in the sample firms and their levels of understanding toward their specific partner in both the supplier and buyer surveys. The average tenure was 5.75 years for the buyer respondents and 5.35 years for the supplier respondents. As for the

respondents' level of relevant knowledge, they were measured by a three-item construct based on a seven-point scale (1 = not very knowledgeable, 7 = very knowledgeable) (Jap and Anderson, 2003). The average score of this construct was 5.0, with no significant differences between buyers and suppliers, implying that the respondents in general were adequately knowledgeable for this study.

Table3.1 Sample profile

	N	Percentage (%)
Primary Industry of Buyer		
Food	48	24
Automotive	52	26
Pharmaceutical	50	25
Clothing	50	25
Total	200	100
Respondent job title		
Officers	16	4
Functional Manager	236	59
General Manager	112	28
Director/President	36	9
Total	400	100
Buyer's annual turnover (*Yuan*)		
5-7 millions	11	5.5
10-30 millions	7	3.5
30-50 millions	53	26.5
50-100 millions	14	7
Over 100 millions	115	57.5
Total	200	100.0
Supplier's annual turnover (*Yuan*)		
5-7 millions	54	27
10-30 millions	43	21.5
30-50 millions	18	9
50-100 millions	11	5.5
Over 100 millions	74	37
Total	200	100.0

3.4 Instrument Development

Since SRSD and supply ethical risk are new concepts developed in this study, we identify, develop and validate their scales by employing both qualitative and quantitative methods.

Following Churchill's (1979) paradigm and other scale development studies such as Linderbaum and Levy (2010), we identify and develop constructs through qualitative efforts including conducting an extensive review of the literature on OM, SD, and risk management, and in-depth interviews with subject matter experts. Based on the literature review, we identified a number of relevant scales. We next interviewed with a panel of experts in Beijing, China, so as to solicit ideas for selecting the most relevant and appropriate constructs (e.g., Yeung, 2008). The panel composed of two senior managers, one university professor, two government officials, and one publisher editor. The interview results are as follows: First, Chinese organizations increasingly consider business ethics and the implementation of related management practices such as CSR as critical issues to mitigate ethical risks because the government has placed a strong emphasis on them and heightening expectations from customers in export markets. Second, all the supply ethical risk scales proposed by developed are deemed appropriate to reflect risks related to supplier's unethical behavioursin China. Third, the experts identified three of the scales by Krause et al. (2007), namely supplier evaluation, supplier development, and information sharing, are relevant constructs reflecting the actions taken a buyer to enhance its' suppliers' CSR implementation. Finally, they offered ideas on how to select and modify the items of these three scales to more specifically reflect a buyer's actions when adopting SRSD. Consequently, the preliminary scales of this research comprise the self-developed supply ethical risk scales, and the new SSRD scales that are developed by modifying the scale items concerning information sharing, supplier evaluation, and supplier development (Krause et al., 2007).

In order to further validate both newly-develop and the existing instruments, we translated the preliminary scales of this research from English to China following the approach of Zhao at al. (2006).We pilot-tested the Chinese version of the preliminary scales by interviewing managers (carrying such titles as CEO, general management, and procurement manager etc) in 20 pairs of buyer and supplier relationship.The participants were 40 managers in the selected manufacturing industries. At the beginning of the interviews, we provided the managers with details of the definitions and dimensions of SRSD and supply ethical risk. According to their knowledge and experience, buying firm informants were invited to comment on the scale items such as SRSD, supply ethical risk, CSR, whereas supplier informants were invited to comment on the scale items such as CSR and performance outcomes.Based on the comments obtained, we refined instrumentsby modifying, adding, or deleting measures to improve theircontent validity and readability.For example, we removed several CSR items for reasons such as the item is a broad ethical attitude instead of a specific CSR action (e.g., voluntarily exceed government-imposed environmental regulations), the item shares very similar concepts with another item (e.g., cash donation to the community), or the item represents an advanced level of CSR practice that Chinese organizations are not yet ready to implement it (e.g., we have a dedicated supplier development team focusing on improving suppliers' business ethics). Finally, on completing the pilot test, the finalized instruments were more relevant to the practical situations of manufacturers in China. A seven-point scale was used which ranged from 1 (strongly disagree) to 7 (strongly agree). A complete list of the items used is shown in the Appendix 2.

Corporate social responsibility

In this study, based on the stakeholder theory and several fieldworks by interviewing the practitioners, we developed a seven-dimension CSR measure (Spiller, 2000; Lo et al., 2008; Lindgreen et al., 2009). The items asked the extent to which organizations are concerned their multiple stakeholders (i.e. customer, supplier, employee, investor and the community), the environment and their internal compliance of ethics codes (e.g. incorporate environmental performance objectives in our organizational plans). The measures of buyer's and supplier's CSR practices were slightly different because of the differences in the business natures and contexts of suppliers and buyers, and such differences were based on the comments collected from the pilot study.

Socially responsible supplier development

The concept of SRSD is newly developed which refers to the activities that help suppliers develop their CSR implementation capabilities. Following prior supplier development research (Krause et al., 2007), the scales of three dimensions of SRSD were developed. The development of the concepts and the measures of these three dimensions was partly based on the in-depth interviews with a panel of experts and a pilot study. The first dimension is information sharing which assesses the activities of communicating CSR knowledge between buyers and suppliers (i.e. our communication on issues concerning CSR implementation occurred at different levels). The second dimension is supplier evaluation which assesses the related activities of evaluating suppliers' ethical performance (i.e. providing suppliers with feedback about the results of the evaluation). The third dimension is supplier development which assesses the

activities of developing suppliers' CSR implementation (i.e. providing training of suppliers' personnel about CSR practices and the required skills in implementation).

Supplier opportunism

Supplier opportunism evaluates the extent to which a buying firm perceives its supplier to engage in "self-seeking behaviours with guile" (Williamson, 1985; Wong et al., 2005; Luo et al., 2009). A three-item construct of supplier opportunism was adapted from John (1984) and Carson et al., (2006).

Supply ethical risk

Supply ethical risk is another newly developed construct in this study based on the stakeholder theory. This construct refers to the possibility that a supplier engages in unethical behaviour from the perspective of the buyer. We developed four items to assess the extent that the supplier's operations may badly affect their important stakeholders including customers, other members in supply chain, employees and the environment.

Operational performance

In order to measure the operational performance of buyers and suppliers, we followed Kristal et al., (2010) and used a three-item construct to capture an organization's product delivery time, service reliability and flexibility.

Financial performance

Based on the constructs in the study of McGuire et al., (1988) and feedback collected in the pilot study, we developed two different four-item constructs to measure the financial performance of buyers and suppliers. Buyer's financial performance was measured by the indicators on asset growth, return on assets, sales income and total profit, whereas the financial performance of suppliers was measured by the indicators of total assets, return on assets, sales growth and total profit.

Corporate reputation

Following Fombrun and Shanley (1990), we assessed the buyers' corporate reputation by asking respondents how their stakeholders rated their companies in attributes including, 1) quality of products or services, 2) long-term investment value, 3) innovativeness, 4) financial soundness, 5) ability to attract, develop, and keep talented people, 6) community and environment responsibility.

Social capital

Following Nahapiet and Ghoshal (1998) and Tsai and Ghoshal (1998), three commonly recognized dimensions of social capital were identified including structural, relational and cognitive capital. In terms of structural capital, a three-item scale was developed. The first two items measure the extent of managerial communication (Lawson et al., 2008) and the other item selected from the concept of supply chain integration measures the participation level of our major supplier in the process of procurement and production through social networks (Flynn et al., 2010). To examine the relational

capital in the buyer-suppler relationship, we used five items to understand the characteristics of their cooperation with the following dimensions: the level of reciprocity, personal relationship, mutual respect and mutual trust, the frequency and closeness of contacts (Kale et al., 2000). Following Bernardes (2010), we constructed five items to assess the level of cognitive capital by asking whether suppliers can share a common understanding with buyers about the end customer's needs, buyer's needs and priorities, their mutual effects, the market trends and development, and the market information.

Market turbulence

Following Jaworski and Kohli (1993), four items were adapted for assessing "the extent to which the composition and preferences of an organization's customers tended to change over time". Two of the items of this scale measure the frequency and variation features of customer preference changes. The other two items measure the extent of preference differences between new customers and existing ones, and the customer demands from those who have never bought the products.

Respondent competence

In order to assess the respondents' knowledge of the management and detailed practices in the specific buyer-supplier relationships, we adapted a three-item scale measure (Jap and Anderson 2003) to assess how knowledgeable he/she is with respect to the firm's relationship with buyers/suppliers. Specifically, the respondents were asked to rate (1) how similar their goals are, (2) the nature of unique investments, assets, capabilities, etc.

that are used in the relationship, and (3) the degree to which they have earned strategic advantages over their competitors.

Summary

In sum, there are totally 18 constructs developed in this study. Some of the scales are assessed by the buying firms concerning their practices and perceptions about buyers' CSR adoption, three dimensions of SRSD, supplier opportunism, supply ethical risk, operational performance, financial performance, corporate reputation, market turbulence, three dimensions of social capital and respondent competence. The rest of the scales are assessed by the suppliers concerning their practices and perceptions about suppliers' CSR adoption, operational performance, financial performanceand respondent competence.

3.5 Instrument test results

3.5.1 Preliminary tests

Common method variance is a kind of potential problem on account of the measurement methods adopted rather than the construct the measures represent (Podsakoff et al., 2003). In order to reduce the impact caused by common method bias in this study, each questionnaire was completed by at least two informants. Specifically, we explicitly indicated our requirements in the instructions of the questionnaire that purchasing managers or those with similar responsibilities are responsible for the items such as SRSD and supplier opportunism while other managers at the corporate level are responsible for the items such as CSR and organizational performance. Additionally, we

employed Harman's one-factor test to further assess the influence of common method variance (Podsakoff and Organ, 1986). The results indicated that there was not any factor accounting for a majority of the variance within a total of 66.72% variances explained, implying that no single factor dominated the variance in the data. Non-response bias was also tested by comparing the responses of early and late waves through t-tests and no statistically difference was found between two waves of respondents (Armstrong and Overton, 1977).

3.5.2 Reliability

Reliability is the accuracy or precision of a measuring instrument, which refers to the degree of consistency between multiple measurements of a variable, that is, the extent to which the respondent is able to answer the same or similar questions at the same way each time (Hair et al., 2010). Cronbach's alpha is considered to be the most widely used measure to assess a scale's reliability with respect to internal consistency. In the following tests, considering the constraint of sampling size toward the parameters in the model, we aggregated the scales of CSR's seven dimensions by calculating the arithmetic means and treating them as observed indicators in the measurement and structural model (Spreitzer, 1996; Hofmann and Morgeson, 1999). The value of Cronbach's alpha ranged from 0 (no reliability) to 1 (perfect reliability) and the generally agreed upon lower limit was 0.7. The results in Table 3.2 show that the Cronbach's alpha values of all constructs ranged from 0.725 to 0.959. These results provide strong evidence that the scales used in this study are highly reliable.

Table 3.2: Results of Reliability and Validity Tests

Constructs	Cronbach's alpha	Average Variance Extracted	Construct Reliability
Buyer's CSR practices	0.884	0.538	0.887
Information sharing-SRSD implementation	0.817	0.601	0.818
Supplier evaluation-SRSD implementation	0.852	0.678	0.861
Supplier development-SRSD implementation	0.887	0.722	0.886
Supplier's CSR practices	0.877	0.522	0.882
Supplier opportunism	0.905	0.766	0.907
Supplier financial performance	0.939	0.797	0.940
Supplier operational performance	0.917	0.787	0.917
Supply ethical risk	0.959	0.858	0.960
Buyer operational performance	0.889	0.735	0.893
Corporate reputation	0.930	0.690	0.930
Buyer financial performance	0.933	0.777	0.933
Structural capital	0.725	0.555	0.775
Relational capital	0.895	0.643	0.900
Cognitive capital	0.908	0.668	0.909
Market turbulence	0.810	0.569	0.827
Buyers' respondent competence	0.820	0.620	0.826
Suppliers' respondent competence	0.823	0.620	0.827

3.5.3 Validation

Validity is the extent to which the measures of a scale accurately represent the theoretical concept (Hair et al., 2010). In this study, we first examined content validity to obtain preliminary validity evidence. Next, we conducted confirmatory factor analysis to assess construct validity. Finally, we tested convergent validity and discriminant validity in order to more rigorously examine the validity of the scale measures.

Content Validity

Content validity is "the assessment of the correspondence of the variables to be included in a summated scale and its conceptual definition" (Hair et al. 2010).It concerns whether an indicator's items are representative of the domain it is supposed to measure (Kline, 1998). The evaluation of content validity is not done in a statistical way but made by the expert opinions toward the correspondence of measurement scales and abstract concepts (Kline, 1998). In this study, all items were identified from an extensive review of the literature on OM, SD and SRSD. In order to solicit ideas for selecting the most relevant and appropriate constructs, we interviewed a panel of subject matter experts in China composed of two senior managers, one university professor and two government officials. They reviewed the newly-developed concepts and items of SRSD and supply ethical risk in the questionnaires. In addition, a pilot test was conducted to collect comments on both the buyer's and supplier's survey instruments. Therefore, the content validity of the instruments of this study is supported.

Construct Validity – Confirmatory Factor Analysis

Confirmatory factor analysis (CFA) was used to assess how measures logically and systematically represent constructs in a theoretical model (Hair et al., 2010). Table 3.3 reports the descriptive statistics and the correlation matrix for the data of this study. The mean and standard deviation of all variables were found to be within the acceptable range and most variables had correlations at the significant level of 0.01, which implies a high potential of the presence of hypothesized relationships. To assess the overall

goodness-of-fit of the measurement model, we tested the construct with all items loading on their respective latent factors and without any cross-loadings among items. Since an acceptable ratio of the number of samples to the number of itemsis 10:1 (Hair et al., 2010) and there were 73 items with 200 buyer-supplier relationships as the sample size in our model, we were not allowed to analyze all constructs of this study in a single analysis. Thus, 18 constructs were randomly divided into four groups (i.e.,18 items in three groups and 19 items in the other group) for running the measurement model analysis separately. The first group comprised the constructs of buyer's CSR practices, supplier's financial performance, market turbulence and suppliers' respondent competence. The second group consisted of the constructs of supplier's CSR practices, cognitive capital, the SRSD dimension of supplier development, supplier's operational performance. The third group consisted of the constructs of the corporate reputation, relational capital, buyer's financial performanceand the SRSD dimension of supplier evaluation. The remaining fiveconstructs, including SRSD dimension of information sharing, supplier opportunism, structural capital, buyers' respondent competence, supply ethical risk and buyer's operational performance, constituted the fourth group.

Following the recommendations of Hair (2010), we assessed the model fit using absolute fit indices and incremental fit indices. The chi-square (χ^2) statistic, Goodness of Fit Index (GFI) and Root Mean Square Error of Approximation (RMSEA) are common absolute fit measures to assess how well the observed data fits the specified model. The test of incremental fit measures is concerned with the comparison of an estimated model and the alternative null models. The common measures include Normed Fit Index (NFI), Tucker-Lewis Index (TLI) (i.e. Non-normed Fit Index, NNFI) and Comparative Fit

Index (CFI). The generally accepted criteria of all fit indices and the goodness-of-fit indices values of four measurement models are listed in Table 3.4. For the four models, the values of most fit indices are above the acceptable criteria, except that the values of RMSEA are slightly higher than the cutoff point. However, since there were two newly-developed constructs in this test which had not been validated in the prior research, a higher value of RMSEAwere acceptable in our models. In sum, all the measures showed a good fit to the data, based on the CFA results.

Table 3.3: Mean, standard deviations and correlation matrix

	Mean	*S.D.*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1.Buyers' CSR practices	5.48	0.81																	
2.Information sharing	4.79	1.00	0.65**																
3.Supplier evaluation	4.74	1.08	0.50**	0.77**															
4.Supplier development	4.43	1.35	0.49**	0.64**	0.71**														
5.Suppliers' CSR practices	5.42	0.83	0.69**	0.56**	0.46**	0.39**													
6.Supplier opportunism	3.24	1.54	-0.37**	-0.23**	-0.11	-0.15*	-0.27**												
7.Financial performance(S)	4.85	1.00	0.43**	0.34**	0.35**	0.32**	0.50**	-0.32**											
8.Operational performance(S)	4.93	1.09	0.55**	0.57**	0.53**	0.46**	0.58**	-0.40**	0.65**										
9.Supply ethical risk	2.73	1.54	-0.48**	-0.34**	-0.19**	-0.15*	-0.42**	0.77**	-0.32**	-0.52**									
10.Operational performance(B)	5.08	1.11	0.66**	0.52**	0.45**	0.50**	0.55**	-0.48**	0.45**	0.64**	-0.56**								
11.Financial performance(B)	5.07	1.16	0.62**	0.47**	0.48**	0.43**	0.55**	-0.27**	0.45**	0.53**	-0.38**	0.68**							
12.Corporate reputation	5.62	1.02	0.75**	0.55**	0.36**	0.43**	0.59**	-0.49**	0.43**	0.47**	-0.54**	0.66**	0.60**						
23.Structural capital	5.53	0.75	0.56**	0.30**	0.16*	0.15*	0.47**	-0.34**	0.32**	0.30**	-0.41**	0.41**	0.33**	0.59**					
24.Relational capital	5.54	0.95	0.70**	0.44**	0.27**	0.32**	0.53**	-0.39**	0.41**	0.37**	-0.50**	0.51**	0.45**	0.76**	0.71**				
25.Cognitive capital	5.26	1.01	0.76**	0.59**	0.42**	0.42**	0.57**	-0.47**	0.41**	0.47**	-0.55**	0.56**	0.47**	0.75**	0.61**	0.75**	*		
26.Market turbulence	4.77	1.33	0.36**	0.34**	0.27**	0.27**	0.34**	-0.14*	0.39**	0.34**	-0.14*	0.40**	0.43**	0.39**	0.13	0.24**	0.38**		
27.Respondent competence(B)	4.89	1.25	0.52**	0.35**	0.29**	0.29**	0.50**	-0.39**	0.35**	0.29**	-0.26**	0.43**	0.44**	0.64**	0.46**	0.55**	0.53**	0.31**	*
28.Respondent competence(S)	4.96	1.23	0.43**	0.32**	0.24**	0.23**	0.56**	-0.41**	0.42**	0.37**	-0.26**	0.39**	0.33**	0.47**	0.42**	0.42**	0.49**	0.35**	0.71**

*p< 0.05; **p< 0.01

Table 3.4: Goodness of fit indices for measurement models

Model	χ^2	d.f.	χ^2 /d.f.	GFI	RMSEA	CFI	NFI	NNFI
Criteria	-	-	≤ 3.0	≥ 0.90	≤ 0.08	≥ 0.90	≥ 0.90	≥ 0.90
1	344.17	129	2.67	0.84	0.09	0.91	0.87	0.89
2	357.53	129	2.77	0.82	0.09	0.91	0.87	0.89
3	286.35	129	2.22	0.86	0.08	0.95	0.91	0.94
4	362.76	137	2.65	0.85	0.09	0.93	0.89	0.91

Convergent Validity

Convergent validity assesses whether items underlying a specific construct are convergent or share a high proposition of variance in common (Hair et al., 2010). Several ways can be employed to estimate convergent validity, including the assessment of factor loading, average variance extracted (AVE) and construct reliability (CR) (Hair et al., 2010). In terms of factor loading, high loadings on a factor indicate a high level of convergent validity on a common latent construct. Kline (1998) summarized that this value should be at least moderate in magnitude which means 0.5 or higher is expected and 0.7 or higher is ideal. Our results indicated that all item loadings were significantly higher than 0.50 ($p < 0.001$). Table 3.2 displays the results of AVE and CR tests. An AVE of 0.5 or above was the rule of thumb suggesting adequate convergent (Hair et al., 2010). Our results (see Table 3.2) suggested that all constructs were highly convergent with AVE values higher than 0.5. CR is another indicator of convergent validity. The CR results presented in Table 3.2 showed that all constructs had CR values higher than the 0.7 threshold, implying the presence of adequate convergent validity. In sum, the

results on factor loading, AVE and CR indicate that the convergent validity of the constructs of this study can be deemed acceptable.

Discriminant Validity

Discriminant validity refers to the extent to which two conceptually similar concepts are distinct (Hair et al., 2010). The underlying rationale is that items should be strongly correlated to measure the corresponding construct with theoretical support and less correlate with other constructs. High discriminant validity provides evidence that a construct is sufficiently unique and can capture the phenomenon that other constructs cannot. In order to check discriminant validity, we constrained the model by fixing the correlation between any two constructs to 1.0 and employed a chi-square difference test by comparing the measurement model with the constrained model (Hair et al., 2010). Since the measurement model was divided into four groups, we separately tested the discriminant validity of four models. The changes of degrees of freedom in first three models were 6 and according to the chi-square table, a significant difference between constrained and unconstrained model should be higher than 22.5 at $p < 0.001$. The values of chi-square differences were 38.5 for the first model,30.1 for the second model and 69.3 for the third model. The changes of degree of freedom in the fourth model were 15 and the value of chi-square differences were 579.1, highly exceeding the cutoff value of 37.7 at $p < 0.01$. Thus, these results suggest that the constructs of this study have adequate discriminant validity.

Discriminant validity can also be assessed by comparing the average variance extracted values for any two constructs with the squared correlation between these two constructs

(Hair et al., 2010). The comparison results of four measurement models are reported in Tables 3.5.1 to 3.5.4. These tables show that the variance extracted estimates were greater than the squared correlations in most of the comparisons conducted, except that the variance extracted value of relational capital was slightly smaller than its squared correlations with corporate reputation. Thus, based on the results of the two tests concerning discriminant validity, the discriminant validity of the constructs of this study can be deemed acceptable. Overall, the validity results presented so far support the presence of adequate content, construct, convergent and discriminant validity in the constructs of this study (Anderson and Gerbing, 1988).

Table 3.5.1: Inter construct correlations and average variance extracted (Measurement Model 1)

	1	2	3	Average Variance Extracted
1. Buyer's CSR practices				0.538
2. Supplier's financial performance	0.502(0.252)			0.797
3. Market turbulence	0.399(0.159)	0.391(0.153)		0.569
4. Suppliers' respondent competence	0.626(0.392)	0.536(0.287)	0.387(0.150)	0.620

Table 3.5.2: Inter construct correlations and average variance extracted (Measurement Model 2)

	1	2	3	Average Variance Extracted
1. Suppliers' CSR practices				0.521
2. Cognitive capital	0.622(0.387)			0.668
3. Supplier development –SRSD	0.494(0.244)	0.460(0.212)		0.722
4. Suppliers' operational performance	0.635(0.403)	0.487(0.237)	0.538(0.289)	0.787

Table 3.5.3: Inter construct correlations and average variance extracted (Measurement Model 3)

	1	2	3	Average Variance Extracted
1. Corporate reputation				0.690
2. Relational capital	0.834(0.696)			0.643
3. Buyers' financial performance	0.683(0.466)	0.519(0.269)		0.777
4. Supplier evaluation – SRSD	0.442(0.195)	0.350(0.123)	0.560(0.314)	0.678

Table 3.5.4: Inter construct correlations and average variance extracted (Measurement Model 4)

	1	**2**	**3**	**4**	**5**	**Average Variance Extracted**
1. Information sharing – SRSD						0.601
2. Supplier opportunism	-0.261(0.068)					0.766
3. Structural capital	0.279(0.078)	-0.344(0.118)				0.554
4. Buyer's respondent competence	0.477(0.228)	-0.454(0.206)	0.505(0.255)			0.620
5. Supply ethical risk	-0.407(0.166)	0.806(0.650)	-0.466(0.217)	-0.348(0.121)		0.858
6. Buyers' operational performance	0.591(0.349)	-0.517(0.267)	0.401(0.161)	0.516(0.266)	-0.603(0.364)	0.735

3.6 Conclusion

This chapter reports the research procedures and instrument development for the present study. Most of the construct measures were developed by adapting existing measures in the literature ofCSR, SD, OM and organizational study. The instruments of SRSD and supply ethical risk are new concepts developed in this study based on the literature of SD and stakeholder theory and the insights collected through in-depth interviews with a panel of experts. By using 200 matched buyer-supplier survey data, all constructs of this study, including the two novel constructs, were validated. Thus, the data set of this study can accurately reflect the concepts which they are supposed to reflect. In the subsequent chapters, we conduct hypothesis testing based on the data set of this study and employ the test results to offer theoretical and managerial implications.

CHAPTER 4: AN EXAMINATION ON DIRECT RELATIONSHIP ANALYSIS

4.1 Introduction

Previous chapters highlight the importance of problems relating to unethical behaviour in suppliers, develop concepts including SRSD and supply ethical risk and formulate a conceptual model to examine whether socially responsible supplier development (SRSD) adoption in the buyer effectively enhance CSR adoption in the supplier are what driving forces and outcomes of SRSD implementation in the buyers and suppliers are. This chapter tests a series of hypotheses concerning the relationships between CSR adoption, SRSD adoption and organizational performances. A two-step approach is employed by using Structural EquationModelling (SEM) with Amos 18 as the software (Anderson and Gerbing, 1988). Next, we present the structural analysis results, discuss the theoretical and managerial implications of the findings, and draw a conclusion.

4.2 Data Analysis and Results

4.2.1 Hypothesis testing

In Chapter 2 (Literature Review), there are totally twelve hypotheses developed concerning the relationships between SRSD adoption, CSR adoption and organizational performance of buyers and suppliers. The focus of this chapter is to test these hypotheses in order to examine the antecedent and outcomes of SRSD.

Hypotheses 1 and 2 propose the relationships between the buyer's CSR adoption and SRSD adoption and between the buyer's SRSD adoption and the supplier's CSR adoption. The testing results indicate the driving forces and the effectiveness of SRSD. The other hypotheses to be

tested in this chapter are related to the performance outcomes of the supplier's CSR adoption in the supplier and the buyer. The results of CSR adoption in the supplier can be presented as three tiers of performance outcomes. In the first-tier outcomes, the improved CSR adoption of the supplier is hypothesized to help reduce supplier opportunism and increase the financial performance and operational performance of the supplier (i.e. H3, H4, and H5). We also posited a hypothesis concerning the positive relationship between the supplier's operational performance and its financial performance (i.e. H6). In the second-tier outcomes, supplier opportunism, the supplier's financial performance, operational performance, and CSR adoption are hypothesized to be related to supply ethical risk, the buyer's financial performance, operational performance, and corporate reputation respectively (i.e. H7, H8, H9 and H10). Finally, the third-tier outcomes are concerned with how the reduction of supply ethical risks and the improved buyer operational performance can further benefit both financial performance and corporate reputation of the buyer (i.e. H11 and H12).

4.2.2 Structural model results

In order to test these hypotheses, a structural model analysis was conducted to examine the conceptual model as shown in Figure 4.1. Concerning the construct of SRSD, since it is implied in SD literature that three types of SRSD activities are not exclusively characterized with narrow spanning contents but theoretically interrelated, we employ a second-order construct to conceptualize SRSD as a management practice reflected by its three first-order factors. The goodness-of-fit results of overall model suggest that an acceptablelevel of the conceptual model is achieved (χ^2 = 2771, d.f. = 1158, p <0.001, χ^2/d.f. = 2.393, GFI = 0.63, CFI = 0.83, NFI = 0.74, NNFI = 0.82, RMSEA = 0.084).However, some of the goodness-of-fit indices are not satisfied. The first reason is that according to the suggested sample size ratio of 10:1 (Hair et al.,

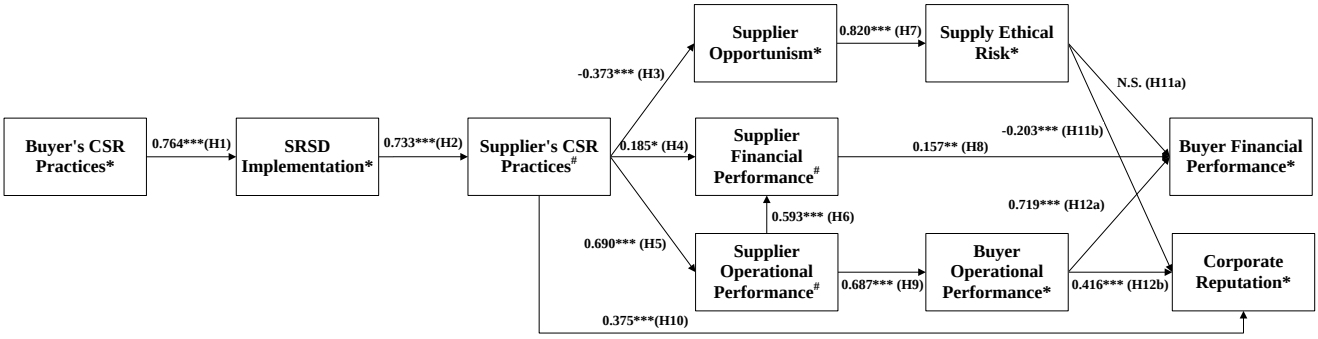
2010), a sample of at least 1000 is required to test this conceptual model but in fact, there is 200 sample data collected in this research. Thus, our results which some of fit indices values are a little bit lower than the satisfactory level can be deemed acceptable. The second reason is that there are two newly developed concepts in this research, SRSD and supply ethical risk. As the first study to empirically test these two factors, a lower goodness-of-fit level is acceptable.The standardized parameter estimates of the hypothesized model are also shown (see Figure 4.1). As predicted in Hypothesis 1, the CSR adoption of the buyer has a significant and positive relationship with SRSD adoption level ($\gamma = 0.764$, $p < 0.001$). Also, SRSD adoption is significantly related to the CSR adoption of the supplier as predicted in hypothesis 2 ($\gamma = 0.733$, $p < 0.001$)).

In regard to first-tier outcomes, the results concerning H3, H4, and H5 suggest that all three hypotheses are strongly supported (H3: $\gamma = -0.373$, $p < 0.001$; H4: $\gamma = 0.185$, $p < 0.05$; H5a: $\gamma = 0.690$, $p < 0.001$). There is also a relationship proposed between a supplier's operational performance and its financial performance in H6 and the results also confirm the hypothesis ($\gamma = 0.593$, $p < 0.001$).

Regarding results about the second-tier outcomes, supplier opportunism has a significant relationship with supply ethical risk ($\gamma = 0.820$, $p < 0.001$), supporting H7 and demonstrating that reduced supplier opportunism behaviour can mitigate the supply ethical risk. The relationship between the financial performance of the supplier and the buyer is significant ($\gamma = 0.157$, $p < 0.01$), providing support for H8. In addition, the relationship between the operational performance of the supplier and the buyer is highly significant ($\gamma = 0.687$, $p < 0.001$), providing support for H9. The results also suggest that supplier's CSR adoption has a direct relationship with the buyer's corporate reputation, indicating that H10 is supported ($\gamma = 0.375$, $p < 0.001$).

Finally, the results on the last-tier outcomes indicate that there is a significant relationship between the operational performance and financial performance of a buyer so that H12a is supported ($\gamma = 0.719$, $p < 0.001$). However, the relationship between supply ethical risk and buyer's financial performance is not significant, rejecting H11a. In addition, both supply ethical risk and buyer's operational performance have significant relationships with buyer's corporate reputation, supporting H11b($\gamma = -0.203$, $p < 0.001$) and H12b ($\gamma = 0.416$, $p < 0.001$).

Figure 4.1: Results of structural equation modelling



*p< 0.05; **p< 0.01; ***p < 0.001

4.3 Discussion

4.3.1 An overview

This study is a conceptual and empirical examination of the antecedent and the outcomes of SRSD. Specifically, we develop and test hypotheses concerning how a buyer's SRSD adoption is affected by its CSR adoption and leads to a number of outcomes including the supplier's CSR adoption and various performance-related outcomes in the buyer and the supplier. In this study special attention is paid to the research methodology to ensure its level of rigour. For instance, a number of qualitative and quantitative methods (e.g., panel discussion, pilot study, reliability test, and CFA) were used to test the reliability and validity of the construct measures. Thus, the

data employed should accurately reflect the constructs of the hypotheses. In addition, data were collected from 200 pairs of buyers (e.g., data on buyers' CSR and SRSD adoption) and suppliers (e.g., data on suppliers' CSR adoption and various performance outcomes) in order to ensure that the informants are clear about what they are required to do.. Furthermore, when testing the hypotheses of this study, a rigorous statistical technique, Structural Equation Modelling (SEM), was used in order to fully utilize the data embedded in the construct items and simultaneously examine all the relevant hypotheses in the form of a conceptual model. This study offers not only practically relevant insights for addressing the ethical problems of suppliers, but also empirical evidence that advances the knowledge frontier of the literature of supplier development, CSR, and operations management.

By using the data collected from 200 pairs of buyer-supplier relationships from four manufacturing industries in China, the results of this study indicate that a buyer's SRSD adoption is influenced by its CSR adoption. The results also show that the buyer's SRSD adoption has a positive influence on the supplier's CSR adoption. Results about the outcomes of the supplier's CSR adoption indicate that it first leads to improvements in terms of reduction in supplier opportunism in the buyer and enhanced financial and operational performance in the supplier. It was also found that the improvements in turn have a positive influence on the buyer's supply ethical risk, financial performance, and operational performance. As depicted in Figure 4.1, the buyer's financial performance and corporate reputation can be considered as the final performance outcomes in our conceptual model. Except for the positive effect from the supplier's financial performance, our results indicate that the buyer's corporate reputation is also negatively affected by its supply ethical risk and positively affected by its operational

performance. The buyer's financial performance was found to be affected by the buyer's operational performance.

4.3.2 Theoretical implications

Our results indicate that one antecedent leading to the adoption of SRSD in a buying firm is the adoption of CSR in the firm. Indeed, these results are consistent with the concepts of resource-based review (RBV). RBV suggests that collections of resources possessed by organizations enable them to implement different strategies for achieving superior performance (Barney, 1991). It also suggests that when the relevant resources are valuable, rare, in-imitable, and non-substitutable, they are likely to be key and strategic resources which can lead to the development of competitive advantages (Barney, 1991). In this study when a buying firm has CSR practices in place, it is likely to possess different forms of resources including tangible resources such as experts, well-developed ethical standards, and capital, and intangible resources such as CSR knowledge and ethical elements in the corporate culture. As these resources tend to fulfil the criteria of key and strategic resources according to RBV, they should be key and strategic resources that the buying firm could utilize to develop CSR adoption and capabilities in suppliers. Without the presence of such resources, a buying firm is very unlikely to be effective in influencing suppliers to adopt CSR. This study contributes to the literature of CSR and RBV by offering empirical evidence to indicate that CSR adoption and the related capabilities could be important and strategic resources that could lead to not only improved ethical performance within an organization, but also the capabilities to influence suppliers to adopt CSR.

Our results concerning the outcome of buyers' SRSD adoption suggest that this approach effectively leads to the adoption of CSR in the supplier. Within the literature of management

and CSR, much research has been done on methods to enhance business ethics and CSR adoption. Some examples of the methods include putting efforts on the philanthropic contribution and resources accommodation (e.g. Luo, 2006), specifying the ethics-related codes of conducts and standards (e.g. Cheung et al., 2010), providing relevant training to employees at different levels (Anderson and Skjoett-Larsen, 2009), strengthening the scrutiny, auditing and inspections to ensure each operation is ethically performed (e.g. Tate et al., 2010), and keeping effective communications with different stakeholders to maintain organizational credibility (e.g. Luo and Bhattacharya, 2006). Nevertheless, such findings in general emphasize how an organization could improve its own ethical behaviour and performance. More specifically, CSR practices are generally considered as an internal practice within an organization and limited research attempted to offer solutions for addressing unethical behaviour committed by partners in the supply chain. This study contributes to the literature by providing empirical evidence to indicate that by adopting SRSD, buying firms can proactively influence suppliers to adopt CSR in order to enhance the supplier's ethical behaviour (i.e., a reduction in supplier opportunism).

The results also suggest that CSR adoption in the supplier has direct or indirect impacts on a number of performance-related outcomes, including a new concept developed by the current study, supply ethical risk. The results also indicate that supply ethical risk is related to the buying firm's financial performance. Within the current literature of supply chain risk management, there has been much knowledge on how to prevent supply chain risks induced from operational processes, external hazards, labour management, and market changes (e.g. Tapiero and Grando, 2008; Jiang et al., 2009). Yet few studies have investigated how to reduce risks which are related to the unethical behaviour of suppliers. This study extends the literature of supply chain risk management by developing and testing a new category of supply chain risk,

supply ethical risk. Our results suggest that supply ethical risk is negatively associated with the buying firm's financial performance. It was also found that through the adoption of SRSD, supply ethical risk could be reduced and that such a reduction in the supply ethical risk is achieved through CSR adoption and supplier opportunism as the mediators. These findings imply that supply ethical risk should be an important category of supply chain risk and that SRSD could be effective in mitigating such risks. Considering the importance of supply ethical risk, we suggest that future research could further explore this category of supply chain risk in order to examine how it may affect organizations and be mitigated by other methods.

This study extends the literature of SD by demonstrating how the general concepts of SD can be employed in developing CSR adoption capabilities in suppliers. Based primarily on the practices of SD, we developed the concepts and the measurement items of SRSD. Prior literature on SD indicates that SD can have positive influence on operational or quality performance of both the supplier and the buyer, and the relationships involved (e.g. Krause, et al., 2000; Humphreys and Chan, 2004). Our results indicate the SRSD has a positive impact on the adoption of CSR in the supplier, which in turn, directly or indirectly leads to a number of performance outcomes in the buyer and supplier. These results indicate that supplier development programmes could be effective in improving not only operational level performance, but also performance outcomes at the corporate level including ethical performance, risk mitigation, financial performance and corporate reputation.

4.3.3 Managerial implications

We suggest that managers of buying firms should recognize the strategic importance of adopting SRSD to mitigate supply ethical risk. Our results clearly indicate that by adopting SRSD to mitigate supply ethical risk, both the buying firm and the supplier can achieve

enhanced performance in a number of dimensions. In terms of the implementation of SRSD, the literature suggests that some organizations have already implemented some elements of SRSD. For instance, Nespresso launched a programme in 2003 with its major suppliers and successfully improved the environmental, social and sustainable performance along the entire supply chain (Alvarez et al., 2010). Similarly, Anderson and Skjoett-Larsen (2009) attributed the success of IKEA on effective CSR management in the processes of supplier selection, code of conducts development, inter-organizational communication and training. Yet the adoption of SRSD practice to enhance suppliers' CSR capabilities or ethical performance might still be new concepts for many organizations. Therefore, we suggest that organizations can formulate a comprehensive and systematic SRSD strategy by adapting the SRSD practices of this study. Indeed, the measurement items of SRSD developed by this study could be used as an audit tool for organizations to assess their SRSD implementation levels.

Several studies indicated that suppliers often find ways to evade compliance of ethical standards requested by buyers or are not willing to adopt CSR (e.g. Baden et al., 2009). Our results suggest that there are significant relationships between a supplier's CSR adoption and its performance concerning operational efficiency and financial returns, which implies that it is not necessary for suppliers to adopt a negative attitude when complying with the ethical requirements of buyers. We suggest that suppliers need to be aware that win-win results could be achieved when they are asked by buying firms to implement CSR or some ethics-related practices. When dealing with a buyer's requests in this regard, suppliers could cooperate with the buyer and come up with an implementation approach that will meet the needs of both the buyer and the supplier.

4.4.4 Limitations and future work

The limitation of this study is three-fold. First, as this is an exploratory study of introducing SRSD as a new approach to develop supplier's CSR adoption capabilities, we propose and test only one factor of buyer's CSR adoption as the motivation of implementing SRSD. There might be some other determinant factors of SRSD adoption underdetermined which can be explored and examined in future work. Second, this study focuses on investigating the beneficial returns of SRSD on some major performance outcomes, including reputation, operational and financial improvement, and risk reduction. There may be other outcomes such as trust in the buyer-supplier relationships or quality performance of the product, which are also affected by suppliers' CSR adoption. Thus, in order to better understand the effectiveness of SRSD, future research is suggested to evaluate other performance outcomes of SRSD. Last but not least, in this study we develop SRSD as an effective way to address the problems of unethical behaviour of suppliers. Since there may be some other approaches that buyers could use to enhance supplier ethical performance, future research could explore or develop other approaches which can effectively mitigate supply ethical risk.

4.4 Conclusion

Based on the data collected from four manufacturing industries in China, this chapter focuses on testing hypotheses concerning the direct relationships in the conceptual model (see Figure 4.1) using the structural model analysis of SEM. Our results indicate that a buyer's CSR adoption contributes to its own SRSD adoption, which in turn leads to the supplier's CSR adoption. The supplier's CSR adoption subsequently has direct or indirect impacts on a number of performance outcomes of both the supplier and the buyer. There results offer concrete

evidence to indicate that supply ethical risk is a critical category of supply chain risk and that SRSD is an effective approach to address supply ethical risk through its positive influence on the supplier's CSR adoption. The other important insights concerning the performance implications of SRSD are that first, SRSD could achieve win-win results for both the buyer and the supplier; and second, it could lead to improvements in not only supplier ethical performance, but also other dimensions such as financial performance and corporate reputation. Based on these findings, we present several implications for both academics and practitioners, and discuss some limitations and suggestions for future work. The next chapter examines the boundary conditions of SRSD adoption by testing the moderating-effect hypotheses depicted in our conceptual model (see Figure 2.1).

CHAPTER 5: AN EXAMINATION ON MODERATING EFFECT ANALYSIS

5.1 Introduction

In Chapter 2, we developed hypotheses on the moderating effects of social capital (H13a-c) on the linkage between buyers' CSR adoption and SRSD adoption, and the moderating effect of market turbulence (H14) on the linkage between SRSD adoption and supplier's CSR adoption. This chapter examines these hypotheses by using the multiple-group analysis of SEM. When employing this analytical approach, we first divided the 200 sample firms into high and low groups based on a median-split of the corresponding moderator. To test the moderating effect of the hypothesized moderator on a specific relationship, two tests were conducted in the multiple-group analysis, namely measurement invariance and structural invariance tests. In the following sections, the results of testing the moderating effect hypotheses are presented in four parts according to the theories involved so as to offer more specific theoretical and managerial implications. The conclusion summarizes the significance of the chapter and suggestions for future work.

5.4 The Moderators Relating to Social Capital

In this study we argue that there is a linkage between the buyer's CSR adoption and its SRSD adoption (i.e., H1). Based on the literature of social capital, we further propose that the social capital embedded in the buyer-supplier relationship can impact on such a linkage. Social capital is considered to be the valuable resources derived from specific networks which can influence the efficiency of creating, transferring and developing knowledge between network members (Nahapiet and Ghoshal, 1998). We argue that the buyer would consider if it possesses such resources with respect to the supplier concerned when determining whether or not it will adopt

SRSD. We argue that a socially responsible buyer would believe that the presence of social capital should facilitate its adoption of SRSD. According to the theory of social capital theory, there are three dimensions of social capital (Nahapiet and Ghoshal, 1998), and we propose that they (i.e., structural capital [H13a], relational capital [H13b] and cognitive capital [H13c]) can positively moderate the relationship between the buyer's CSR adoption and SRSD adoption.

5.4.1 Measurement invariance test

In order to conduct this moderating effect test, the sample firms were divided into four different high (N = 100) and low (N = 100) groups according to the median values of threesocial capital dimensions. In order to examine the three hypotheses concerning social capital (i.e., H13a-c), three separate analyses were conducted for each of the moderators. Before examining the measurement invariance, a configural invariance test was conducted to confirm that each group has the same number of factors and the same factor-loading pattern (Hair et al., 2010). It is expected that each model meets the acceptable level of model fit so that the baseline model can be identified for the subsequent model comparisons. According to the results of goodness-of-fit indices from the unconstrained CFA models ofthree social capital dimensions (see Table 5.1), the baseline models were found to fit the data adequately. The tests for measurement and structural invariance were then conducted to assess the equivalence of the factor loadings (measurement invariance) and factor correlations (structural invariance) across two groups. When identifying the measurement invariance, equality constraints were assigned to the factor loadings across groups and another model called metric invariance model was formed. The chi-square difference was then computed between the baseline model and the metric invariance model, and a non-significant difference between the two models is considered as the evidence of measurement invariance with all measuring constructs being similar under different studying

conditions (Hair et al., 2010). Nevertheless, a full invariance is difficult to achieve as models become complex. In this study the chi-square difference between high and low groups of the three models on different social capital dimensions were all significant and therefore the full invariance was not supported. We then seriatim freed the constraints on the factor loading that had the greatest differences so as to make the chi-square difference become non-significant. For the three models tested, the number of constraints freed ranged from 5 to 17 by following the principle that each construct should have at least two constraints. Finally, the results in Table 5.2 indicate that partial invariance was supported for the three models as the chi-square difference between baseline models and metric invariance models were not significant. The partial metric models become the baseline model for the following structural invariance test because the chi-square differences due to the measurement properties between the two groups were minimized and the research focus was on the moderating effects explained by the structural relationships.

Table 5.1: Goodness-of-fit results of configural models for high versus low social capital

	Structural capital	Relational capital	Cognitive capital
χ^2	4769.311	4746.879	4836.195
d.f.	2318	2318	2318
RMSEA	0.073	0.073	0.074
CFI	0.74	0.73	0.70

Table 5.2: Measurement invariance tests for high versus low social capital

	Structural capital	Relational capital	Cognitive capital
Measurement weight			
χ^2	4889.047	4965.835	5023.410
d.f.	2356	2356	2356
Configural model			
χ^2	4769.311	4746.879	4836.195
d.f.	2318	2318	2318
Metric invariance			
$\Delta\chi^2$	119.736	218.956	187.215
Δd.f.	38	38	38
P	<0.001	<0.001	<0.001
Number of constraints freed	5	17	13
Partial metric invariance			
$\Delta\chi^2$	47.235	38.249	36.921
Δd.f.	33	21	25
P	>0.05	>0.01	>0.05

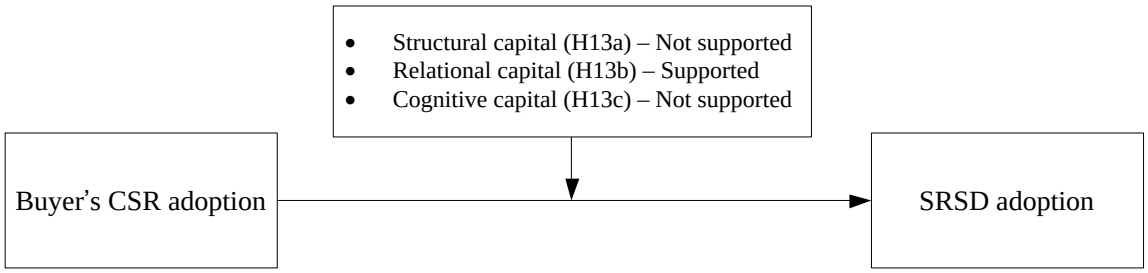
5.4.2 Structural invariance test

In the measurement invariance test, we constrained most factor loadings to be equal across the high-low groups. In the structural invariance assessment, we employed the results on the partial invariance model to further constrain all path estimates to be equal between the groups. The procedure of a structural invariance test is to conduct a chi-square difference test between the baseline model (partial measurement invariance model) and the full path invariance of the structural model. If a significant difference is found, we can conclude that the structural model is different across the two groups and such a difference is attributed to the moderating effects on the structural relationships in the model (Byrne, 2010). Table 5.3 shows that the structural models of three social capitals The results presented in Table 5.3 indicated that the chi-square difference between two groups of relational capital was statistically significant ($\Delta\chi^2 = 4.681$, Δd.f. = 1, $p < 0.05$), suggesting the moderating role of relational capital on the path from buyer's CSR adoption to SRSD adoption. More specifically, we checked the path estimates of relational capital model across two groups and found that the path coefficient was higher for the high relational capital group than the low relational capital group (high: $\gamma = 1.253$, $p < 0.001$ vs low: $\gamma = 0.677$, $p < 0.001$) , supporting H13b (see Figure 5.1). However, a non-significant difference with one degree of change was shown in the model comparison results of other two social capital dimensions, indicating that the structural models are invariant across the high-low groups of structural capital and cognitive capital. Thus, H13a and H13c were not supported.

Table 5.3: Structural invariance tests for high versus low social capital

	Structural capital	Relational capital	Cognitive capital
Partial metric invariance of measurement model			
χ^2	4816.546	4785.128	4873.116
d.f.	2351	2339	2343
Full path invariance of structural model			
χ^2	4875.651	4869.698	4950.835
d.f.	2366	2354	2358
Structural invariance			
$\Delta\chi^2$	59.105	84.57	77.719
Δd.f.	15	15	15
p	>0.001	>0.001	>0.001
$\Delta\chi^2$ for the relationship: buyer's CSR practices - SRSD	N.S.	4.681($p < 0.05$)	N.S.

Figure 5.1: Moderating effects of three social capital dimensions



5.4.3 Discussions and implications

5.4.3.1 Theoretical contributions

Much research has empirically investigated the roles of social capital in the intra-firm networks (e.g. Burt, 1997; McFadyen and Cannella Jr., 2004) and offered evidence to indicate its direct influence on organizational performance as either an antecedent or a mediator (e.g., Gulati and Sytch, 2007; Nielsen and Nielsen, 2009). However, limited findings are available concerning whether social capital has similar roles in inter-organizational settings such as strategic alliances or buyer-supplier networks. While many propositions have been developed regarding the potential impact of social capital on knowledge transfer between network members and organizational performance (e.g., Inkpen and Tsang, 2005; Choi and Kim, 2008), relevant

empirical evidence has been scant. In this study we extend the literature of social capital by empirically testing the role of the dimensions of social capital as moderators to influence the linkage between the buyer's CSR adoption and SRSD adoption within the context of buyer-supplier relationships.

Of the three dimensions of social capital tested, our results indicate that only one of them, which is relational capital, has a significant moderating impact on the relationship between the buyer's CSR adoption and SRSD adoption, supporting H13b. When there is a strong relational capital available in the relationship, relevant elements such as mutual respect, trust, and reciprocity are likely to be available in the companies involved in the relationship. The buyer may therefore believe that such elements would facilitate the transfer of CSR knowledge through the SRSD programme, and might be more willing to adopt SRSD. The significant role of relational caption could also be related to Guanxi. Guanxi is an important element in China's national culture, which describes benefit generated from the relational ties between network members (Zhao et al., 2008). Thus, because of the influence of Guanxi, sample firms of this study may consider relation development with suppliers very important and regard relational capital more important than other dimensions of social capital analyzed in this part of the investigation.

One plausible reason for the insignificant moderating effect of structural capital and cognitive capital on the buyer's CSR-SRSD relationship might be related to the nature of the dimensions of social capital analyzed and the knowledge of the informants of this study about them. Many researchers believe that the three types of social capital are closely related and have investigated their correlations and complementary effects on various performance outcomes (e.g. Tsai and Ghoshal, 1998; Simsek et al., 2003). These two dimensions could be very new concepts for

Chinese managers and they may not understand how they are different from each other. Yet under the strong national culture of Guanxi, they might consider relational capital as an important concern in supplier relationship management. Consequently, only relational capital has a significant impact on buyers' decisions in SRSD adoption.

5.4.3.2 Managerial contributions

Given the results that relational capital can positively moderate the impact of the buyer's CSR on SRSD adoption, we suggest that buyers or suppliers who are interested in SRSD programmes should develop relational capital with the other party concerned. For instance, they should keep close and frequent communications at multiple management levels so as to establish and maintain mutual respect, trust, reciprocity and personal friendships. Specifically, our results help the buying firms understand the importance of relational capital when deciding to adopt SRSD toward specific suppliers. Buyers may select the partners of SRSD adoption with strong relational capital as they may be less likely to behave opportunistically with mutual trust established on their relational ties. On the other hand, the results also imply that if suppliers undertake activities and invest resources in building and maintaining relational capital with their buyers, the likelihood that they are selected to be involved in SRSD adoption may be increased. In the long run, suppliers should focus on relational capital development with different buyers in their relational networks, and different extent of resources should be invested accordingly in developing relational capital based on their specific development needs and perceptions on different buyers.

5.5 The Moderator Relating to Market Turbulence

In order to examine the effectiveness of SRSD, we propose to test the relationship between the buyer's SRSD adoption and the supplier's CSR adoption (i.e., H2). We also argue that this linkage could be affected by market turbulence, which is the focus of this part of the analysis. Based primarily on the study of Hult et al (2007), which investigates the moderating effect of market turbulence on the knowledge development-cycle time relationship in supply chains, we argue that when a market becomes more turbulent, it provides more opportunities for organizations to match the environmental complexity by adjusting their strategies and behaviour through the knowledge development programme. Thus, we propose that market turbulence can positively moderate the relationship between the buyer's SRSD adoption and the supplier's CSR adoption (i.e., H14).

5.5.1 Measurement invariance test

Sample firms were divided into high (N = 100) and low (N = 100) groups based on the median value of market turbulence. In order to ensure that the model can meet the appropriate level of model fit and construct validity, we first conducted the configural invariance test and the results shown in Table 5.4 revealed that the values of all goodness-of-fit indices exceeded the cutoff points and the baseline model for the subsequent comparisons was established. In the measurement invariance test, we compared the chi-square values between the baseline model (i.e. configural model) and the metric invariance model with all factor loadings fixed to be equal. According to the results in Table 5.4, a significant difference was found in the first comparison; when we selectively released two constraints of factor loadings, the chi-square difference became non-significant ($\Delta\chi^2 = 49.934$, Δd.f. = 36, $p > 0.05$). Thus, partial invariance was achieved between the high and low market turbulence groups. When factor loadings were

invariant across the two groups, the effect of variations across two groups in measurement structures was minimized and this partial invariance model could be used as the baseline model for the subsequent structural invariance test.

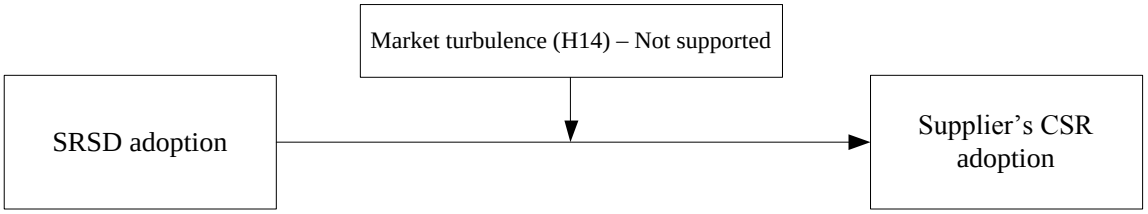
Table 5.4: Measurement invariance and structural invariance tests for high versus low market turbulence

	Configural model	Measurement weight	Metric invariance	Partial metric invariance of measurement model	Full path invariance of structural model	$\Delta\chi^2$ for the relationship: SRSD-supplier's CSR practices
χ^2	4922.643	4998.087		4972.577	5003.230	
d.f.	2318	2356		2354	2369	
RMSEA	0.075					
CFI	0.74					
$\Delta\chi^2$			75.444	49.934	30.653	4.597
Δd.f.			38	36	15	1
p			<0.001	>0.05	<0.01	<0.05

5.5.2 Structural invariance test

In order to check whether market turbulence is a moderator in the conceptual model, we compare the chi-square difference between the partial invariance measurement model established in the previous section and the full path invariance model with additional equivalence of all path loadings. Due to the significant difference shown in Table 5.4, the moderating effect of market turbulence was inferred across high-low groups. Further, since it was proposed that market turbulence can positively moderate the relationship between SRSD adoption and suppliers' CSR adoption, we released the constraint on this specific structural relationship and compared its chi-square value with the full path invariance model. Although a significant difference was achieved, as opposed to H14, the path from SRSD to suppliers' CSR practices was statistically stronger for the low market turbulence group than it was in the high market turbulence group (high: $\gamma = 0.681$, $p < 0.001$ vs low: $\gamma = 1.042$, $p < 0.001$, see Figure 5.2). Therefore, H14 was not supported.

Figure 5.2: Moderating effects of market turbulence



5.5.3 Discussions and implications

5.5.3.1 Theoretical contributions

Existing studies on market turbulence in general focus on its moderating roles relating to business performance such as innovation, financial performance and cycle time (e.g. Hult et al., 2007; Lichtenthaler, 2009). This section demonstrates the moderating effect of market turbulence in suppliers' CSR adoption as the direct outcome of SRSD adoption. More specifically, this study highlights that market turbulence impacts on not only performance outcomes, but also suppliers' leaning effectiveness with respect to the CSR-related development activities undertaken by buyers.

Though our hypothesis concerning the moderating role of market turbulence is not supported (i.e. the results indicate that the moderating effect is negative rather than positive as stated in H14), the results are consistent with the arguments in the work of Spina and Zotteri (2000), which propose that a certain degree of market turbulence could increase the benefits obtained from partnerships but a higher level of turbulence may make the partnership inefficient. There could be two plausible reasons to account for the results. First, when the environment is highly turbulent, the companies involved in the relationship may perceive that the relationship could be terminated in the future. Yet the adoption of SRSD needs a long-term commitment to the relationship. For instance, the buyer has to invest in many resources in different development

activities, whereas the supplier has to alter its operations or corporate culture according to guidelines provided by the buyer. When one or both of them lack the necessary commitment, the results of SRSD are very unlikely to be effective. Second, when the environment is highly turbulent, different forms of changes (e.g., those occurred in operations, products, service, etc.) occur more frequently. The organizations operate under such an environment have to utilize their resources to address the changes and solve the resultant problems. Therefore, the resources that they may use to adopt SRSD or learn CSR capabilities are probably limited. When resources are limited, SRSD adoption becomes ineffective.

5.5.3.2 Managerial contributions

Organizations needs to understand that ethical performance and the related CSR practices are related to the competitive advantage and sustainable development of different businesses, which should not be ignored even when the environment is highly turbulent. When undertaking or participating in SRSD practices, organizations (i.e., buyers or suppliers) should forecast possible market changes. When they find the relationship is likely to be long-term, they have to be committed to the relationship and provide necessary resources for the related SRSD activities. We also suggest that buyers or suppliers involved in SRSD activities could develop certain ethics-related performance indicators and monitor them on a regular basis. By using the results based on such indicators, buyers and suppliers can determine whether or not they perform well concerning ethics management and whether much more resources are needed.

5.6 Conclusion

Using multiple group analysis in SEM, we tested four proposed moderators in our conceptual model and found that relational capital positively moderate the relationship between the buyer's CSR adoption and SRSD adoption; and market turbulence negatively moderates the relationship between SRSD adoption and the supplier's CSR adoption. This study is the first to investigate the moderating roles of theories on social capital and market turbulence regarding the adoption of SRSD among buyer-supplier relationships of the manufacturing industries in China. Based on the research findings, there are insightful theoretical and managerial implications.

For future work, two research directions are worth noting. First, we tested the moderating effects of social capital and market turbulence theories. There could be other theories which could have significant moderating effects on the posited direct relationships. For instance, some internal factors like organizational learning and top management support, and external factors like joint dependence and political behaviours can be considered as other potential moderators to be examined in future work. Second, we examine the moderating effects of the theories separately. In fact, it is possible that two theories may interact to impact on the direct relationships. For instance, one hypothesis could be "When a socially responsible manufacturer operates under a highly turbulent environment and possesses a strong social capital with the supplier concerned, it tends to adopt SRSD." Thus, future research could develop and test hypotheses which address the moderating effects of two theories interacting with each other.

CHAPTER 6: CONCLUSION

6.1 An Overview

Some recent ethical incidents reveal that suppliers' unethical behaviour can severely affect a buying firm's performance. Based on a literature review of business ethics and supply chain risk management, we find that limited studies in the literature addressed problems resulted from suppliers' unethical behaviour. This study integrates the literature of business ethics and supply chain risk management to develop a new category of risk – supply ethical risk. We also integrate the literature of SD and CSR to develop a new approach – SRSD. We argue that buying firms can adopt SRSD in order to enhance the CSR adoption capabilities of the supplier and mitigate its supply ethical risk. We also argue that through the improved ethical performance in the supplier, both the buyer and the supplier will have better performance with respect to dimensions such as operational performance, financial performance, and corporate reputation. These relationships are discussed and developed as part of the hypotheses of this study in Chapter 2 (see Section 2.3) and the related analysis results are presented in Chapter 4.

We also argue that the linkages between SRSD and its antecedent and outcome should be moderated by certain organizational or contextual concepts. We identify social capital and market turbulence as the relevant theories, which the concepts could moderate the aforementioned linkages. These moderating relationships are the other hypotheses of this study (see Section 2.4 of Chapter 2) and the analysis results are presented in Chapter 5.

In terms of research methodology, a panel discussion was first carried out with a number of experts in China to collect experts' opinions for developing the definitions and measures for the two new concepts of this study, i.e., SRSD and supply ethical risk. In order to develop the survey instruments of this study, a thorough literature review was also conducted to identify the

measures for the other concepts of this study. After developing the draft instruments of this study, a pilot test was carried out. The test involved managers of 20 paired buyer-supplier dyadic firms. By using comments collected from the pilot test, two survey instruments were finalized, one for the buyer and the other for the supplier. Next, we distributed the buyer survey to manufacturers of four industries in China, namely, food, pharmaceutical, automotive, and clothing industries. Based on the supplier information provided by the buyers, we conducted the supplier survey. We successfully collected data from 200 pairs of buyer-supplier relationships. A number of statistical techniques were employed such as reliability, confirmatory factor analysis, convergent validity and discriminant validity to examine the reliability and validity of instrument measures. Finally, SEM was used to test the hypotheses of this study.

6.2 Main Findings and Implications

This study makes great contributions by (1) developing and validating the new concepts of SRSD and supply ethical risk; (2) understanding the relationship between CSR, SRSD and a series of performance outcomes in the buyer and supplier; (3) justifying the moderating effects on the main relationships in the conceptual model. Specifically, this study first introduces two new concepts namely socially responsible supplier development (SRSD) and supply ethical risk. The development of supply ethical risk extends the literature of supply chain risk management by suggesting that supply chain risks should not be limited to material disruptions.Instead, the possibility that suppliers may commit ethical behaviour is an important category of risk which should not be overlooked within a risk management plan. Similarly, the development of SRSD extends the literature of SD and CSR by suggesting that the capabilities developed by SD could be corporate-level practices (e.g., CSR) rather than operational practices. The validated

measures of these new concepts are useful for researchers and practitioners. For instance, researchers can use these measures to further examine SRSD and supply ethical risk by using survey data from different contexts. In addition, the measures underlying the three dimensions of SRSD offer ideas to practitioners about specific practices they need to implement when intending to improve their suppliers' capabilities in CSR adoption. Practitioners could also conduct regular audits by using the validated measures of supply ethical risk. Based on the audit results, practitioners can make better decisions on how they should influence the ethical behaviour of the supplier concerned.

In response to the first two research objectives, we propose and empirically test the linkages between SRSD adoption, CSR adoption and various performance outcomes in buying and supply firms. Our results first show that SRSD adoption has a significant impact on the supplier's CSR adoption, indicating the effectiveness of SRSD in enhancing the supplier's ethical performance. This finding suggests to the business ethics researchers that CSR can be not merely developed in an internal way, but enhanced through inter-organizational collaboration between supply chain partners. It also provides insights to practitioners who attempt to improve suppliers' ethical behaviour, as SRSD is likely an effective approach to increase a supplier's CSR adoption level. Second, the results indicate that the supplier's CSR adoption can lower supplier opportunism and lead to improvements in operational and financial performance of buyers and suppliers, buyers' corporate reputation and supply ethical risk. The implication is that suppliers' ethical behaviour is of great importance to the organizational performance of both buyers and suppliers and that both organizations should be more willing to collaborate in the activities involved in order to make the buyer's SRSD efforts and the supplier's CSR efforts more effective. Third, the results suggest that buyers' CSR adoption is a

valid antecedent leading to SRSD adoption, and buying firms who intend to develop CSR capabilities in suppliers should ensure that they have adequate levels of CSR adoption and capabilities.

In response to the last two research objectives, we explore the moderating effects on the relationships between the buyer's CSR adoption and SRSD adoption, and between the buyer's SRSD adoption and the supplier's CSR adoption. The results suggest that a high level of relational capital between the buyer and the supplier make socially responsible buyers (i.e., CSR adopted) more inclined to adopt SRSD. With respect to the moderating role of market turbulence, it was found that it has a significant impact on the relationship between the buyer's SRSD and the supplier's CSR. However, the moderating effect is different from what hypothesis H14 predicts because it is negative rather than positive. Overall, resultsindicate that some theories tested are moderating factors affecting organizations' decisions on SRSD adoption or the effectiveness of SRSD efforts. These results enrich the literature of the theories concerned by offering empirical evidence regarding the moderating roles of the different concepts. These results also inspire practitioners that such valid moderating factors are important concerns for managers to consider when they intend to adopt SRSD as the factors may affect their adoption outcomes.

6.3 Research Limitations and Future Work

Except for the specific limitations discussed in Chapters 4 and 5, there are primarily three other limitations within this study. First, we test all hypotheses based on cross-sectional survey data, which makes the assumed cause-effect relationships between CSR adoption, SRSD adoption

and different performance outcomes questionable. Future research can collect data using a longitudinal approach so as to offer more valid evidence to support the posited cause-effect relationships in the hypotheses. Second, the survey instruments of this study had a total of 104 measurement items. According to the suggested sample size ratio of 10:1 in confirmatory factor analysis (Hair et al., 2010), the data collected in this study is insufficient. So we divided our constructs randomly into four groups to conduct some of the validation tests. A sample size of at least 1000 is needed to test our instrument in a single analysis which drives the researchers to employ a bigger data-set for generating more generalizable CFA results in the future. Third, data was collected from four manufacturing industries in China for hypotheses testing. In order to further generalize our findings, future work can replicate the current study by focusing on other manufacturing industries such as toy and furniture, or service sectors such as retail industry and public organizations. Since organizations of different industries operate under different environments and face unique challenges and problems, future research can also test the conceptual model by using data of other industries to offer some industry-specific insights or insights into the differences between results of differing industries.

APPENDIX 1: QUESTIONNAIRE

CORPORATE SOCIAL RESPONSIBILITY STUDY QUESTIONNAIRE (BUYER)

This questionnaire is designed for a corporate social responsibility study. The feedbacks are merely for academic use without any commercial purpose. All contents in this questionnaire will be kept strictly confidential. If you are interested with our study topic, we will offer you a summary report after this study in return of your involvement and support. Thanks!

-School of Business, Hong Kong Polytechnic University

Section A Corporate Social Responsibility

Please rate the selected items by the degree of implementation level: (1 = Strongly Disagree; 4 = Neutral; 7 = Strongly Agree)

1 Ethics Codes	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1) Our company has established a set of transparent, comprehensive, and stringent codes of conduct aiming at resisting bribery, corruption, and other illicit acts	☐	☐	☐	☐	☐	☐	☐
2) Throughout the company, every manager and employee has strictly implemented the above codes of conduct	☐	☐	☐	☐	☐	☐	☐
3) Our company has established an ethics compliance department or division that specifically handles the improvement, training, and enforcement of the above codes of conduct	☐	☐	☐	☐	☐	☐	☐
2 Environment CSR Practices	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1) Measure our organization's environmental performance	☐	☐	☐	☐	☐	☐	☐
2) Incorporate environmental concerns in our business decisions	☐	☐	☐	☐	☐	☐	☐
3) Incorporate environmental performance objectives in our organizational plans	☐	☐	☐	☐	☐	☐	☐
3 Investor CSR Practices	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1) Provide our investors with full and accurate financial information about the organization	☐	☐	☐	☐	☐	☐	☐
2) Incorporate the interests of our investors in business decisions	☐	☐	☐	☐	☐	☐	☐
3) Inform our investors of changes in corporate policy	☐	☐	☐	☐	☐	☐	☐
4) Provide all investors with a competitive return on investment	☐	☐	☐	☐	☐	☐	☐
5) Seek the input of our major investors regarding strategic decisions	☐	☐	☐	☐	☐	☐	☐
4 Employee CSR Practices	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1) Safeguard the legitimate rights and interests of employees	☐	☐	☐	☐	☐	☐	☐
2) Provide our employees with salaries that properly and fairly reward them for their work	☐	☐	☐	☐	☐	☐	☐
3) Provide procedures that help to insure the health and safety of our employees	☐	☐	☐	☐	☐	☐	☐
4) Treat our employees fairly and respectfully, regardless of gender or ethnic background	☐	☐	☐	☐	☐	☐	☐
5 Customer CSR Practices	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1) Adapt products or services to enhance the level of customer satisfaction	☐	☐	☐	☐	☐	☐	☐
2) Provide all customers with the information needed to make sound purchasing	☐	☐	☐	☐	☐	☐	☐

decisions							
3) Satisfy the complaints of our customers about products or services	☐	☐	☐	☐	☐	☐	☐
6 Supplier CSR Practices	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1) Treat suppliers, regardless of their size and location, fairly and respectfully	☐	☐	☐	☐	☐	☐	☐
2) Incorporate the interests of our suppliers in our business decisions	☐	☐	☐	☐	☐	☐	☐
3) Inform our suppliers about organizational changes affecting our purchasing decisions	☐	☐	☐	☐	☐	☐	☐
4) Open the purchasing principles and sign the contract according to the law	☐	☐	☐	☐	☐	☐	☐
5) Concern about how suppliers manager the ethical performance of their own suppliers	☐	☐	☐	☐	☐	☐	☐
7 Community CSR Practices	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1) Understand the needs of the communities where we operate by community communication	☐	☐	☐	☐	☐	☐	☐
2) Financially support education (e.g., school building, scholarship, etc.) and cultural (e.g., arts, sports, etc.) activities in the communities where we operate	☐	☐	☐	☐	☐	☐	☐
3) Incorporate the interests of the communities, where we operate, in our business decisions	☐	☐	☐	☐	☐	☐	☐

Section B Market Turbulence

Please rate the selected items by the degree of implementation level: (1 = Strongly Disagree; 4 = Neutral; 7 = Strongly Agree)

1 Market Turbulence	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1) In our kind of business, customers' product preferences change quite a bit over time.	☐	☐	☐	☐	☐	☐	☐
2) Our customers tend to look for new products all the time	☐	☐	☐	☐	☐	☐	☐
3) We have demand for our products from customers who never bought them before	☐	☐	☐	☐	☐	☐	☐
4) New customers have product needs that are different from our existing customers	☐	☐	☐	☐	☐	☐	☐

Section C Performance Outcomes

Please rate the selected items by the degree of implementation level: (1 = Strongly Disagree; 4 = Neutral; 7 = Strongly Agree)

1 Financial performance	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1) Our total assets have been substantially better	☐	☐	☐	☐	☐	☐	☐
2) Our return on assets has been substantially better	☐	☐	☐	☐	☐	☐	☐
3) Our sales income has been substantially better	☐	☐	☐	☐	☐	☐	☐
4) Our total profit has been substantially better	☐	☐	☐	☐	☐	☐	☐
2 Operational performance	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1) Shorten the delivery times of our products	☐	☐	☐	☐	☐	☐	☐
2) Increase the reliability of the product delivery times	☐	☐	☐	☐	☐	☐	☐
3) Being able to flexible response the requirements of end customer	☐	☐	☐	☐	☐	☐	☐

3 Reputation							
How would you rate these companies on each of the following attributes	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1) Quality of products or services	☐	☐	☐	☐	☐	☐	☐
2) Long-term investment value	☐	☐	☐	☐	☐	☐	☐
3) Innovativeness	☐	☐	☐	☐	☐	☐	☐
4) Financial soundness	☐	☐	☐	☐	☐	☐	☐
5) Ability to attract, develop, and keep talented people	☐	☐	☐	☐	☐	☐	☐
6) Community and environmental responsibility	☐	☐	☐	☐	☐	☐	☐

Section D Social Capital							
Please rate the selected items by the degree of implementation level: (1 = Strongly Disagree; 4 = Neutral; 7 = Strongly Agree)							
1Structural capital	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1) We have very frequent face-to-face planning with key suppliers	☐	☐	☐	☐	☐	☐	☐
2) There is high corporate level communication on important issues with key suppliers	☐	☐	☐	☐	☐	☐	☐
3) The participation level of our major supplier in the process of procurement and production.	☐	☐	☐	☐	☐	☐	☐
2 Relational capital	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1)There is close and frequent contacts with the firms in our supply base	☐	☐	☐	☐	☐	☐	☐
2) The alliance is characterized by mutual respect between the partners at multiple levels	☐	☐	☐	☐	☐	☐	☐
3) The alliance is characterized by mutual trust between the partners at multiple levels	☐	☐	☐	☐	☐	☐	☐
4) The alliance is characterized by personal friendship between the partners at multiple levels	☐	☐	☐	☐	☐	☐	☐
5) The alliance is characterized by high reciprocity in our supply base	☐	☐	☐	☐	☐	☐	☐
3 Cognitive capital	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1) Our supplier share a common understanding with us about the needs of the end customer	☐	☐	☐	☐	☐	☐	☐
2) Our supplier share a common understanding with us about how our actions impact each other	☐	☐	☐	☐	☐	☐	☐
3) Our supplier have a common understanding with us about market trends and developments	☐	☐	☐	☐	☐	☐	☐
4) Our supplier understand our needs and priorities	☐	☐	☐	☐	☐	☐	☐
5) There is general agreement between supplier and us about market information	☐	☐	☐	☐	☐	☐	☐

Section E Supplier Management

The following questions are designed to understand how you manage your long-term suppliers, please rate the selected items based on the facts of a specific important supplier.

Regarding how to help improve this supplier's CSR adoption level, please rate the selected items
(1 = Strongly Dissatisfied; 4 = Neutral; 7 = Strongly Satisfied)

1 Information sharing	**1**	**2**	**3**	**4**	**5**	**6**	**7**
2) It is expected that we keep each other informed about our CSR practices or changes that may affect this supplier.	☐	☐	☐	☐	☐	☐	☐
3) It is expected that we communicate the ethical behavior requirements clearly and accurately to the supplier	☐	☐	☐	☐	☐	☐	☐
4) Our communication on issues concerning CSR implementation occurs at different levels of management and cross-functional areas	☐	☐	☐	☐	☐	☐	☐
2 Supplier evaluation	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1) Assessment of supplier's ethical performance through formal evaluation, using established guidelines and procedures	☐	☐	☐	☐	☐	☐	☐
2) Provide supplier with feedback about the results of such evaluation	☐	☐	☐	☐	☐	☐	☐
3) Maintain or increase the order quantity according to the evaluation results so as to encourage the suppliers who actively perform socially responsible duties.	☐	☐	☐	☐	☐	☐	☐
3 Supplier development	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1) Regular visits by our personnel to the supplier to help them improve ethical performance	☐	☐	☐	☐	☐	☐	☐
2) Training/education of the supplier's personnel about CSR practices and the required skills in implementation	☐	☐	☐	☐	☐	☐	☐
3) We have a dedicated supplier development team focusing on the improvement of the supplier's business ethics	☐	☐	☐	☐	☐	☐	☐
4 Perceived supply ethical risk (1 = Not Knowledgeable, 7 = Knowledgeable)							
Supplier engages in activities that:	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1) May harm the benefits of the product end-users of our supply chain	☐	☐	☐	☐	☐	☐	☐
2) May harm the benefits of other members in our supply chain	☐	☐	☐	☐	☐	☐	☐
3) May harm the benefits of their own employees	☐	☐	☐	☐	☐	☐	☐
4) May be harmful to the environment	☐	☐	☐	☐	☐	☐	☐

Respondent Competence (1 = Not Knowledgeable, 7 = Knowledgeable)							
How knowledgeable are you about the following in your firm's relationship with this specific supplier firm?	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1) How similar their goals are	☐	☐	☐	☐	☐	☐	☐
2) The nature of unique investments, assets, capabilities, etc. that are used in the relationship	☐	☐	☐	☐	☐	☐	☐
3) The degree to which they have earned strategic advantages over their competitors	☐	☐	☐	☐	☐	☐	☐

CORPORATE SOCIAL RESPONSIBILITY STUDY QUESTIONNAIRE (SUPPLIER)

This questionnaire is designed for a corporate social responsibility study. The feedbacks are merely for academic use without any commercial purpose. All contents in this questionnaire will be kept strictly confidential. If you are interested with our study topic, we will offer you a summary report after this study in return of your involvement and support. Thanks!

- **School of Business, Hong Kong Polytechnic University**

Section A Corporate Social Responsibility

Please rate the selected items by the degree of implementation level: (1 = Strongly Disagree; 4 = Neutral; 7 = Strongly Agree)

1 Ethics Codes	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1) Our company has established a set of transparent, comprehensive, and stringent codes of conduct aiming at resisting bribery, corruption, and other illicit acts	☐	☐	☐	☐	☐	☐	☐
2) Throughout the company, every manager and employee has strictly implemented the above codes of conduct	☐	☐	☐	☐	☐	☐	☐
3) Our company has established an ethics compliance department or division that specifically handles the improvement, training, and enforcement of the above codes of conduct	☐	☐	☐	☐	☐	☐	☐
2 Environment CSR Practices	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1) Measure our organization's environmental performance	☐	☐	☐	☐	☐	☐	☐
2) Incorporate environmental concerns in our business decisions	☐	☐	☐	☐	☐	☐	☐
3) Incorporate environmental performance objectives in our organizational plans	☐	☐	☐	☐	☐	☐	☐
3 Investor CSR Practices	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1) Provide our investors with full and accurate financial information about the organization	☐	☐	☐	☐	☐	☐	☐
2) Incorporate the interests of our investors in business decisions	☐	☐	☐	☐	☐	☐	☐
3) Inform our investors of changes in corporate policy	☐	☐	☐	☐	☐	☐	☐
4) Provide all investors with a competitive return on investment	☐	☐	☐	☐	☐	☐	☐
5) Seek the input of our major investors regarding strategic decisions	☐	☐	☐	☐	☐	☐	☐
4 Employee CSR Practices	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1) Safeguard the legitimate rights and interests of employees	☐	☐	☐	☐	☐	☐	☐
2) Provide our employees with salaries that properly and fairly reward them for their work	☐	☐	☐	☐	☐	☐	☐
3) Provide procedures that help to insure the health and safety of our employees	☐	☐	☐	☐	☐	☐	☐
4) Treat our employees fairly and respectfully, regardless of gender or ethnic background	☐	☐	☐	☐	☐	☐	☐
5 Customer CSR Practices	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1) Adapt products or services to enhance the level of customer satisfaction	☐	☐	☐	☐	☐	☐	☐
2) Provide all customers with the information needed to make sound purchasing decisions	☐	☐	☐	☐	☐	☐	☐
3) Satisfy the complaints of our customers about products or services	☐	☐	☐	☐	☐	☐	☐

6 Supplier CSR Practices	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1) Treat suppliers, regardless of their size and location, fairly and respectfully	☐	☐	☐	☐	☐	☐	☐
2) Incorporate the interests of our suppliers in our business decisions	☐	☐	☐	☐	☐	☐	☐
3) Inform our suppliers about organizational changes affecting our purchasing decisions	☐	☐	☐	☐	☐	☐	☐
4) Open the purchasing principles and sign the contract according to the law	☐	☐	☐	☐	☐	☐	☐
5) Concern about how suppliers manager the ethical performance of their own suppliers	☐	☐	☐	☐	☐	☐	☐
7 Community CSR Practices	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1) Understand the needs of the communities where we operate by community communication	☐	☐	☐	☐	☐	☐	☐
2) Financially support education (e.g., school building, scholarship, etc.) and cultural (e.g., arts, sports, etc.) activities in the communities where we operate	☐	☐	☐	☐	☐	☐	☐
3) Incorporate the interests of the communities, where we operate, in our business decisions	☐	☐	☐	☐	☐	☐	☐

2) We have a great deal of experience with the supply management process	☐	☐	☐	☐	☐	☐	☐
3) We have a great deal of familiarity with the supply management process	☐	☐	☐	☐	☐	☐	☐
4) We have invested a great deal of research and development in the supply management process	☐	☐	☐	☐	☐	☐	☐

Section B Performance Outcomes

Please rate the selected items by the degree of implementation level: (1 = Strongly Disagree; 4 = Neutral; 7 = Strongly Agree)

1 Financial performance	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1) Our total assets have been substantially better	☐	☐	☐	☐	☐	☐	☐
2) Our return on assets has been substantially better	☐	☐	☐	☐	☐	☐	☐
3) Our sales income has been substantially better	☐	☐	☐	☐	☐	☐	☐
4) Our total profit has been substantially better	☐	☐	☐	☐	☐	☐	☐
2 Operational performance	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1) Shorten the delivery times of our products	☐	☐	☐	☐	☐	☐	☐
2) Increase the reliability of the product delivery times	☐	☐	☐	☐	☐	☐	☐
3) Being able to flexible response the requirements of end customer	☐	☐	☐	☐	☐	☐	☐

Respondent Competence (1 = Not Knowledgeable, 7 = Knowledgeable)							
How knowledgeable are you about the following in your firm's relationship with this specific buying firm?	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1) How knowledgeable are you about the following in your firm's relationship with the buyer/supplier firm	☐	☐	☐	☐	☐	☐	☐
2) The nature of unique investments, assets, capabilities, etc. that are used in the relationship	☐	☐	☐	☐	☐	☐	☐
3) The degree to which they have earned strategic advantages over their competitors	☐	☐	☐	☐	☐	☐	☐

APPENDIX 2: MEASUREMENT ITEMS

BUYER'S CSR PRACTICES

Ethics code CSR practice (adapted from Luo, 2006)

1. Establish a set of transparent, comprehensive, and stringent codes of conduct aiming at resisting bribery, corruption, and other illicit acts.
2. Strictly implement the above codes of conduct by every manager and employee.
3. Establish an ethics compliance department or division that specifically handles the improvement, training, and enforcement of the above codes of conduct.

Environment CSR practice (adapted from Lindgreen et al., 2009)

1. Measure our organization's environmental performance.
2. Incorporate environmental concerns in our business decisions.
3. Incorporate environmental performance objectives in our organizational plans.

Investor CSR practice (adapted from Lo et al., 2008; Lindgreen et al., 2009)

1. Provide our investors with full and accurate financial information about the organization.
2. Incorporate the interests of our investors in business decisions.
3. Inform our investors of changes in corporate policy.
4. Provide investors with a competitive return on investment.
5. Seek the input of our major investors regarding strategic decisions.

Employee CSR practice (adapted from Lindgreen et al., 2009)

1. Safeguard the legitimate rights and interests of employees.
2. Provide our employees with salaries that properly and fairly reward them for their work.
3. Provide procedures that help to ensure the health and safety of our employees.
4. Treat our employees fairly and respectfully, regardless of gender or ethnic background.

Customer CSR practice (adapted from Lo et al., 2008; Lindgreen et al., 2009)

1. Adapt products or services to enhance the level of customer satisfaction.
2. Provide customers with the information needed to make sound purchasing decisions.
3. Satisfy the complaints of our customers about products or services.

4.

Supplier CSR practice (adapted from Lindgreen et al., 2009)

1. Treat suppliers, regardless of their size and location, fairly and respectfully.
2. Incorporate the interests of our suppliers in our business decisions.
3. Inform our suppliers about organizational changes affecting our purchasing decisions.
4. Open the purchasing principles and sign contracts according to the law.
5. Be concerned about how suppliers manage the ethical performance of their own suppliers.

Community CSR practice (adapted from Lindgreen et al., 2009)

1. Understand the needs of the communities where we operate by communication.
2. Financially support education (e.g., school building, scholarship, etc.) and cultural (e.g., arts, sports, etc.) activities in the communities where we operate.
3. Incorporate the interests of the communities, where we operate, in our business decisions.

SUPPLIER'S CSR PRACTICES

Ethics codes CSR practice (adapted from Luo, 2006)

1. Establish a set of transparent, comprehensive, and stringent codes of conduct aiming at resisting bribery, corruption, and other illicit acts.
2. Strictly implement the above codes of conduct by every manager and employee.
3. Establish an ethics compliance department or division that specifically handles the improvement, training, and enforcement of the above codes of conduct.

Environment CSR practice (adapted from Lindgreen et al., 2009)

1. Measure our organization's environmental performance.
2. Incorporate environmental concerns in our business decisions.
3. Incorporate environmental performance objectives in our organizational plans.
4. Financially support environmental initiatives.

Investor CSR practice (adapted from Lo et al., 2008; Lindgreen et al., 2009)

1. Provide our investors with full and accurate financial information about the organization.

2. Incorporate the interests of our investors in business decisions.
3. Inform our investors of changes in corporate policy.
4. Provide all investors with a competitive return on investment.
5. Seek the input of our major investors regarding strategic decisions.

Employee CSR practice (adapted from Lindgreen et al., 2009)

1. Safeguard the legitimate rights and interests of employees.
2. Provide our employees with salaries that properly and fairly reward them for their work.
3. Provide procedures that help to ensure the health and safety of our employees.
4. Treat our employees fairly and respectfully, regardless of gender or ethnic background.
5. Care the private and professional lives of employees.

Customer CSR practice (adapted from Lo et al., 2008; Lindgreen et al., 2009)

1. Adapt products or services to enhance the level of customer satisfaction.
2. Provide all customers with the information needed to make sound purchasing decisions.
3. Satisfy the complaints of our customers about products or services.

Supplier CSR practice (adapted from Lindgreen et al., 2009)

1. Incorporate the interests of our suppliers in our business decisions.
2. Inform our suppliers about organizational changes affecting our purchasing decisions.
3. Incorporate the requirements of ethics and environment into the purchasing contract.
4. Be concerned about how suppliers manage the ethical performance of their own suppliers.

Community CSR practice (adapted from Lindgreen et al., 2009)

1. Understand the needs of the communities where we operate by communication.
2. Help improve the quality of life in the communities where we operate.
3. Incorporate the interests of the communities, where we operate, in our business decisions.

SOCIALLY RESPONSIBLE SUPPLIER DEVELOPMENT (SRSD)

Information sharing (based on Humphreys and Chan, 2004; Krause et al., 2007)

1. It is expected that we keep each other informed about our CSR practices or changes that may affect this supplier.
2. It is expected that we communicate the ethical behaviour requirements clearly and accurately to the supplier.
3. Our communication on issues concerning CSR implementation occurs at different levels of management and cross-functional areas.

Supplier evaluation (based on Krause et al., 2007)

1. We assess suppliers' ethical performance through a formal evaluation, using established guidelines and procedures.
2. We provide suppliers with feedback about the results of such an evaluations
3. We maintain or increase order quantity according to the evaluation results to encourage suppliers who actively perform socially responsible duties.

Supplier development (based on Krause et al., 2007)

1. We regularly visit the supplier to help them improve ethical performance.
2. We provide suppliers with training/education about CSR practices and the required skills in implementation.
3. We have a dedicated supplier development team focusing on the improvement of the supplier's business ethics.

SUPPLIER PERFORMANCE OUTCOMES

Supplier opportunism (adapted from John, 1984; Carson et al., 2006)

1. The supplier has sometimes promised to do things without actually doing them later.
2. The supplier sometimes altered facts to get what it wanted.
3. The supplier sometimes exaggerated the necessity of changes it wanted to the development plan or budget.

Supplier financial performance (adapted from McGuire et al., 1988)

Relative to our most relevant competitors, over the past 3 years:

1. Our total assets have been substantially better.
2. Our return on assets has been substantially better.
3. Our asset growth has been substantially better.
4. Our operating income growth has been substantially better.

Supplier operational performance (adapted from Kristal et al., 2010)

1. Our product lead time has been substantially shortened.
2. The product reliability of our lead time has been substantially better.
3. Our production flexibility has substantially increased.

BUYER PERFORMANCE OUTCOMES

Supply ethical risk

1. This supplier engages in activities that may harm the benefits of the product end-users of our supply chain.
2. This supplier engages in activities that may harm the benefits of other members in our supply chain.
3. This supplier engages in activities that may harm the benefits of their own employees.
4. This supplier engages in activities that may be harmful to the environment.

Buyer financial performance (adapted from McGuire et al., 1988)

Relative to our most relevant competitors, over the past 3 years:

1. Our total assets have been substantially better.
2. Our asset growth has been substantially better.
3. Our sales growth has been substantially better.
4. Our operating income growth has been substantially better.

Buyer operational performance (adapted from Kristal et al., 2010)

1. Our product lead time has been substantially shortened.
2. The product reliability of our lead time has been substantially better.
3. Our production flexibility has substantially increased.

Corporate reputation (adapted from Fombrun and Shanley, 1990)

How would you rate these companies on each of the following attributes?

1. Quality of products or services;
2. Long-term investment value;
3. Innovativeness;
4. Financial soundness;
5. Ability to attract, develop, and keep talented people;
6. Community and environmental responsibility;

SOCIAL CAPITAL

Structural capital (adapted from Lawson et al., 2008; Flynn et al., 2010)

1. We have very frequent face-to-face planning with key suppliers.
2. There is high corporate-level communication on important issues with key suppliers.
3. The participation level of our major suppliers in the process of procurement and production is high.

Relational capital (adapted from Kale et al., 2000)

1. There are close and frequent contacts with the firms in our supply base.
2. The alliance is characterized by mutual respect between the partners at multiple levels.
3. The alliance is characterized by mutual trust between the partners at multiple levels.
4. The alliance is characterized by personal friendship between the partners at multiple levels.
5. The alliance is characterized by high reciprocity in our supply base.

Cognitive capital (adapted from Bernardes, 2010)

1. Our supplier shares a common understanding with us about the needs of the end customer.
2. Our supplier shares a common understanding with us about how our actions impact each other.
3. Our supplier has a common understanding with us about market trends and developments.
4. Our supplier understands our needs and priorities.
5. There is general agreement between the supplier and us about market information.

MARKET TURBULENCE (adapted from Jaworski and Kohli, 1993)

1. In our kind of business, customers' product preferences change quite a bit over time.
2. Our customers tend to look for new products all the time.
3. There is demand for our products from customers who have never bought them.
4. New customers have product needs that are different from our existing customers.

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