

**Impact of Green Supply Chain Partnership Governance on
Corporate Financial Performance: Evidence from the UK**

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Abstract

It is widely argued that managing supply chain partnerships following environment friendly principals could protect the focal firm's reputation and improve its financial performance. However, the understanding of the role of supply chain partnership governance according to the environmental criteria on corporate financial performance is still nascent. This paper aims to investigate how green supply chain partnership governance (i.e., governance of supply chain partnership based on environmental criteria), in terms of supplier selection and the readiness to terminate a partnership with a supplier if environmental criteria are not met, will affect corporate financial performance. Drawing on the social capital theory, this paper uses the panel data from UK public listed companies (PLCs) in the FTSE All-share index to gain evidence that readiness to terminate the partnership with a supplier, when the environmental criteria are not met, has a positive effect on corporate financial performance. This paper extends the understanding of the green governance strategies at the supply chain level and provide practical implications to supply chain managers.

Keywords: Supply chain partnership; green supply chain management; governance; corporate financial performance

Track: Inter-organizational collaboration

Word count: 6,736

1. Introduction

Firms are facing increasing pressures from external stakeholders, including regulators, customers and NGOs, to enhance the environmental sustainability of their supply chains (Grimm et al., 2014; Rao, 2002). The concept of green supply chain management (GSCM) is increasingly adopted by firms driven by reactive regulatory compliance or proactive strategic reasons to gain competitive advantage (Sarkis, 1999). Part of the GSCM effort is to integrate members of the supply chain into environmental management processes, which is necessary for firms to reap the greatest benefits from their environmental management initiatives (Nawrocka, 2008; Walton et al., 1998). This typically involves screening and selecting suppliers based on their environmental performance and forming partnerships only with suppliers that satisfy certain environmental standards (Hsu and Hu, 2009; Rao, 2002; Genovese et al., 2013).

Supplier selection based on environmental criteria enables the buying firms to prevent potentially irresponsible suppliers entering the supply chain (Foerstl et al., 2010). For further mitigate environmental risks and ensure performance improvement, firms also need to effectively manage the qualified suppliers in the supply base, and terminate the supply chain partnership when environmental criteria are not met (Quintana-García et al., 2021; Foerstl et al., 2010).

A great number of articles have focused on green supplier selection approaches as well as green supplier selection criteria for the past few decades (e.g., Haleem et al., 2021; Handfield et al., 2002; Hsu and Hu, 2009; Hsu et al., 2013; Kannan et al., 2013, 2014; Noci, 1997). Several previous studies have explored the impact of environmental supplier selection strategies on the environmental performance of firms (e.g., Nourira et al., 2016; Rao, 2002; Theißen et al., 2014), and the indirect effect of such strategies on the economic performance (e.g., Rao, 2002) or social performance (e.g., Gimenez and Tachizawa, 2012) of firms mediated by environmental performance of firms. However, none of these studies examined the direct effect of environmental supplier selection strategies on the financial performance of the focal firms.

While more previous studies examined the formation of environmental supply chain partnerships, limited previous studies examined the termination of such supply chain partnerships. As Anderson and Jap (2005) observed, business relationships can linger in states of deterioration for a quite long periods with neither side terminating the relationship. Though increasing number of firms have stepped up their actions in response to social and environmental violations by suppliers (Lee et al., 2012), Porteous et al. (2015) found the most prevalent penalty used in practice on social and environmental violation by suppliers is a warning followed by reduced business. Such penalty may in fact be negatively associated with reduced violations and reduced operating costs of buying firms. By contrast, fewer than 30% of firms terminate contracts with irresponsible suppliers, although it is the most effective way to reduce supplier violations (Porteous et al., 2015). Hence, supply chain managers need a more clear and solid empirical evidence about whether the termination of a partnership based on environmental criteria results in economic benefits or instead costly burdens to focal firms.

To date, only a few studies investigate both the supply chain partner selection and termination based on environmental criteria under the umbrella of GSCM (e.g., Quintana-García et al., 2021; Simpson et al., 2007). For example, Quintana-García et al. (2021) tested the impact of supplier selection, monitoring and partnership termination based on environmental criteria on corporate reputation. Simpson et al. (2007) explored the impact of the buying firm's environmental performance requirements (such as ISO14000 certification) and denial of supply contract if the

supplier did not meet their environmental performance requirements, on the supplier's level of environmental commitment. Less attentions, however, has been paid to the economic performance of extending sustainability to suppliers (Gimenez and Tachizawa, 2012), especially the influence of integrating environmental criteria to supply chain partnership selection and termination. To the best of our knowledge, there is no study which investigates the direct impact of green supply chain partnership governance (i.e., governance of supply chain partnership based on environmental criteria) on the buying firm's financial performance.

Therefore, this study is conducted to fill this gap. We aim to explore two dimensions of green supply chain partnership governance, i.e., selection and termination of supply chain partners based on the environmental criteria, and empirically analyse the impact of such strategies on buying firm's financial performance.

We draw on the social capital theory, which suggests that actors willing to invest in relationships with other actors to achieve expected returns by gaining access to and leveraging needed resources residing in their relationships (Autry and Griffis, 2008; Nahapiet and Ghoshal, 1998; Villena et al., 2011). Social capital theory has been applied in supply chain partnership research for its great potential for supply chain cost and benefit analysis (Autry and Griffis, 2008). Previous scholars have studied how social capital creates value for collaborative buyer-supplier relationships (Prajogo et al., 2021), supplier relationship outcomes (Cousins et al., 2006), supply-side resilience (Fan and Stevenson, 2019), buying firm operational and strategic performance (Krause et al., 2007; Villena et al., 2011), and even sustainability-oriented supplier development initiatives (Jia et al., 2021) and corporate social responsibility practices (Zhu and Lai, 2019).

However, most of these studies have focus on the bright side of social capital (i.e., benefits), its dark side (e.g., overreliance and relationship inertia) has only been brought to the forefront recently. Previous studies, when discussing the duality of social capital, mainly based on the degree of social capital accumulation, often suggest that the positive effect of social capital will turn to the negative effect after reaching a certain threshold (e.g., Anderson and Jap, 2005; Fan and Stevenson, 2019; Uzzi, 1997; Villena et al., 2011; 2019).

Hence, our study further applies social capital theory to the study of GSCM by recognizing both the bright side and the dark side of social capital. We highlight the manifestation of social capital's duality of supply chain partnership (i.e., bright side and dark side) based on its establishment and destruction/termination, rather than the degree of accumulation. In view of the duality of social capital (Villena et al., 2011), we posit that both supply chain partner selection and termination based on environmental criteria may bring the buying firms improved financial performance.

Using a panel data of UK FTSE All-share public listed companies (PLCs), we attempt to answer the question of whether selection and termination of supply chain partners according to the environmental criteria will affect buying firm financial performance.

Our paper contributes to GSCM literature and practice in several ways. First, it is an early attempt to comprehensively examine green supply chain partnership governance consists of both the selection and the termination of supply chain partners. Second, this paper incorporates the duality of social capital, i.e., bright side and dark side of social capital, into understanding the supply chain partnerships. In particular, we consider the duality of social capital based on the establishment and destruction of supply chain partnerships, rather than on the level of social capital accumulation. Third,

we generate further evidence of the relationships between green supply chain partnership governance and the buying firms' financial performance.

This paper is structured as follows. The next section reviews the theoretical foundations of this study. It is followed by the discussion of research hypothesis. The research methods and data analysis are then presented. Finally, we discuss the results and offer conclusions and implications to theory and practice.

2. Theoretical foundation

2.1 Social capital theory

Social capital is defined as “the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit” (Nahapiet and Ghoshal, 1998, p.243). It is recognized as a valuable relation-specific asset derived from access to resources made available through social relationships (Coleman, 1990; Nahapiet and Ghoshal, 1998). The ability to leverage social capital within strategic buyer–supplier relationships has been deemed a key driver of value creation (Lawson et al., 2008). While recognising the prevailing benefits of social capital, the associated risks and potential negative consequences (i.e., the dark side of social capital) has also been highlighted in supply chain management literature during recent years (e.g., Fan and Stevenson, 2019; Pillai et al., 2017; Villena et al., 2011, 2019, 2021). Thus, we consider both the benefits and the dark side of social capital in this study.

Nahapiet and Ghoshal (1998) characterize social capital along three dimensions: cognitive, relational, and structural. The cognitive dimension represents shared culture and congruent goals between actors; the relational dimension refers to trust, commitment, respect, and friendship developed with each other through a history of interactions; the structural social capital involves the pattern of connections between actors. In this study, we focus on the cognitive and relational dimensions of social capital as the main antecedents of green governance of supply chain partnership, because the cognitive social capital is a precondition of collaborative buyer-supplier relationships (Liker and Choi, 2004) and the relational social capital is believed to have the strongest impact on performance (Villena et al., 2021).

2.2 Cognitive social capital

Cognitive social capital refers to “the resources providing shared representations, interpretations and systems of meaning among parties” (Nahapiet and Ghoshal, 1998, p.244). Its main foundations are shared culture and congruent goals (Inkpen and Tsang, 2005). Shared culture refers to the extent to which norms of conduct govern relationships, while congruent goals represent the extent to which all parties share a common understanding and approach to achieving common tasks and outcomes (Villena et al., 2011). Cognitive social capital in the form of shared culture and congruent goals provides committed parties a shared vision and common goals (Villena et al., 2011), which are necessary in a collaborative buyer-supplier relationship (Planko et al., 2019). It would be easier for the focal firm to coordinate activities with suppliers if its suppliers share a common culture and work norms, and thereby reduce costs and increase revenues (Choi and Krause, 2006).

Shared culture, as the set of shared institutionalized rules and norms governing the appropriate behaviour of in the relationship (Gulati et al., 2000), provide a harmony of interests (Ouchi, 1980), facilitate collective actions within a social structure (Gulati et al., 2000), and constrain opportunistic behaviours, leading to lower monitoring costs

and higher commitment (Ouchi, 1980). Furthermore, goal congruence can provide directions for the parties (Jap and Anderson, 2003) and help them perceive the potential value of their resource exchange and combination (Tsai and Ghoshal, 1998). Parties with congruent goals gain a deeper understanding of why the relationship exists and how they can contribute to achieving compatible goals (Villena et al., 2011). In this manner, goal congruence can not only reduce the possibility of conflicts (Jap, 1999), but also restrain opportunism (Jap and Anderson, 2003), improve the mutual benefits of all parties (Tsai and Ghoshal, 1998) and ensure the continuity of the relationship (Jap and Anderson, 2003). On the other hand, a lack of shared culture and goal congruence make coordination more difficult and make it less likely that firms will move in the same direction (Cooper and Ellram 1993).

However, as the level of cognitive social capital increases, buyers and supplier within the relationship may become too homogeneous in their thinking, and develop so-called “groupthink” (Janis, 1982) and “isomorphism” (Uzzi, 1997). These phenomena create rigidities that decrease diversity, reduce access to new opportunities, and discourage independent thinking and creative solutions in decision making (Das et al., 2006; Janis, 1982; Uzzi, 1997).

In sum, cognitive social capital in terms of shared culture and congruent goals provide institutionalized norms and direction of cooperation for supply chain partners, strengthen mutual understanding and relationship recognition, and reduce the possibility of conflicts. However, when these positive effects rise up to a certain threshold, the accumulated cognitive social capital create rigidities that ultimately cause the parties in the relationship to make suboptimal decisions, hence a dark side of social capital in supply chain partnerships.

2.3 Relational social capital

Relational social capital refers to trust, commitment, respect, reciprocity, and friendship that actors have developed with each other through a history of interactions (Granovetter, 1985; Nahapiet and Ghoshal, 1998). Repeat interaction over time may result in more efficient routines and valuable relationship as a basis for trust (Gulati, 1995; Li et al., 2006). Trust is one of the key aspects of relational social capital between buyer and supplier (Inkpen and Tsang, 2005; Molina-Morales and Martínez-Fernández, 2009; Prajogo et al., 2021; Tsai and Ghoshal, 1998). Moorman et al. (1993) define trust as “a willingness to rely on an exchange partner in whom one has confidence”. The high level of trust is considered to be the source of relational rents (Dyer and Singh, 1998; Li et al., 2006), which is the “supernormal profit jointly generated in an exchange relationship” (Dyer and Singh, 1998, p.662). Within a trusted relationship, firms would prefer informal safeguards (e.g., goodwill trust) rather than protective safeguards (e.g., legal contract) or supplier monitoring, thus lowering coordination costs (Dayer and Singh, 1998; Gulati and Nickerson, 2008). As trust develops, buyers and suppliers are more willing to share their innovative ideas, understand each other’s processes, and improve coordination and joint efforts to minimize inefficiencies (Cai et al., 2010; Fawcett et al., 2012; Geffen and Rothenberg, 2000; Nawrocka, 2008; Planko et al., 2019).

Nevertheless, too much trust can also have negative consequences. When trust reaches high levels, opportunism and loss of objectivity may result (Granovetter, 1985, Villena et al., 2019). Because in high trusting relationships, parties will be more reluctant to monitor the relationship (Molina-Morales and Martínez-Fernández, 2009). For example, an automaker and one of its parts suppliers worked very well in a deep relationship with trust. Unbeknown to the automaker, the supplier systematically cut

costs in violation of the contract to make money in many years, while accommodate the automaker's many demands (Anderson and Jap, 2005). Moreover, an overreliance on trust can hinder access to diverse external sources of knowledge, and thus have an adverse effect on the buying firm's innovation and value creation efforts (Molina-Morales and Martínez-Fernández, 2009).

Commitment is another critical aspect of the relational capital between buyers and suppliers (Prajogo et al., 2021). Dwyer et al. (1987) define commitment as "an implicit and explicit pledge of relational continuity between exchange partners" (Dwyer et al., 1987). Mutual commitment in an exchange can provide the foundation for the development of relational social norms (Gundlach et al., 1995). Higher level commitment is a prerequisite for achieving competitive advantage and financial benefits through collaborative breakthroughs (Cullen et al., 2000; Fawcett et al., 2006).

The critical manifestation of commitment is the investment in specific assets, which refer to the assets invested specifically for a transaction and are not re-deployable outside the relationship (Williamson, 1985; Zhong et al., 2014). Buying firms often must make specialized investments for compatibility with supplier's product (Lieberman and Montgomery, 1988). Such investments can improve the productivity and efficiency of both parties and enable them to receive greater returns than they could have obtained on their own (Anderson and Jap, 2005). However, such commitment in terms of relation-specific investments bring substantial supplier switching costs and create high dependence on the established suppliers, and thus may become the sources of buying firm's switching inertia (Dyer and Singh, 1998; Langfield-Smith and Greenwood, 1998; Li et al., 2006). Such switching inertia, i.e., the buying firm's persistence with an existing relationship with established suppliers, may cause buying firm's biases in evaluating an identical offering between the established supplier and the prospective suppliers (Li et al., 2006).

Respect, reciprocity and friendship can facilitate cooperative behaviour, enhance relationship strength and loyalty, and reduce opportunistic behaviour (Ring and Van De Ven, 1992; Villena et al., 2011). However, respect, reciprocity and friendship with established suppliers may at times have harmful effects, e.g., loss of flexibility in the decision making of a buyer (Gargiulo and Benassi, 1999), or discrimination against new, potentially better suppliers (Kern, 1998), which may inhibit buyers' capacity to meet the changing market demands (Villena et al., 2011).

In sum, relational capital develops trust, commitment, respect, reciprocity and friendship over time that generate benefits, such as reducing monitoring cost and improve more effective and long-term cooperation within the relationship. However, it can also lead to risks, such as opportunistic behaviour, switch inertia, and loss of potential more competitive suppliers — dark side of social capital in supply chain partnerships. Thus, relational capital is in essence a veritable 'double-edged sword' (Alghababsheh and Galleary, 2020).

Building on the theoretical foundations of social capital theory, we develop our arguments on the impact of green governance of supply chain partnerships on buying firm's financial performance by considering both the bright side and dark side of social capital.

3. Hypotheses development

3.1 Green supplier selection and buying firm financial performance

Nowadays, firms are facing increasing pressures from regulators, customers, competitors, NGOs, and other stakeholders to enhance the environmental sustainability of their supply chains (Barnett and King, 2008; Grimm et al., 2014; Rao, 2002; Villena and Giodia, 2020; Walker et al., 2008). Meanwhile, integrate suppliers into environmental management processes is necessary for firms in order to reap the greatest benefits from their environmental management initiatives (Kannan et al., 2013; Nawrocka, 2008; Walton et al., 1998). Thus, selecting green suppliers and cooperating with them in environmental management is an urgent strategic decision for firms in order to be successful in environmental efforts and to be more competitive in today's global market (Kannan et al., 2013; Walton et al., 1998). To this end, effective supplier selection processes are regarded as critical (Chen et al., 2006).

Hsu and Hu (2009) proposed that firms should incorporate environmental criteria into the supplier selection through five primary areas of operations: procurement management (green purchasing), research and development (green design), process management (management for hazardous substances), input quality control, and environmental management system certification. Firms conducting green supplier selection, following the process of evaluating a supplier based on environmental criteria along with traditional criteria for supplier selection, will enhance its opportunity to recruit suppliers with shared culture and goal congruence. Such shared culture and goal congruence constitute important cognitive social capital. The environmental criteria emphasized for supplier evaluation reflect the strategic direction of the buying firm's environmental initiatives (Walton et al., 1998). This can help the buying firm only include partners which meet their environmental requirements. Even more importantly, environmental criteria provide a basis for constructive dialogue and shared philosophies with suppliers in the context of a joint commitment to innovation for quality, cost and environment improvement (Carter and Dresner, 2001; Lamming and Hampson, 1996).

Similarity in operating philosophies and corporate cultures is the embodiment of organizational compatibility (Bucklin and Sengupta, 1993). Compatible cultures and the goal congruence among supply chain parties may lead to policy integration (Mentzer et al., 201), which can help to avoid inefficiencies and enhance cooperation that allows all parties to be more effective at lower cost level (Choi and Krause, 2006; Lassar and Zinn, 1995; La Londe and Masters, 1994). Since cognitive social capital associated with shared culture is much more enduring and sustained (Villena et al., 2011), compatible corporate culture becomes a prerequisite for some businesses to select key members to the supply chain and reaching a long-term supply chain partnership (Cooper and Ellram, 1993).

Strong supply chain partnerships are widely considered a source of competitive advantage for firms (Eckerd et al., 2022; Whipple and Frankel, 2000). Strong partnerships with suppliers were a significant path for achieving environmental performance improvements while maintaining production quality and cost goals through the successful application of innovative environmental technologies (Geffen and Rothenberg, 2000). Relational social capital represented by trust and commitment between buyer and supplier influences the effectiveness of supply chain partnerships (Gounaris 2005; Prajogo et al., 2021).

Selecting suppliers with strong environmental reputation can help buyer firms to enhance the trust with the supplier due to the environmental criteria already met by the supplier, and hence reduce search costs associated with selecting suppliers (Mukandwal et al., 2020). Moreover, green suppliers can help to provide insightful ideas used in the implementation of environmental projects that enhance the adoption of innovation for cost improvements (Carter and Dresner, 2001). Working with supplier on

environmental issues can also help the buyer keep up with technology and quality and produce a more cost effective environmental solution (Lamming and Hampson, 1996). Hence, commitment to the supply chain partnership also improves.

Indeed, studies have shown that integrating environmental criteria in selecting supplier and working closely with suppliers with shared vision and goal congruence can improve a firm's economic performance by reducing disposal and liability costs, conserving resources, and improving the firm's public image (Carter et al., 2000; Green et al., 2012; Min and Galle, 1997; Zhang et al., 2019; Rao, 2002). In an empirical study of U.S. manufacturer's procurement management, Mukandwal et al. (2020) found that by allocating greater procurement spending to the suppliers that have environmental expertise, buying firms can benefit from lower transaction costs arising from the uncertainty associated with acquiring external environmental capabilities.

Moreover, working with suppliers meeting environmental criteria ensures better trust with the supplier. Trust plays a prominent role in successful supply chain partnerships (Eckerd et al., 2022; Kwon and Suh, 2004; La Londe and Masters, 1994; Wagner et al., 2011). With sufficient trust of a supplier, the buying firm would not have to spend as many resources in monitoring the supplier for opportunistic behaviours, thus reducing transaction costs, and would be more willing to share their innovative ideas and understand each other's processes (Geffen and Rothenberg, 2000; Nawrocka, 2008). Whereas a lack of trust among supply chain partners often results in lower performance due to the increase of transaction cost associated with verification, inspections and certifications of their trading partners (Kwon and Suh, 2004).

In addition, selecting green suppliers following environment criteria ensures the better commitment from both suppliers and buyers. This is because both parties have to comply with set environmental standards, which requires significant investment into the relationship. Commitment is an essential component of successful long-term relationships (Gundlach et al., 1995; Mentzer et al., 2001). Commitment between buyers and suppliers has been well established as a crucial factor in relationship development and continuity (Dwyer et al., 1987; Morgan and Hunt, 1994). Specifically, unique adaptations or specialized investments of the buyer is a major source of first-mover advantages for the supplier within the relationship (Lieberman and Montgomery, 1988) and improve the partners' efficiency and create greater returns to both partners than they could have obtained on their own (Anderson and Jap, 2005). On the basis of the above discussion, we develop the following hypothesis:

H1: Supplier selection based on environmental criteria positively influence the buying firm's financial performance.

3.2 Termination of partnership with non-green supplier and financial performance

Social capital embedded in the supply chain partnership can sometimes be destructive. As previous studies pointed out, trust is fragile, and commitment is vulnerable (Anderson and Jap, 2005; Eckerd et al., 2021). A higher level of trust and commitment may result in loss of objectivity, emergence of opportunism, and loss of alternatives and innovations (Anderson and Jap, 2005; Villena et al., 2019). With high levels of relational capital, buyers become more reluctant to switch suppliers due to a strong attachment to the continuity of existing relationships, (Li et al., 2006; Villena et al., 2011). The over-embeddedness effect and the so called switch inertia cannot be underestimated (Molina-Morales and Martínez-Fernández, 2009).

This is especially the case when environmental criteria are not met by supply chain partners. For instance, despite buying firms' efforts in developing and enforcing supplier code of conduct to address environmental issues at their supply base, violations of these codes of conduct remain problematic in many industries (Porteous et al., 2015). About half of firms are concerned about social and environmental violations by suppliers (Lee et al., 2012). When a supplier does not meet the environmental criteria, its shared philosophy and environment friendly motives with the buyer firm will be questionable (Fein, 1996).

The inconsistent culture and environmental goals would be the stumbling block to productive cooperation due to a lack of cognitive social capital. Moreover, dilution of green focus and responsibilities of supplier may lead to low levels of collaboration for environmental issues, and hence negatively influence economic benefits of environmental management. Furthermore, supplier's non-compliance of environmental criteria may damage buying firm's reputation and harm customer confidence (Quintana-García et al., 2021; Grimm et al., 2014). For example, Nike and Adidas suffered huge reputational losses for using suppliers that violate environmental standards (Villena and Giodia, 2020).

In this case, termination of partnership is a stronger penalty than simply reducing business or apply monetary fines, when suppliers are found to be in breach of environmental criteria (Porteous et al., 2015). It is the most effective measure to motivate suppliers to proactively manage their environmental performance, thus eliminating the risk of future environmental violation (Quintana-García et al., 2021; Porteous et al., 2015). Hence, the propensity and readiness of the buyer firm to terminate the supply chain partnership will be an important solution to the overreliance on the problematic supplier and to avoid the dark side of social capital. In their empirical study, Porteous et al. (2015) found that terminating the partnership without warning, i.e., "zero-tolerance" approach to social and environmental violations, may reduce buying firm operating costs. On the basis of above discussion, we generate the following hypothesis,

H2: Intention of ending the partnership with a supplier not meeting environmental criteria positively influences the firm's financial performance.

4. Methodology

4.1 Data and sample

Our paper employs a panel data analysis of UK non-financial PLCs, which is more suitable as compared to cross-sectional survey and allows us to observe sources of heterogeneity that are present among a large number of companies within the sample (Haque, 2017). Environmental management is important for listed companies because they are subject to increasing institutional pressures and intense scrutiny from stakeholders, such as regulators, auditors, end-consumers, industrial customers, financial institutions, and activists. To this end, UK PLCs have implemented various supply chain management strategies to reduce the environmental impact of their activities and operations (Vachon and Klassen, 2008; Zhu et al., 2012). We have focused on non-financial firms because financial firms have unique characteristics with its supply chains (He et al., 2016) and hence implies different nature of their supply chain partnerships and environmental efforts. Therefore, we collected a panel dataset of FTSE All-share firms from 2016 to 2018 (see Table 1). The reason for the time range is because information regarding GSCM-oriented strategies became more consistent

since 2016 and the most recent year for which data is available is 2018 at the point when this paper was composed in 2022.

Table 1. Panel data selection/

FTSE All-share Index 2016–2018	993 firm-year observations
Less UK financial firms	177 firm-year observations
Total	816 firm-year observations (for 272 sample firms)

The panel data was drawn from Thomson Reuters Eikon's ESG (Environmental, Social, and Government) database, the largest environmental, social, and governance rating database in the world. Since a number of years, the ESG database contains quantitative and qualitative company-level data that is believed to be objective, relevant, auditable, and systematic. Using objective and publicly available primary data, specially trained research analysts manually collect and process over 400 ESG metrics and controversies per organization. In partnership with Truvalue Labs, the database provides ESG signals from 75,000 sources (global media, indexes, annual reports, ESG disclosure, etc.) for portfolio construction and company monitoring. Annually, analysts transform ESG data (for which there are no globally accepted reporting standards) into consistent units to enable quantitative analysis of these qualitative data. Based on this information, the database calculates ESG Scores developed by analysts to transparently and objectively measure a company's relative ESG performance, commitment, and effectiveness across ten main themes (Reuter et al., 2012), including the social pillar score. Previous research has established the validity and dependability of this ESG database (Cheng et al., 2014; Garcia et al., 2017; Ioannou and Serafeim, 2015). This makes it a suitable data source for the current study.

We identified 331 FTSE All-Share non-financial firms from 2016 to 2018 with data on the status of their implementation of environmental supply chain management strategies. We also gathered data to account for the strategic dimensions and attributes of multiple companies. Due to the missing values in the dataset, our final sample consists of an unbalanced panel of 272 distinct UK non-financial firms, with a total of 816 firm-year observations.

4.2 Measures

Our dependent variable—corporate financial performance—is measured by ROE (Return on Equity) obtained using MS Excel DataStream following Wang and Sarkis (2013). The ROE is a performance indicator of how effective the management is using a company's assets to create profits; it is equal to net income divided by average shareholder's equity (Sarhan et al., 2018).

Our independent variables pertain to two strategies involved in the implementation of green supply chain partnerships governance following Quintana-García et al. (2021) and are measured using ESG reported data points. The first independent variable is "environmental supply chain partner selection". It is reported as 1 if the company uses environmental criteria (such as ISO 14000, energy consumption) to select suppliers or sourcing partners. The second independent variable "environmental supply chain partner termination" is coded as a dummy variable and is assigned the value of 1 if the company reports or demonstrates that it is prepared to terminate a partnership with suppliers or sourcing partners if the environmental criteria are not met by them.

4.3 Control variables

We account for two variables of firm characteristics that may impact corporate performance and environmental management strategy of companies.

First, Ma et al. (2021) show that size and visibility as important drivers for the awareness of environmental issues. Larger corporations are more visible, such that any negative actions regarding environmental responsibility can significantly harm their reputation. Hence, we control for "firm size", which is measured by natural logarithm of total assets of sample companies.

Second, older PLCs tend to have more experience with environmental disclosure, hence firm age have been linked to disclosure in the prior research (e.g., Khan et al., 2013). Therefore, we also controlled for "firm age", which is measured by the natural logarithm of the number of years since the sample companies' incorporation.

5. Results

5.1 Descriptive statistics and regression results

Table 2 provides descriptive statistics for the variables utilised in this study. Table 3 presents the spearman correlation results. The trend of environmental consciousness is also reflected in the increase in the number of environmentally certified companies from 16 in 2008 to 202 in 2017. This also shows that GSCM is a relatively recent phenomenon among the sampled companies. Analysing the development of green supply chain partnership governance over time reveals that companies exhibit an increasing rate of engagement. Majority of the companies in the sample (242 out of 272 firms) had an integrated approach to green supply chain partnership governance by 2018 based on the implementation of both green supplier selection and green supplier termination.

Table 2. Descriptive statistics

Variable	Mean	S.D.	Median	Min	Skewness	Kurtosis	Max
Dependent variables: Corporate financial performance							
ROE	16.908	32.871	13.79	-141.570	1.934	22.358	300.9
Independent variables: Green supply chain partnership governance							
Env SC Partner Selection	0.527	0.499	1.000	0.000	-0.111	1.012	1.000
Env SC Partner Termination	0.237	0.426	0.000	0.000	1.232	2.518	1.000
Control variables:							
Firm Size	6.112	0.708	6.030	4.094	0.491	3.211	8.339
Firm Age	1.174	0.549	1.342	0.000	-0.958	2.722	1.732

Note: This table presents descriptive statistics covering 272 sample firms.

Table 3. Correlation results

Variable	1	2	3	4	5
1 ROE	1.000				
2 Env SC Partner Selection	0.050	1.000			
3 Env SC Partner Termination	0.101**	0.414****	1.000		
4 Firm Size	-0.037	0.523****	0.299****	1.000	
5 Firm Age	0.094**	0.241****	0.044	0.205****	1.000

Note: Spearman correlation. * $p \leq 0.10$, ** $p \leq 0.05$, *** $p \leq 0.01$, **** $p \leq 0.001$

Table 4 presents the results of ordinary least squares (OLS) regression with fixed-effects examining the impact of implementing each green supply chain partnership governance strategy on the corporate financial performance. Estimating a fixed-effects model is equivalent to adding a dummy variable for each firm (Greene, 2002) and controls for all constant, unmeasured differences between firms that could explain differences in the dependent variables.

Table 4. OLS regression of green SC governance on ROE

Variables	ROE
Firm size	-2.638 (2.600)
Firm age	7.372* (3.793)
Env SC Partner Selection	-2.779 (3.416)
Env SC Partner Termination	12.680**** (3.559)
Constant	9.398 (16.884)
Mean VIF	1.710
DF	562
Year fixed effects	Yes
Industry fixed effects	Yes
Adj. R-squared	10.720%
F values	2.820****
Note: * $p \leq 0.10$, ** $p \leq 0.05$, *** $p \leq 0.01$, **** $p \leq 0.001$. Standard errors are reported in parentheses. Refer to Appendix A for the variable descriptions, measures, and sources.	

The results show that the firm age has significant positive effect on ROE. This finding suggests that older companies tend to have better profitability as the business matures. Moreover, although environmental supply chain partnership selection may influence corporate reputation positively (Quintana-García et al., 2021), the analysis result of this study shows it has insignificant effect on ROE ($b = -2.779$, $p > 0.10$). This result demonstrates that solely applying the selection of suppliers based on the environmental criteria has limited effect on the corporate financial performance. Therefore, Hypothesis 1 is not supported.

On the other hand, the results show that the environmental supply chain partnership termination has positive and significant effects ($b = 12.680$, $p \leq 0.0001$) on corporate financial performance. Hence, firms that are ready to terminate the partnerships with suppliers who do not meet the environmental criteria ensures a better chance of financial gains. Therefore, Hypothesis 2 is supported.

Ensuring a GSCM through collaboration with green suppliers is a strategic choice to address the environmental concerns of stakeholders. Our panel analysis shows that the readiness of firms to terminate a wrong partnership (i.e., non-environmental) has more significant positive effect on corporate financial performance than solely selecting green suppliers.

5.2 Robustness analysis

Following Quintana-García et al. (2021), to determine whether our results are consistent, we employed the following robustness check. We investigated how the results might vary based on an alternative independent variable: "Green SC Partnership Governance." This variable was created based on the premise that green supply chain partnership governance works best when different strategies are combined. It was calculated based on the number of green supply chain partnership governance strategies implemented by the PLCs. The variable takes on values of 0 (no strategy implemented), 1 (if either green supplier selection or termination of non-green partnership are implemented), and 2 (if both green supplier selection and termination of non-green partnerships are implemented). Table 5 presents the results of the robustness analysis which confirm the significant positive relationship ($b = 3.690$, $p < 0.10$) between green supply chain partnership governance and corporate financial performance, hence supporting the key findings of this study.

Table 5 Robustness analysis

Variables	ROE
Firm Size	-0.992 (2.337)
Firm Age	2.429 (3.225)
Green SC Partnership Governance	3.690* (1.913)
Constant	4.090 (15.262)
Observations	717
Mean VIF	1.850
DF	716
Adj. R-squared	8.68%
F values	2.790****
Note: * $p \leq 0.10$, ** $p \leq 0.05$, *** $p \leq 0.01$, **** $p \leq 0.001$. Standard errors in parentheses.	

6. Discussion and conclusion

By analysing the panel data of FTSE All-share listed companies, we found that companies that manage their supply chain partnerships with environmental criteria may improve their financial performance as measured by ROE. Our research indicates that the intention to sever ties with suppliers whose environmental performance is inadequate has positive effects on firms' financial performance. Our findings are consistent with prior literature indicating that supplier sustainability risk assessment capabilities reduce corporate reputational damage, because they improve the supplier base by phasing out non-compliant suppliers (Foerstl et al., 2010; Hoejmose et al., 2014).

This study supports prior research demonstrating that environmental supplier development positively affects environmental reputation (Ehrgott et al., 2013). Selecting and working with the right supplier will be essential to the successful GSCM strategy. However, the readiness to terminate the partnership with a supplier who does not show compliance with environmental standards is found to be even more important. We found that post-selection supply chain partnership termination based on environmental criteria has a significant positive effect on corporate financial performance.

To this end, successful GSCM requires effective supply chain partnership governance, supported by adequate information collection and auditing of supply chain partners to determine their compliance with the environmental criteria. Such governance mechanisms encourage suppliers to have better environmentally friendly operations. Especially, when a supplier has higher dependence on the buyer, the threat of terminating the partnership will ensure that the supplier has stronger intention to meet the environmental expectations (Hajmohammad and Vachon, 2016). As a result, the buying firm can mitigate environmental risks and enhance its reputation (Tachizawa et al., 2015) as well as its financial performance.

This research has important theoretical implications. First, it adds to the existing literature on GSCM and supply chain partnership by recognizing two mechanisms of the supply chain partnership governance (i.e., selection and termination). The previous literature has only tenuously connected these concepts despite the importance of ensuring sustainable supply chain management to boost corporate performance (e.g., Hoejmose et al., 2014; Pagell and Wu, 2009; Tate et al., 2010b). This study develops a more balanced view to explore the relationship between both mechanisms of green supply chain partnership governance and the corporate financial performance.

Second, the relationship between GSCM-focused strategies and corporate financial performance has received scant attention in the literature. Prior research has examined this relationship through cross-sectional studies or analysing anecdotal evidence or case studies (Hoejmose et al., 2014). This paper expands the literature by examining, through a large scale panel data, the effects of green supply chain partnership governance on the corporate financial performance, hence generating important large scale evidence.

Third, this study contributes to the social capital theory because it recognizes both the bright and the dark side of social capitals in facilitating gains from supply chain partnerships. In this way, we extend the social capital theory by investigating corporate financial performance from the perspective the green supply chain partnership governance. This perspective is pertinent because green supply chain partnerships are not readily visible to external stakeholders, and the effect of suppliers' proactive environmental practises on buying firms performance is also less visible (Kumar et al., 2012). Our findings demonstrate that social capital theory provides an important theoretical basis for investigating how suppliers have potentially significant effect on the performance of buying firms in either positive or negative ways. Thus, the readiness to terminate a supply chain partnership will positively influence the performance of the buying firm.

This study also provides important practical implications. First, many firms do not recognize the potential of green supply chain partnerships to realize economic benefits, and they appear to believe that environmental initiatives are costly (Min and Galle, 1997). The level of "environmental illiteracy" (Bowen et al., 2001) with the trade-off mindset of ecology versus economy (Porter and Van de Linde, 1995) among purchasing personnel is a major barrier to the implementation of GSCM (Lamming and Hampson, 1996). Our findings suggest that implementing a greener, more sustainable approach to a supply chain partnership not only improves a company's efficiency but also its competitive advantage. To meet the expectations of stakeholders, it is necessary to implement an integral governance of supply chain partnerships, as such governance effort has a direct impact on the corporate performance.

Second, our findings are particularly applicable to prescriptive supply chain partnership models of contemporary firms. Hashemi et al. (2015) state that managers must consider environmental factors in addition to conventional criteria, such as price,

quality and delivery, when selecting suppliers. Our findings may assist management decision making by suggesting that managers should not allow non-working supply chain partnerships to continue. A pre-agreed exit strategy will benefit the focal firm financially. After the selection process, businesses should continuously monitor their suppliers to verify and evaluate their environmental performance and hence mitigate reputational risks.

This study has certain limitations which deserves future research. First, we measured green supply chain partnership governance (green supplier selection and termination of partnership) using dummy variables. As the actions involved in each of these governance strategies are complex and firms may implement them to various degrees, future research could understand the evolutionary nature of such strategies and understand how the varying levels of adoption of each strategy could affect the corporate performance.

Second, we recognize that green reputation might be an important contributor of the benefit of green supply chain partnership governance. It would be intriguing to investigate the mediating role of green reputation of focal firms between green supply chain partnership governance and corporate financial performance. In this line of inquiry, further researchers could combine panel data with questionnaire survey or external press reports.

Third, we excluded financial firms from the sample, recognizing that they have different supply chain characteristics. Service supply chains are frequently characterised by greater customer involvement, less structured processing, and non-standardizable, and non-storable intangible products (Hussain et al., 2016). Therefore, it is necessary to extend our study to examine the distinctive characteristics of green supply chain partnership governance in financial firms or in service firms generally, and the effect on the corporate financial performance.

References

- Alghababsheh, M., & Galleary, D. (2020). Social capital in buyer-supplier relationships: A review of antecedents, benefits, risks, and boundary conditions. *Industrial marketing management*, 91, 338-361.
- Anderson, E., & Jap, S. D. (2005). The dark side of close relationships. *MIT Sloan Management Review*, 46(3), 75-82.
- Autry, Ch.W., & Griffis, S. (2008). Supply chain capital: the impact of structural and relational linkages on firm execution and innovation. *Journal of Business Logistics*, 29 (1), 157-173.
- Barnett, M. L., & King, A. A. (2008). Good fences make good neighbors: a longitudinal analysis of an industry self-regulatory institution. *Acad. Manag. J.*, 51 (6), 1150-1170.
- Bowen, F., Cousins, P., Lamming, R., & Faruk, A. (2001). The role of supply management capabilities in green supply. *Production and Operations Management*, 10 (2), 174-189.
- Bucklin, L. P., & Sengupta, S. (1993). Organizing successful co-marketing alliances. *Journal of marketing*, 57(2), 32-46.
- Cai, S., Jun, M., & Yang, Z. (2010). Implementing supply chain information integration in china: The role of institutional forces and trust. *Journal of Operations Management*, 28(3), 257-268.

- Carter, C. R., & Dresner, M. (2001). Purchasing's role in environmental management: cross-functional development of grounded theory. *Supply Chain Management*, 37 (3), 12–26.
- Carter, C. R., Kale, R., & Grinn, C. M. (2000). Environmental purchasing and firm performance: An empirical investigation. *Transportation Research Part E*, 36, 219–288.
- Chen, C. T., Lin, C. T. & Huang, S. F. (2006). A Fuzzy Approach for Supplier Evaluation and Selection in Supply Chain Management. *International Journal of Production Economics*, 102: 289–301.
- Cheng, B., Ioannou, I., & Serafeim, G. (2014). Corporate social responsibility and access to finance. *Strategic Management Journal*, 35(1), 1-23. doi:10.1002/smj.2131
- Choi, T. Y. & Krause, D. R. (2006). The supply base and its complexity: implications for transaction costs, risks, responsiveness, and innovation. *Journal of Operations Management*, 24 (5), 637-652.
- Coleman, J.S. (1990). *Foundations of Social Theory*. The Belknap Press of Harvard University Press, Cambridge, MA.
- Cooper, M. C., & Ellram, L. M. (1993). Characteristics of supply chain management and the implications for purchasing and logistics strategy. *The International Journal of Logistics Management*, 4(2), 13–24. <https://doi.org/10.1108/09574099310804957>
- Cousins, P. D., Handfield, R. B., Lawson, B., & Petersen, K. J. (2006). Creating supply chain relational capital: the impact of formal and informal socialization processes. *Journal of Operations Management*, 24 (6), 851–863.
- Cullen, J.B., Johnson, J.L. & Sakano, T. (2000). Success through commitment and trust: the soft side of strategic alliance management. *Journal of World Business*, 35(3), 223-40.
- Das, A., Narasimhan, R., & Talluri, S. (2006). Supplier integration: finding an optimal configuration. *Journal of Operations Management*, 24 (5), 563–582.
- Dwyer, F. Robert, Paul H. Schurr, & Sejo Oh (1987). Developing Buyer–Seller Relationships. *Journal of Marketing*, 51 (April), 11–27.
- Dyer, J. H., & Singh, H. (1998). Cooperative Strategy and Sources of Interorganizational Competitive Advantage. *The Academy of Management Review*, 23 (4), 660-679.
- Eckerd, S., Handley, S., & Lumineau, F. (2022). Trust violations in buyer–supplier relationships: Spillovers and the contingent role of governance structures. *Journal of Supply Chain Management*, 58(3), 47–70. <https://doi.org/10.1111/jscm.12270>
- Eggert, J., & Hartmann, J. (2021). Purchasing's contribution to supply chain emission reduction. *Journal of Purchasing and Supply Management*, 27(2), 100685.
- Ehrgott, Matthias, Reimann, Felix, Kaufmann, Lutz, & Carter, Craig R. (2013). Environmental Development of Emerging Economy Suppliers: Antecedents and Outcomes. *Journal of business logistics*, 34(2), 131-147. doi:10.1111/jbl.12015
- Fan, Y., & Stevenson, M. (2019). Non-linear effects of relational capital on supply-side resilience: The moderating role of boundary spanners' personal ties. *International Journal of Operations & Production Management*, 39, 9/10, 1053-1075.

- Fawcett, S.E., Fawcett, A.M., Watson, B.J. & Magnan, G.M. (2012). Peeking inside the black box: toward an understanding of supply chain collaboration dynamics. *Journal of Supply Chain Management*, 48 (1), 44-72.
- Fawcett, S.E., Ogden, J.A., Magnan, G.M. & Cooper, M.B. (2006). Organizational commitment and governance for supply chain success. *International Journal of Physical Distribution and Logistics Management*, 36 (1), 22-35.
- Fein, S. (1996). Effects of suspicion on attributional thinking and the correspondence bias. *Journal of Personality and Social Psychology*, 70, 1164–1184.
- Foerstl, K., Reuter, C., Hartmann, E., & Blome, C. (2010). Managing supplier sustainability risks in a dynamically changing environment-sustainable supplier management in the chemical industry. *Journal of Purchasing and Supply Management*, 16(2), 118–130. <https://doi.org/10.1016/j.pursup.2010.03.011>.
- Garcia, Alexandre Sanches, Mendes-Da-Silva, Wesley, & Orsato, Renato J. (2017). Sensitive industries produce better ESG performance: Evidence from emerging markets. *Journal of Cleaner Production*, 150, 135-147. doi:10.1016/j.jclepro.2017.02.180
- Gargiulo, M., & Benassi, M. (1999). The dark side of social capital. In: Leenders, R.TH.A.J., Gabbay, S.M. (Eds.), *Corporate Social Capital and Liability*. Kluwer, Boston, pp. 298–322.
- Geffen CA, & Rothenberg S. (2000). Suppliers and environmental innovation – the automotive paint process. *International Journal of Operations and Production Management*, 20(2): 166.
- Genovese, Andrea, Lenny Koh, S. C., Bruno, Giuseppe, & Esposito, Emilio. (2013). Greener supplier selection: state of the art and some empirical evidence. *International journal of production research*, 51(10), 2868-2886. doi:10.1080/00207543.2012.748224
- Gimenez, C. & Tachizawa, E.M. (2012). Extending sustainability to suppliers: a systematic literature review. *Supply Chain Management*, 17(5), 531-543. <https://doi.org/10.1108/13598541211258591>
- Gounaris, S. P. (2005). Trust and commitment influences on customer retention: insights from business-to-business services. *Journal of Business research*, 58(2), 126-140.
- Granovetter, M. (1985). Economic action and social structure: the problem of embeddedness. *The American Journal of Sociology*, 91 (3), 481–510.
- Green, K. W., Zelbst, P. J., Meacham, J., & Bhadauria, V. S. (2012). Green supply chain management practices: Impact on performance. *Supply Chain Management: An International Journal*, 17(3), 290–305. <https://doi.org/10.1108/13598541211227126>.
- Greene, William H. (2002). *Econometric analysis* (5th ed.). London;Upper Saddle River, N.J.;: Prentice-Hall International.
- Grimm, J. H., Hofstetter, J. S. & Sarkis, J. (2014). Critical factors for sub-supplier management: A sustainable food supply chains perspective. *International Journal of Production Economics*, 152, 159-173.
- Gulati, R. (1995). Does familiarity breed trust? The implications of repeated ties for contractual choice in alliances. *Academy of Management Journal*, 38 (1), 85–112.
- Gulati, R., & Nickerson, J. A. (2008). Interorganizational trust, governance choice, and exchange performance. *Organization Science*, 19, 688-708.
- Gulati, R., Nohria, N., & Zaheer, A. (2000). Strategic networks. *Strategic Management Journal*, 21 (Special issue), 203–215.

- Gundlach, G. T., Achrol, R. S., & Mentzer, J. T. (1995). The structure of commitment in exchange. *Journal of marketing*, 59(1), 78-92.
- Hajmohammad, Sara, & Vachon, Stephan. (2016). Mitigation, Avoidance, or Acceptance? Managing Supplier Sustainability Risk. *The journal of supply chain management*, 52(2), 48-65. doi:10.1111/jscm.12099
- Haleem A, Khan S, Luthra S, Varshney H, Alam M, & Khan MI. (2021). Supplier evaluation in the context of circular economy: A forward step for resilient business and environment concern. *Bus Strat Env.*, 30, 2119–2146. <https://doi.org/10.1002/bse.2736>
- Handfield, R., Walton, S. V., Sroufe, R., & Melnyk, S. A. (2002). Applying environmental criteria to supplier assessment: A study in the application of the Analytical Hierarchy Process. *European journal of operational research*, 141(1), 70-87.
- Haque, Faizul. (2017). The effects of board characteristics and sustainable compensation policy on carbon performance of UK firms. *The British Accounting Review*. doi:10.1016/j.bar.2017.01.001
- Hashmi, N., Jalil, S. A., & Javaid, S. (2021). Carbon footprint based multi-objective supplier selection problem with uncertain parameters and fuzzy linguistic preferences. *Sustainable Operations and Computers*. 2, 20-29.
- He, Q., Ghobadian, A., Gallea, D., Beh, L.-S., & O'Regan, N. (2016). Towards conceptualizing reverse service supply chains. *Supply Chain Management: An International Journal*. 21(2), 166-179.
- Hoejmose, Stefan U., Roehrich, Jens K., & Grosvold, Johanne. (2014). Is doing more doing better? The relationship between responsible supply chain management and corporate reputation. *Industrial marketing management*, 43(1), 77-90. doi:10.1016/j.indmarman.2013.10.002
- Hsu, Chia-Wei, & Hu, Allen H. (2009). Applying hazardous substance management to supplier selection using analytic network process. *Journal of Cleaner Production*, 17(2), 255-264. doi:10.1016/j.jclepro.2008.05.004
- Hsu, C.-W., Kuo, T.-C., Chen, S.-H., & Hu, A. H. (2013). Using DEMATEL to develop a carbon management model of supplier selection in green supply chain management. *Journal of Cleaner Production*, 56, 164–172. <https://doi.org/10.1016/J.JCLEPRO.2011.09.012>
- Hussain, Matloub, Khan, Mehmood, & Al-Aomar, Raid. (2016). A framework for supply chain sustainability in service industry with Confirmatory Factor Analysis. *Renewable & sustainable energy reviews*, 55, 1301-1312. doi:10.1016/j.rser.2015.07.097
- Inkpen, A. C., & Tsang, E. W. (2005). Social capital, networks, and knowledge transfer. *Academy of management review*, 30(1), 146-165.
- Ioannou, Ioannis, & Serafeim, George. (2015). The impact of corporate social responsibility on investment recommendations: Analysts' perceptions and shifting institutional logics. *Strategic Management Journal*, 36(7), 1053-1081. doi:10.1002/smj.2268
- Janis, I.L. (1982). *Groupthink: Psychological Studies of Policy Decisions and Fiascos*. Houghton Mifflin, Boston.
- Jap, S.D., & Anderson, E. (2003). Safeguarding interorganizational performance and continuity under ex post opportunism. *Management Science*, 49 (12), 1684–1701.
- Jap, S.D. (1999). Pie-expansion efforts: collaboration processes in buyer–supplier relationships. *Journal of Marketing Research*, 36 (4), 461–475.

- Jia, M., Stevenson, M. & Hendry, L.C. (2021). The boundary-spanning role of first-tier suppliers in sustainability-oriented supplier development initiatives. *International Journal of Operations & Production Management*, 41(11), 1633-1659. <https://doi.org/10.1108/IJOPM-12-2020-0856>
- Kannan, D., Khodaverdi, R., Olfat, L., Jafarian, A., & Diabat, A. (2013). Integrated fuzzy multi criteria decision making method and multi-objective programming approach for supplier selection and order allocation in a green supply chain. *Journal of Cleaner Production*, 47, 355–367. <https://doi.org/10.1016/j.jclepro.2013.02.010>.
- Kern, H. (1998). Lack of trust, surfeit of trust: some causes of the innovation crisis in German industry. In: Lane, C., Bachmann, R. (Eds.), *Trust Within and Between Organizations*. Oxford University Press, New York, pp. 203–213.
- Khan, Arifur, Muttakin, Mohammad Badrul, & Siddiqui, Javed. (2013). Corporate Governance and Corporate Social Responsibility Disclosures: Evidence from an Emerging Economy. *Journal of Business Ethics*, 114(2), 207-223. doi:<http://dx.doi.org/10.1007/s10551-012-1336-0>
- Krause, D.R., Handfield, R.B., & Tyler, B.B. (2007). The relationships between supplier development, commitment, social capital accumulation and performance improvement. *Journal of Operations Management*, 25 (2), 528–545.
- Kumar, Sameer, Teichman, Steve, & Timpernagel, Tobias. (2012). A green supply chain is a requirement for profitability. *International journal of production research*, 50(5), 1278-1296. doi:10.1080/00207543.2011.571924
- Kwon, I. W. G., & Suh, T. (2004). Factors affecting the level of trust and commitment in supply chain relationships. *Journal of Supply Chain Management*, 40(1), 4–14.
- La Londe, B.J. & Masters, J.M. (1994). Emerging Logistics Strategies: Blueprints for the Next Century. *International Journal of Physical Distribution & Logistics Management*, 24 (7), 35-47. <https://doi.org/10.1108/09600039410070975>
- Lassar, Walfried & Walter Zinn (1995). Informal Channel Relationships in Logistics. *Journal of Business Logistics*, 16(1), 81-106.
- Lamming, R., & Hampson, J. (1996). The environment as a supply chain management issue. *British journal of Management*, 7(1), 45-62.
- Langfield-Smith, K., & Greenwood, M. R. (1998). Developing co-operative buyer-supplier relationships: a case study of Toyota. *Journal of Management Studies*, 35(3), 331-353.
- Lawson, B., Tyler, B.B., & Cousins, P.D. (2008). Antecedents and consequences of social capital on buyer performance improvement. *Journal of Operations Management*, 26 (3), 446–460.
- Lee, H. L., K. O'Marah, & G. John. 2012. The chief supply chain officer report. Available at http://www.scmr.com/subs/E2open_SCMWorld_CSCOreport2012.pdf.
- Li, S., Madhok, A., Plaschka, G., & Verma, R. (2006). Supplier-switching inertia and competitive asymmetry: A demand-side perspective. *Decision Sciences*, 37(4), 547-576.
- Lieberman, M., & Montgomery, D. (1988). First-mover advantages. *Strategic Management Journal*, 9(41), 41–58.
- Liker, J.K., & Choi, T.Y. (2004). Building deep supplier relationships. *Harvard Business Review*, 82 (12), 104–113.

- Ma, Yuan, Zhang, Qiang, & Yin, Qiyue. (2021). Top management team faultlines, green technology innovation and firm financial performance. *Journal of environmental management*, 285, 112095-112095. doi:10.1016/j.jenvman.2021.112095
- Mentzer, J. T., DeWitt, W., Keebler, J.S., Min, S., Nix, N. W., Smith, C. D., & Zacharia, Z. G. (2001). Defining supply chain management. *J. Bus. Logist.*, 22, 1–25.
- Min, H., & Galle, W. (1997). Green purchasing strategies: trends and implications. *International Journal of Purchasing and Materials Management*, 33 (3), 10–17.
- Molina-Morales, F. X., & Martínez-Fernández, M. T. (2009). Too much love in the neighborhood can hurt: How an excess of intensity and trust in relationships may produce negative effects on firms. *Strategic Management Journal*, 30, 1013-1023.
- Moorman, C., Deshpande, R., & Zaltman, G. (1993). Factors affecting trust in market research relationships. *Journal of marketing*, 57(1), 81-101.
- Morgan, R. M. & Shelby D. H. (1994). The Commitment–Trust Theory of Relationship Marketing. *Journal of Marketing*, 58 (July), 20–38.
- Mukandwal, P. S., Cantor, D. E., Grimm, C. M., Elking, I., & Hofer, C. (2020). Do firms spend more on suppliers that have environmental expertise? An empirical study of U.S. manufacturers’ procurement spend. *Journal of Business Logistics*, 41(2), 129–148. <https://doi.org/10.1111/jb>
- Nahapiet, J., & Ghoshal, S. (1998). Social capital, intellectual capital, and the organizational advantage. *Academy of Management Review*, 23 (2), 242–266.
- Nawrocka, D. (2008). Environmental supply chain management, ISO 14001 and RoHS. How are small companies in the electronics sector managing? *Corporate Social Responsibility and Environmental Management*, 15(6), 349–360. <https://doi.org/10.1002/csr.176>
- Noci, G. (1997). Designing “green” vendor rating systems for the assessment of a supplier’s environmental performance, *Eur. J. Purch. Supply Manag.*, 3 (2), 103–114.
- Nouira, I., Hammami, R., Frein, Y., & Temponi, C. (2016). Design of forward supply chains: impact of a carbon emissions-sensitive demand. *Int. J. Prod. Econ.*, 173, 80–98.
- Ouchi, W. G. (1980). Markets, bureaucracies, and clans. *Administrative Science Quarterly*, 25 (1), 129–141.
- Pagell, M., & Wu, Z. (2009). Building a more complete theory of sustainable supply chain management using case studies of 10 exemplars. *The journal of supply chain management*, 45(2), 37-56. doi:10.1111/j.1745-493X.2009.03162.x
- Pillai, K. G., Hodgkinson, G. P., Kalyanaram, G. & Nair, S. R. (2017). The negative effects of social capital in organizations: a review and extension. *International Journal of Management Reviews*, 19(1), 97-124.
- Porteous, A. H., Rammohan, S. V., & Lee, H. L. (2015). Carrots or sticks? Improving social and environmental compliance at suppliers through incentives and penalties. *Production and Operations Management*, 24(9), 1402–1413. <https://doi.org/10.1111/poms.12376>.
- Planko, J., Chappin, M. M., Cramer, J., & Hekkert, M. P. (2019). Coping with coopetition—Facing dilemmas in cooperation for sustainable development: The case of the Dutch smart grid industry. *Business strategy and the environment*, 28(5), 665-674.
- Prajogo, D., Mena, C., & Chowdhury, M. (2021). The role of strategic collaborations and relational capital in enhancing product performance—a moderated-mediated

- model. *International Journal of Operations & Production Management*, 41(3), 206-226.
- Quintana-García, C., Benavides-Chicón, C. G., & Marchante-Lara, M. (2021). Does a green supply chain improve corporate reputation? Empirical evidence from European manufacturing sectors. *Industrial marketing management*, 92, 344-353. doi:10.1016/j.indmarman.2019.12.011
- Rao, P. (2002). Greening the supply chain: a new initiative in South East Asia. *International Journal of Operations & Production Management*, 22(6), 632-655.
- Ring, P. S., & Van De Ven, A. H. (1992). Structuring cooperative relationships between organizations. *Strategic Management Journal*, 13(7), 483-98.
- Sarhan, Ahmed A., Ntim, Collins G., & Al-Najjar, Basil. (2018). Board diversity, corporate governance, corporate performance, and executive pay. *International Journal of Finance and Economics*. doi:10.1002/ijfe.1690
- Reuter, Carsten, Goebel, Philipp, & Foerstl, Kai. (2012). The impact of stakeholder orientation on sustainability and cost prevalence in supplier selection decisions. *Journal of purchasing and supply management*, 18(4), 270-281. doi:10.1016/j.pursup.2012.06.004
- Sarkis, J. (1999). *How Green is the Supply Chain? Practice and Research*, Graduate School of Management, Clark University, Worcester, MA.
- Simpson, D., Power, D., & Samson, D. (2007). Greening the automotive supply chain: a relationship perspective. *International Journal of Operations & Production Management*, 27(1), 28-48.
- Tachizawa, E. M., Gimenez, C., & Sierra, V. (2015). Green supply chain management approaches: drivers and performance implications. *International Journal of Operations & Production Management*, 35(11), 1546-1566. doi:10.1108/IJOPM-01-2015-0023
- Tate, Wendy L., Ellram, Lisa M., & Kirchoff, Jon F. (2010). Corporate social responsibility reports: A thematic analysis related to supply chain management. *Journal of Supply Chain Management*, 46(1), 19-44. doi:10.1111/j.1745-493X.2009.03184.x
- Theißen, S., Spinler, S., & Huchzermeier, A. (2014). Reducing the carbon footprint within fast-moving consumer goods supply chains through collaboration: The manufacturers' perspective. *Journal of Supply Chain Management*, 50(4), 44-61.
- Tsai, W., & Ghoshal, S. (1998). Social capital and value creation: the role of intrafirm networks. *Academy of Management Journal*, 41 (4), 464-476.
- Uzzi, B. (1997). Social structure and competition in interfirm networks: the paradox of embeddedness. *Administrative Science Quarterly*, 42 (1), 35-67.
- Vachon, Stephan, & Klassen, Robert D. (2008). Environmental management and manufacturing performance: The role of collaboration in the supply chain. *International journal of production economics*, 111(2), 299-315. doi:10.1016/j.ijpe.2006.11.030
- Villena, V. H., Choi, T. Y., & Revilla, E. (2019). Revisiting interorganizational trust: Is more always better or could more be worse? *Journal of Management*, 45(2), 752-785. <https://doi.org/10.1177/0149206316680031>
- Villena, V. H., Choi, T. Y., & Revilla, E. (2021). Mitigating mechanisms for the dark side of collaborative buyer-supplier relationships: A mixed-method study. *Journal of Supply Chain Management*, 57(4), 86-116.
- Villena, V. H. and Gioia, D. A. (2020). A more sustainable supply chain. *Harvard Business Review*, 98(2), 84-93.

- Villena, V. H., Revilla, E., & Choi, T. Y. (2011). The dark side of buyer–supplier relationships: A social capital perspective. *Journal of Operations Management*, 29(6), 561–576. <https://doi.org/10.1016/j.jom.2010.09.001>
- Wagner, S. M., Coley, L. S., & Lindemann, E. (2011). Effects of suppliers' reputation on the future of buyer-supplier relationships: The mediating roles of outcome fairness and trust. *Journal of Supply Chain Management*, 47(2), 29–48.
- Walker, H., Di Sisto, L., & McBain, D. (2008). Drivers and barriers to environmental supply chain management practices: Lessons from the public and private sectors. *Journal of purchasing and supply management*, 14(1), 69-85.
- Walton, S.V., Handfield, R.B., & Melnyk, S.A. (1998). The green supply chain: integrating suppliers into environmental management processes. *International Journal of Purchasing and Materials Management*, 34 (2), 2–11.
- Wang, Zhihong, & Sarkis, Joseph. (2013). Investigating the relationship of sustainable supply chain management with corporate financial performance. *International journal of productivity and performance management*, 62(8), 871-888. doi:10.1108/IJPPM-03-2013-0033
- Whipple, J. M., & Frankel, R. (2000). Strategic alliance success factors. *Journal of Supply Chain Management*, 36(3), 21– 28. <https://doi.org/10.1111/j.1745-493X.2000.tb00248.x>
- Williamson, Oliver E. (1985). *The Economic Institutions of Capitalism* (New York: The Free Press).
- Zhang, M., Tse, Y. K., Dai, J., & Chan, H. K. (2017). Examining green supply chain management and financial performance: roles of social control and environmental dynamism. *IEEE Transactions on Engineering Management*, 66(1), 20-34.
- Zhong, W., Su, C., Peng, J., & Yang, Z. (2017). Trust in interorganizational relationships: A meta-analytic integration. *Journal of management*, 43(4), 1050-1075.
- Zhu, Q. & Lai, K.-H. (2019). Enhancing supply chain operations with extended corporate social responsibility practices by multinational enterprises: social capital perspective from Chinese suppliers. *International Journal of Production Economics*, 213, 1-12.
- Zhu, Qinghua, Sarkis, Joseph, & Lai, Kee-hung. (2012). Examining the effects of green supply chain management practises and their mediations on performance improvements. *International journal of production research*, 50(5), 1377-1394. doi:10.1080/00207543.2011.571937

Appendix A. Definition of variables and measures

		Measure
Dependent variables		Ratio of net income to stockholders' equity.
Corporate financial performance	ROE	
Independent variables	Env SC Partner Selection	Does the company use environmental criteria (ISO 14000, energy consumption, etc.) in the selection process of its suppliers or sourcing partners? Data can also be on existing suppliers who were selected using some environmental criteria.
Green supply chain partnership governance	Env SC Partner Termination	Does the company report or show to be ready to end a partnership with a sourcing partner, if environmental criteria are not met?
	Firm Size	Natural logarithm of total assets.
Control variables	Firm Age	Natural logarithm of the number of years since the firm's incorporation.

Note: This table provides the definitions and measures of the main dependent and independent variables.