

## Original Paper

# Sustainability Dilemmas: Risk and Uncertainty in Supply Chain Management

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### Abstract

*Contrary to the considerable development of Sustainable Supply Chain Management (SSCM) research, the level of conceptual clarity falls short in unveiling the strategic implications of sustainability integration into core business practices. This leads to dilemmas with respect to aspired and achieved levels of business responsibility increasing exposure to financial and sustainability hazards. Given the various incidents of supplier misconduct and cases where no apparent breaches still impose threats to buying firms, it is undeniably mesmerizing experiencing the defiance of “common sense” law: just because risks are classified, and responses are deployed, it would be wrong to assume that vulnerability is eradicated. To overcome impediments, we need to discern between uncertainty and risk. To this end, literature supports that firms address issues based on instrumental and moral rationales encompassing fundamentally different justifications. Building on work from risk management, SSCM, paradox as well as management accounting and control, and inserting ideas from entrepreneurship literature, we investigate these particularities and explain how firms could develop their sustainability initiatives and risk management strategies across their Supply Chains (SCs) through an integrative framework. This refinement allows us to increase the odds of more sustainable SCs through a multilevel approach reverberating the interface of strategy and operations. The paper concludes with commenting on the theoretical and managerial implications as well as proposing avenues for future research.*

### Keywords

*strategy, operations, sustainable supply chain, purchasing, uncertainty, risk*

## 1. Introduction: Supply Chain Dilemmas in Sustainability Risk Management

Emanating from the business practice field, Purchasing and Supply (P&S) management has undergone a series of transformations. First, disengaging from a sole transactional role towards strengthening its position as a source of strategic enterprise value securing long-term opportunities and configuring accordingly sustainability practices. Second and equally important, transcending from the state of art—something that is learned through experimentation and experience—to a science where continuous testing of commonly held beliefs takes place. This trajectory is also reflected on the various attempts of developing comprehensive risk management approaches (e.g., Tang et al., 2012; Trkman &

McCormack, 2009; Hallikas et al., 2002).

Contrastingly, little is known about losses induced by sustainability issues (Giannakis & Papadopoulos, 2016; Hofmann et al., 2014). Such a situation seems especially odd given the field's roots in applied research and expectations for greater attention towards improving decision making of practitioners (Toffel, 2016). This is further accentuated by excessive Supply Chain (SC) complexity and the imperative to comprehend and operationalize appropriate solutions (Busse et al., 2017a). Moreover, it urges a critical view into how P&S management could induce a formal and informal institutional setting between firms and interested parties: an extended sustainability background amenable to both endogenous and exogenous Supply Chain (SC) risks (Faisal, 2009) responding to stakeholder pressures (Meixell & Luoma, 2015).

In the meantime, this means that we might dream of a perfect world. A world of SC utopia. The main concern channelling the reinforcement of unresolved dilemmas in such a state is the implied capacity to foresee and adequately secure against risks emanating from supplier sustainability practices through a top-down manner where the different strategic objectives and the external environment are both taken for granted. Against this backdrop, supplier-related sustainability risks are effectively handled through the operationalization of respective mitigation and monitoring practices. This is enrooted in the misleading conflation of risk with external uncertainty in Sustainable Supply Chain Management (SSCM) discussions (e.g., Busse et al., 2017b) and a delineation of the different levels where these notions apply is highly advisable (Flynn et al., 2016).

The fascinating issue with dilemmas and co-existing tensions is that they gradually establish misconceptions, which call for subsequent inquiry and explanation. On one hand, what might constitute reality in one aspect becomes a myth in another. On the other hand, myths become mental prisons and this might not only discourage us from challenging commonly held beliefs but also lead us towards silently abiding by one sole school of thought. The common denominator in both cases resides upon the prescriptive implications; myths envision "best practices" which might actually serve as bad advice for ensuing resource allocation decisions. However, relying solely on myths might entail compromises in the sense of grasping the difficulty of sourcing activities and losing track of the ambiguous nature of SSCM. Especially when these concern issues of multi-tier supplier sustainability (e.g., Wilhelm et al., 2016; Grimm et al., 2014).

Responsible business practices constitute an issue of moral instrumentality (van de Ven & Jeurissen, 2005) that needs to account for both market competition and the surrounding institutional setting. Normative appeals constitute an irrefutable element of instrumental approaches (Scherer & Palazzo, 2007). This creates tensions leading to dilemmas, where "instrumentality" and "normativity" are not mere parallel universes with seemingly different and contradicting foundations, but instead form an amicable interaction both being fundamentally strategic. Accepting these tensions widens not only the available spectrum of strategic alternatives of firms but also their challenges (Hahn et al., 2016). This is an inseparable characteristic of entrepreneurial efforts (e.g., Kinias & Konstantopoulos, 2013, 2014) and also evident in contemporary SCs where sustainability is a mandate (Kinias et al., 2017).

All these implications in turn trigger P&S dilemmas as explicated through the forms of uncertainty and risk, raising subsequently the question of why this happens, how it could be effectively alleviated and what the varying results are. Hence, the current paper addresses the question of: *How to foster strongly sustainable SC pathways*. In this respect, the paper tackles amongst other issues of efficiency and effectiveness pertaining to operational and strategic concerns. Specifically, it unveils how the visibility function (e.g., Busse et al., 2017a) is determined under varying conditions. Furthermore, it considers

stakeholder pressures as potential major drivers for SSCM (e.g., Montabon et al., 2016; Shevchenko et al., 2016) and views them as indispensable in creating truly sustainable SCs (Pagell & Shevchenko, 2014). Hence, our question critically tackles the reconciliation between instrumental and normative rationales that has recently enacted a nascent discussion (e.g., Gold & Schleper, 2017) and aims at proposing an extended theorising for economic and sustainability-related SC opportunities and hazards. The structure of our work is as follows: in the following section, we offer a detailed snapshot of the current literature as well as the practical implications motivating this paper. The central argument in this effort is simple yet intuitive: environmental uncertainty and operational risk are of different nature and potential incongruence between them accounts for a complex reality that P&S managers are confronted with. The third and fourth sections comprise of the theoretical justification and conceptual background accordingly, where we draw on from the literature sets of risk management, SSCM, paradox as well as management accounting and control. The penultimate part unveils the paper's contribution along with the different academic, managerial and future research implications. The ending section provides a summative account of the entire paper.

## **2. Current Landscape of Sustainability Strategy and Supplier Risk Management**

What is the effect of a cohesive sustainability supplier management approach on the buying firm's sustainability risk management performance? Such a question implies that a successful risk management approach is fundamental; a "philosophy that is supposed to be deeply rooted within the company" (Pfohl et al., 2010, p. 40). This position is in alignment with Foerstl et al. (2010) and their notion of external responsiveness where mature and sustainable supplier management capabilities lead to the attainment of competitive advantage in terms of lower reputational risks and enhanced operational performance. Even though the idea of interconnectedness between sustainability and SCM dates back, if not earlier, to the era of Frederick (1978) and the responsiveness concept in light of corporate responsibilities (also highlighted by Wood in 1991 with her corporate social performance-CSP model), this has regained prominence due to the wider environmental and social challenges formulating an inescapable reality for business activity. In order to better appreciate the current landscape, the following sub-sections provide a review of relevant literature and unveil critical factors in contemporary SSCM decision-making.

### *2.1 A Snapshot of the Current Literature*

The critical question for today is not whether but rather how to create SCs that are sustainable (Kleindorfer et al., 2005) and in which manner to address the different trade-offs between financial and non-economic performance. Consequently, there has been a constant attention towards the different initiatives that are developed within SCs between buying firms and their suppliers. As O'Marah (2007) has very eloquently described it, "Chief executives own final accountability. Shareholders want strong profit growth and minimum volatility. Regulators and the press expect social and environmental responsibility. Customers demand someone deliver on promises made to them. SCM has become the key to meeting all these commitments". In this sense, sustainability is considered inextricable to SCM (Nidumolu et al., 2009) echoing Drucker's (1973, p. 337) assertion of making "the resolution of a social problem into a business opportunity" by "harmonising in every decision the requirements and action of immediate and long-range future", organizations are continuously expected to turn the treatment of sustainability challenges into business prospects. Such a view is predicated upon two fundamental arguments.

First, supplier conduct proves an important enabler and should be complemented by an elaborate sustainability performance measurement system. Different external environmental pressures imply that buying firms need to pay attention with the aim to understand contingencies on sustainability-related concerns and how to further resolve them across their SCs. As a consequence, suppliers become the CSR gatekeepers for the buying firm (Leppelt et al., 2013, p. 127) where their sustainability performance constitutes the mirror of the company's attention to related issues. Therefore, it is viewed under the premises of reputational risk and ensuing financial losses for the buying company (Bregman et al., 2015; Roehrich et al., 2014; Foerstl et al., 2010). In a relatively recent article, Hofmann et al. (2014) tackle the issue of sustainability risks and view them as those risks situated across the buying firm's SC. Furthermore, these risks are not merely confined to potential disruptions (i.e., the operational perspective) but embrace possibly harmful stakeholder reactions as well. Briefly put, the totality of the latter form of risks entails environmental and social harm caused by inattention or opportunism (Gualandris et al., 2015) either from the supplier or the buying firm itself that could possibly trigger harmful stakeholder reactions.

Second, responsiveness, reliability and accountability are key competitive requirements in the contemporary business (and SC) landscape and suppliers are treated as part of core competencies. A critical issue in this view is the appropriation of external knowledge and how focal firms decide to respond within their business environments in effectuating environmental and social criteria among their suppliers. This in turn expands the traditional monitoring tendency, which resembles more a "complexity lessening and simplification mode" and instead receives a more dynamic character through a "penetration and complexity dispersion" engagement. This dynamic character of sustainability-related knowledge assimilation has been recently highlighted by Canzaniello et al. (2017) and Meinschmidt et al. (2016) who demonstrate that firms engage in sustainability learning along with knowledge absorption and dissemination across their suppliers.

Underlying all these, is the most necessary goal of securing appropriate supplier sustainability conduct through essential governance practices: defining monitoring scope and realising assessment, broadening inclusivity under those strategically relevant circumstances and securing accountability through verifiable information gathering and provision.

However, the corporate level of strategic sustainability is still disconnected from the operational one. Hence, it makes the comprehension of implications posed by non-immediately observable processes to buying firm's performance less tractable (Markman & Krause, 2015) even though it might stand in sharp contrast to the event that supplier's sustainability conduct might exert a salient influence on the focal firm's decisions (Busse et al., 2016). Under this perspective, determining the effectiveness of supplier monitoring often resembles the effort described by Christensen (1991, p. 114) where trying to gauge success is like tossing coins into the Grand Canyon and waiting to hear the clink.

## *2.2 The Real Issue (s) at Stake*

Many incidents within the SC context taking place in recent years corroborate the above arguments and pose serious threats to SC viability. To name a few, the industrial accident in Bangladesh (e.g., Sancha et al., 2015) and a series of worker suicides at the electronics contract manufacturer Foxconn (Barboza, 2010) raise the issue of inherent limited knowledge in sourcing from different suppliers. They also prove that sometimes, supplier evaluation and verification methods as currently practiced prove inadequate since suppliers learn how to hide any relevant violations (Plambeck & Taylor, 2015). Obtaining and maintaining an appropriate mix of safeguards is a prerequisite for securing as much immunity as possible against different forms of SC sustainability-related risks and dilemmas act as

eye-openers for dealing with the interaction between risk and uncertainty hands-on.

We argue that dilemmas emanate from the different levels of sustainability challenges encountered by an organizational entity and its SC. This becomes even timelier and urgent due to the multifaceted role of P&S managers. The duality of strategic and operational perspectives further fuels the presence of dilemmas and makes clear that discussions on sustainability and SC implications should disentangle from a mere concentration on calculations and approximations of confidence levels in estimating disruptions and potential mitigation actions; they also need to embrace a stakeholder legitimacy perspective that receives a more dynamic and forward-looking trait. Following this line of reasoning, we fully appreciate the argument raised by Busse et al. (2016) that apart from operational risks, sustainability entails dangers for the wider SC context. These threats materialize through stakeholder reactions when firms are held responsible for environmental and social problems. Even though not explicitly stated in terms of the multifaceted nature of uncertainty, Busse et al. (2017b) show that responding to different facets of operational risk is contingent on uncertainty intolerance and the threats prevalent in the external environment. In turn, this intolerance is influenced by pragmatic assumptions pertaining to specific contextual issues (Busse et al., 2017a).

As a consequence of P&S dilemmas and the cluttered landscape with tractable and “hidden” sources of SC threats, focal firms might either be subject to increased public eye scrutiny in the best case scenario or encounter detrimental effects to their bottom line under normal conditions. For example, the toymaker company Mattel was forced to recall nine million toys back in 2007 due to safety concerns on lead paint contamination from parts made by a specific off-shore supplier (Lee, 2010). The company was caught unprepared on this responsibility issue; to compound matters, the supplier’s quality assurance system was not in adherence to Mattel’s procedures (Gilbert & Wisner, 2010). This case indicates that companies should look beyond factors such as price and product/service quality when selecting their suppliers and indulge into an ongoing concern of sustainability practices (Carter & Easton, 2011).

This means that supplier performance transforms into a decisive critical success factor for focal firms to safeguard themselves from reputational damages (Hoejmose et al., 2014; Amaeshi et al., 2008) and provides a powerful reason for firms to engage in responsible activities. Managing supplier sustainability risks leads to attainment of reputation and enhanced operational performance (Foerstl et al., 2010). From this point of view, sustainable supplier management governance is related to both operational and reputational risks and requires increased transparency and accountability (Lintukangas et al., 2015).

Furthermore, Hofmann et al. (2014) extend the conceptualization of risk within the setting of SSCM and disengage it from mere disruptions (i.e., operational) by delineating it against environmental, social and ethical concerns pertinent to stakeholder expectations. They maintain that managing suppliers is necessary towards increasing transparency in order to either avoid or circumvent unexpected stakeholder actions. In the same vein, Klassen and Vereecke (2012) pinpoint that social issues within SCs entail both reputational and operational risks and maintain the high priority of developing monitoring and stakeholder collaboration capabilities in order to verify and further reconfigure sustainable supplier management practices. Consequently, the need of directing attention towards the multi-level effects of uncertainty within the SC context becomes indispensable.

In order to disentangle the apparent incompatibility between adopting monitoring and collaborative initiatives with suppliers on one hand and the given fact of incidents related to poor supplier sustainability performance and the pressing need of expanding the scope of sustainability agenda on the

other hand, we position risk and uncertainty within contemporary SSCM challenges. Given that sustainability issues might not draw attention to respective questions (Busse, 2016) P&S managers need to overcome their risk perceptions and biases and adopt a more holistic view (Hajmohammad & Vachon, 2016).

As the famous American psychologist Rollo May (1991, p. 15) said “A myth is a way of making sense in a senseless world. Myths are narrative patterns that give significance to our existence”. Instead of reinforcing the myth and perpetuating current dilemmas without providing potential solutions, it is advisable to start unravelling the landscape that applies in supplier sustainability and its subsequent monitoring and verification. This is a precondition towards dispelling confusion and effectively dealing with dilemmatic circumstances characterising SSCM practices.

### 3. Conceptual Framework

The approach adopted in the current paper is predicated upon the tenets of the higher level strategic choice theory (e.g., Child, 1997), which considers the role of agency and choice, the nature of the external environment and their interdependence. As such, it entails concepts found in lower level theories; *bounded rationality* (defined from the standpoints of both transaction cost economics and the behavioral theory of the firm and implied also through neo-institutional theory), *power* (delineated within the premises of resource dependence theory), *organizational legitimacy/strategic manipulation* (as derived from the precepts of instrumental stakeholder theory and the positioning school of strategy) and *moral legitimacy* (according to the argumentation of normative stakeholder theory). Briefly put, on theoretical level we effectively explicate and combine the underlying assumptions and boundary conditions characterising organizational (and SC) actions with reference to the surrounding environment.

In doing so, we accept that there is a concurrent relationship between organizational entities and institutional contexts. Social reality matters but agency certainly plays an important role as well. The former highlights that management decisions are critical on how institutional pressures are exerted on subsequent organizational actions. The latter demonstrates how institutionalism encourages heterogeneity through managerial interpretation. These two streams tackle the question of why organizations in the same field deviate from institutional isomorphism by highlighting different intra-organizational mechanisms and actively partake in explaining the long-lasting debate concerning “responding to” or “improvising” sustainability initiatives.

We posit that a complementary treatment offers a more nuanced view against the complex and multifaceted reality that the SC context poses. Explicating supplier sustainability risk management practices calls for preceding motivations and value propositions that reverberate a firm’s strategic considerations. Why do buying firms incorporate sustainability concerns into business strategy? And how is this strategy served through the different supplier management decisions? This presupposes an understanding of who within the wider field is driving the leading actions and how the responses evoked affect SSCM.

The formation and diffusion of supplier governance dynamics must be comprehended against this background since this provides an answer to why buying firms engage with sustainability and how the interplay between buyer-supplier (s) is contingent on both company and external environmental factors. In its core, this constitutes an issue of *constrained optimization* (Nielsen, 2005). Different strategies of managing tensions and paradoxes are needed in order to resolve the divide between instrumental and integrative approaches (Hahn et al., 2015) since responsibility as a foundational pillar of sustainability

receives a discernible meaning against a background of normative premises (van Oosterhout & Heugens, 2008).

#### 4. Conceptual Background and Theoretical Framework

##### 4.1 Sustainability Risks and Effective Management

SC risk is associated with potentially undesired events related to the buying firm's inbound supply leading to inability of satisfying customer demands within expected cost- and time-frameworks (Manuj & Mentzer, 2008). This perspective encompasses both environmental uncertainty related to unpredictable changes as well as behavioral uncertainty deriving from the inability of monitoring and securing for the achievement of expected performance (Hoffmann et al., 2013). As such, it denotes the possibility of unforeseen events with undesirable consequences for the firm and its SC (Narasimhan & Talluri, 2009). Such a discussion centers on the buying firm's upstream environment and receives a purely operational perspective through paying attention to disruption events that might emerge (Bode et al., 2011).

However, in the face of sustainability issues, the operational dimension constitutes but one of the firm's potential jeopardies. Inappropriate environmental and social performance of suppliers is associated with the lead company (Frenkel & Kim, 2004) and within the SC context the idea of legal responsibility is replaced by social connectedness (Young, 2008).

Accordingly, SC sustainability risks unfold both on strategic and operational levels. We focus on the strategic element of sustainability risk even though we also provide indirect connections to the operational aspect. To this end, we follow Gualandris et al. (2015) and Hajmohammad and Vachon (2016) by viewing supplier's sustainability performance as the main source of SC risks, which entail uncertainty as expressed through both the environmental and behavioral (i.e., operational) dimensions. The first type is related to the unpredictability of the external environment as well as changing circumstances in ongoing relations and entails the scope of the supplier governance system. The second pertains to the degree of difficulty in securing and monitoring the respective sustainability performance of suppliers and is explicitly related to verification issues.

The former (i.e., external complexity) refers to what Child and Rodrigues (2011, p. 808) call "a great deal of uncoded information not subject to defined and known rules" that in turn establishes boundaries on the use of appropriate and known rational decision-making techniques. The latter (i.e., behavioral uncertainty), is closer to what Williamson (1985) characterizes as the inherent difficulties in securing appropriate performance of exchange partners through monitoring. These two aspects are not isolated. On the contrary, environmental uncertainty and its effective treatment is a precondition in order to develop those supportive structures to ensure successful handling of behavioral uncertainty. They constitute a holistic treatment as delineated against both stakeholder and supplier management functions (Hofmann et al., 2014).

Summarizing the discussion of the current section, we develop our first *two* propositions as follows:

*Proposition 1a: Sustainability-related external uncertainty is positively related to stakeholder responsiveness.*

*Proposition 1b: Sustainability-related behavioral risk is positively associated with supplier sustainability risk management.*

##### 4.2 Supply Chain Sustainability Uncertainty Related Responses: Stakeholder Responsiveness

The way business entities interact with their external environment poses dilemmas whether they should formulate or merely respond to it. This answers to a controversial and widely held dispute in strategic

management over the relationship between organizations and their environment, the degrees of freedom concerning adaptation or enactment and the performance consequences of conformance and differentiation. However, answering to these issues is a prerequisite in pursuit of understanding why firms embrace concerns for their suppliers' sustainability risks and how they frame issues as relevant to core business concerns.

On one hand, the strategic management approach of corporate responsibility delineates itself against the realization of promising results through tangible and intangible assets. In this instance, the main rationale of conducting business is based on the premises of product- and process-differentiation, which in turn allows companies to ask for a premium in the price of their outputs and increase their financial gains. Sustainability initiatives could provide with operational efficiencies (Sharma & Vredenburg, 1998) and product quality (Agle et al., 1999) making the necessary room for some kinds of price premiums either through the product costing or through the difference between selling price and cost of goods sold (i.e., efficiencies achieved). From this standpoint, sustainability is targeted towards improving productive efficiency and securing reputation (e.g., Russo & Fouts, 1997).

In this respect, companies implement a market-based strategy by increasing efficiency and retaining or targeting new sustainability-conscious consumers either through reputation improvement (Brammer & Pavelin, 2006) or favorable evaluations of the company itself and its respective products (Brown & Dacin, 1997). In these instances, sustainability activities aim at securing customer loyalty (Maignan et al., 1999) and strengthening their trust (Vlachos et al., 2009). Differentiation might be either substantive (i.e., new products incorporating more low-carbon features or more low-carbon oriented current practices) or more superficial (i.e., actions targeting at the stakeholders' eyes rather on the actual business performance).

The underlying factor that spans across these discussions pertains to the issue of power: the ability of a business entity to effectively manage the external environment or not in order to exert influence and extend the available strategic options. As such, strategic corporate sustainability disentangles itself from a mere means of effectuating market competition and instead becomes a differentiator in the non-market arena as well. The simple but sweeping idea of individuals and collective forms of organising as prone to utility maximization has imposed a potent image on contemporary forms and mechanisms of sustainability effectuation. Corporate responsibility should also tackle concerns of non-market norms' erosions and whether these represent a loss worth caring about. This is not a matter of optional preference but a deeply necessary issue; it takes us away from merely predicting towards making moral judgments.

Consequently, the shifting landscape of rivalry norms and the implications for competitive dynamics requires a thorough documentation and coupling between organizational (micro- and meso-levels) and institutional (macro-level) features in order to unearth the impact that different contextual realities have on the subsequent SSCM strategies. This lends credence to the necessity of applying an integrative approach, hence coupling market and non-market strategic corporate sustainability. It also signals the urgency of alleviating the troubling trend of parallel, yet disconnected literatures. This "quandary" of strategic competition is not independent from the way that market competition takes place. Strategic competitive advantage is secured both in the marketplace of goods (and/or services) and the marketplace of ideas (Mahon, 2002). The linking part in these cases is the reputation factor itself and the extent to which it is aligned from the organizational view on one hand and stakeholders/evaluators on the other hand. In essence, firms need to secure trust from their environment or to be more accurate, they need reputation for trust (Fombrun, 1996).



Against this background, the influential determinant of organizational actions toward sustainability risks within the firm's SC rests upon its relationship with the external environment and the notion of power and dependence. This relationship is imbued with multiple characteristics spanning different groups of stakeholders and what is necessary is to attempt to influence the attraction of these different types of stakeholders to the firm itself (Bridoux & Stoelhorst, 2014). Our aim is to offer a more insightful view respective to SC responses that buying firms adopt in securing their suppliers' sustainability performance through different approaches that presuppose degrees of mutually constructive adaptation (Scherer et al., 2013).

It becomes obvious through the preceding discussion that power interplay between the firm and its external environment is crucial in shaping responses with respect to SSCM issues. Therefore, we posit that:

*Proposition 1c: Power dependence acts as a moderator in the relationship between sustainability-related external uncertainty and stakeholder responsiveness. The larger the power dependence of the firm on its stakeholders, the stronger the relationship between the two latter constructs.*

Specifically, we delineate the following available options in order to secure proper supplier sustainability performance through SC stakeholder responsiveness:

#### 4.2.1 Reduction of Supplier Related Sustainability Risks

This practice encompasses the direct actions organizations take in order to simplify external complexity they are confronted with (Child & Rodrigues, 2011). It signals a conscious endeavour to alter the external environment and align stakeholder expectations: an attempt that Scherer et al. (2013) call *manipulation* in order to actively configure preferential institutional requirements and address issues with economic incentives to do so (McWilliams & Siegel, 2011). It sympathizes with one-way stakeholder engagement, where priority to regulatory agencies is given primacy and the application of quantitative planning tools in strategic processes is evident (Slawinski & Bansal, 2015).

On the level of the SC and its respective suppliers, the buying firm will adopt the appropriate supplier monitoring risk approach pending on the buyer-supplier dependence structure. When the focal firm perceives of the external environment as relatively stable and possesses a power advantage over external parties, it will proceed with its own practices and rules in order to avoid rectifying any potentially criticized practices. From a focal firm standpoint, the perceived uncertainty of its external environment is low, hence the company will resort to maintain its consistent practices and introduce its established systems of accounting and quality (Child & Rodrigues, 2011).

In this case, the subsequent buyer-supplier relationship is configured according to buyer-supplier dependence. Based on control management literature (e.g., Eisenhardt, 1985; Ouchi, 1979) organizations apply formal measures of governance through behavior-, outcome- and input-/clan-based control mechanisms. Hajmohammad and Vachon (2016) maintain that when interdependence and perceived risk are both low, a monitor-based approach is preferred. Following the same line of reasoning, and elevating it to the firm-stakeholder level, we opine that a monitor-based approach, encompassing output- and behavior-controls will be preferred by the company with reference to its stakeholder relationships and interactions.

On the firm-stakeholder level, companies could be thought as the "buyers" of legitimacy and the stakeholders as the "suppliers". Since uncertainty is low and the power balance is in favor of the firm, the organization will apply monitoring and collaboration measures concerning the knowledge interchange with stakeholders and its practical implications on an operational level. This in turn

assumes that the firm will engage mostly in a one-way stakeholder engagement as a means of justifying its SC actions about environmental and social issues. The underlying assumption in this approach is that a degree of incongruence exists between firm goals and stakeholder expectations and the relationship is imbued with an instrumental treatment of this interaction on behalf of the firms.

Moreover, according to Gualandris et al. (2015) inclusivity defined as the degree of engagement of different stakeholders in the design and execution of supplier sustainability management is positively influenced by the degree of stakeholder salience. However, in this case the issue at stake is less about stakeholder salience, and more about the firm being considered the dominant actor. In their work, Hajmohammad and Vachon (2016) focusing on the operational level, posit that firms will prefer a collaborative approach in order to avoid potential supplier violations and misconduct deception. In these incidents, the focus of SSCM literature has predominantly implied that the buying company has adequate knowledge and understanding of what needs to be done. In essence, it focuses on the notion of behavioural risk instead of questioning notions of uncertainty. Given the assumption that buying firms have adequate knowledge of what needs to be done, it seems reasonable to expect that they will aim at verifying supplier's sustainability performance through exercising both monitoring and collaborative mechanisms. Thus, we maintain that:

*Proposition 2a: Reduction of supplier related sustainability uncertainty constitutes one dimension of stakeholder responsiveness.*

#### 4.2.2 Penetration of Supplier Related Sustainability Risks

In this mode of engagement, the buying firms find themselves in a position where they need to extensively cope with the external environment in order to reduce cognitive complexity (Child & Rodrigues, 2011). Such an approach denotes a strategy of establishing trust with stakeholder constituencies and addressing emerging sustainability issues that might induce legitimacy threats in the near future (Scherer et al., 2013). At the same time, this encourages the engagement in different forms of stakeholder dialogue in order to identify and further sustain innovative sustainability approaches. The underlying assumption is to reduce external uncertainty, hence create a more stable and foreseeable competitive context. Uncertain environments induce managers to deploy more innovative approaches and they will try to foresee future events and implement preventive actions (Aragón-Correa & Sharma, 2003). Accompanying this approach, is the deployment of scenario planning for understanding longer-term sustainability implications through a two-way stakeholder interaction and collaborative initiatives (Slawinski & Bansal, 2015).

In more specific, there will be a form of external stakeholder integration as part of innovative approaches. This entails creating trustful relationships with strategic stakeholders in pursuit of utilising these groups' knowledge through the act of gate keeping. Such an argument is in line with Hart (1995) who posits this type of integration as crucial towards developing an appropriate responsibility posture. Intensive discussions therefore with relevant groups could facilitate the design and implementation of specific codes of conduct and raise sustainability criteria in the SC setting (Mamic, 2005). These types of interactive discussions materialize into the identification, assimilation and transfer of relevant sustainability knowledge to the focal firms (Canzaniello et al., 2017; Meinlschmidt et al., 2016). Hence, the successful implementation of such codes rests upon market-based and collaborative relationships the companies adopt with their suppliers. Overall, supplier sustainability governance (as an outcome of stakeholder integration) serves as an insurance mechanism against the potentially detrimental effects that environmental uncertainty could induce through unmet sustainability criteria to the firm's bottom line.

In this manner, the relationship between the buying firms and stakeholders is based on what Andriof and Waddock (2002) call the principles of reciprocity, interdependence and power. It derives from the high perceived environmental uncertainty and the firm's inability to acknowledge necessary contingencies. According to Kirsch (2002), clan (i.e., input) controls drive rewards and sanctions in accordance with shared group values and objectives. As such, goal incongruence is reduced (Katz, 1978) as well as opportunism (Ouchi, 1980). In this event, stakeholder inclusivity will increase and will lead to the encouragement and fitting structuration of the "working environment" for the buying firm to further develop the necessary supplier management practices concerning low-carbon and social issues. In summary, we posit that:

*Proposition 2b: Penetration of supplier related sustainability uncertainty constitutes one dimension of stakeholder responsiveness.*

*Proposition 3: Stakeholder responsiveness is positively associated with supplier sustainability risk management as expressed through monitoring and development actions.*

In both aforementioned facets of stakeholder responsiveness and supplier sustainability risk management, namely reduction and penetration, the issue of power is central. With respect to the latter we refer to Hajmohammad and Vachon's (2016) conceptual framework and its detailed scenario-based elaboration. Pertaining to the former, the higher the firm's power, the less its need to acquire new knowledge for its external environment, hence it proceeds with certain and already at hand sustainability practices. This materializes through a direct and positive relationship between stakeholder salience and the respective sustainability evaluation and verification (Gualandris et al., 2015) covering both products and respective processes (Hofmann et al., 2014).

To this end, the purchasing function's role is decisive either through increasing the number of sourcing activities in which particular criteria apply or by adding to the criteria considered in certain sourcing rules (Schneider & Wallenburg, 2012). In both cases, the outcome witnesses an increase in supplier sustainability risk management practices. Following this line of reasoning, and referring also to proposition 1b, we posit that:

*Proposition 4: The more salient stakeholders are (i.e., the bigger the firm's power dependence on stakeholders) the stronger the relationship between stakeholder responsiveness and supplier sustainability risk management.*

#### *4.3 Supply Chain Sustainability Risk Management Performance*

Practicing sustainability within the SC context as an outcome of responsiveness presupposes the fulfilment of multiple and often conflicting objectives (Taticchi et al., 2013). Sustainability risks call for increased attention in order to avoid any domino effects that might prove detrimental not only to the operational aspect but also on reputational considerations and the perceived trustworthiness of the buying firm itself.

From this perspective, environmental and social supplier sustainability will contribute to the performance dimension with reference to stakeholders in two manners. Either by securing their continued support leading subsequently to the minimization of negative behavior or by achieving stronger customer willingness to pay. In both cases, the buying firm realizes its strategic objectives through respective SC sustainability risk management, namely reducing costs through operations and increasing differentiation advantage in terms of customer preferences and competition. We also explicate the path in this relationship. Managing supplier sustainability risks leads to increased operational performance through the prevention of any potential disruptions (e.g., Lintukangas et al., 2015; Foerstl et al., 2010) that essentially contribute to outcomes of high quality (Pullman et al., 2009).

Moreover, SC stakeholder responsiveness exhibits an additional dual role. On one hand, it contributes to operational performance given its mediating intervention in translating external requirements into specific, operationalized propositions. This operationalization touches upon micro- and meso-levels of risk applicable on everyday operations and business practices (Flynn et al., 2016). On the other hand, it has a direct effect on risk management performance through a twofold perspective. First, it supports ongoing operations of the firm by fulfilling its role as an alignment mechanism between the firm's sustainability actions and stakeholder expectations. Thus, the current "status-quo" is not altered and efficiency objectives are pursued. Second, it secures for stakeholder credibility through coupling "expected" and "perceived" accountability.

As Gualandris et al. (2015) maintain, when inclusivity and scope of a sustainability evaluation and verification framework increases, efficiencies initially increase and then decrease. We extend their argument and posit that efficiencies might decrease from a certain point and afterwards (due to an inverted relationship) but on the other hand this leads to retaining stakeholder legitimacy, hence responding better to environmental uncertainty as well as non-market factors. This is realized on both strategic as well as tactical—operational levels. This view coincides with Schmidt et al.'s (2017) results unveiling that more advanced green practices do not materialize into direct increased operational efficiencies due to either time-lagging investments or decreased marginal utility; nevertheless, they do contribute to higher stakeholder acceptance even if this translates into a "less pain but no gain" from stakeholder reactions, hence adds to non-market performance. Such a view, essentially involves an ambidextrous perspective in the ensuing performance benefits through distinct mechanisms (Hahn et al., 2016).

On a strategic level, this interaction is a sole issue of response to market competition and increases effectiveness. In a dynamic market environment, the purely economic approach supported by Porter (1987) and the static view of competition could serve as a baseline; a starting point for firms to identify with the critical sustainability challenges that they will encounter. Yet, an additional consideration in the assessment of the market segments is the *social dynamics* variable: a factor necessary to understand current and emerging characteristics of target markets and specific customer needs (Galbreath, 2009). To this end, firm concerns on sustainability enter the picture either when they have the potential of shaping new product tastes or when they endanger the currently possessed reputation for responsibility that threatens future profitability or might instigate forthcoming regulation (Crouch, 2006) as a means of gauging the varying and changing institutional expectations that affect legitimacy recognition (Chiu & Sharfman, 2011). On a tactical—operational level in turn, the positive moderating role of uncertainty intolerance on the relationship between sustainability-related uncertainty and corresponding information processing needs renders itself comprehensible through differing modification mechanisms (Busse et al., 2017b).

All in all, our last propositions are:

*Proposition 5: Stakeholder responsiveness is positively associated with SC sustainability risk management performance.*

*Proposition 6: Supplier sustainability risk management performance is positively related to SC sustainability risk management performance.*

*Proposition 7: Efficiency constitutes one dimension of SC sustainability risk management performance.*

*Proposition 8: Differentiation constitutes one dimension of SC sustainability risk management performance.*

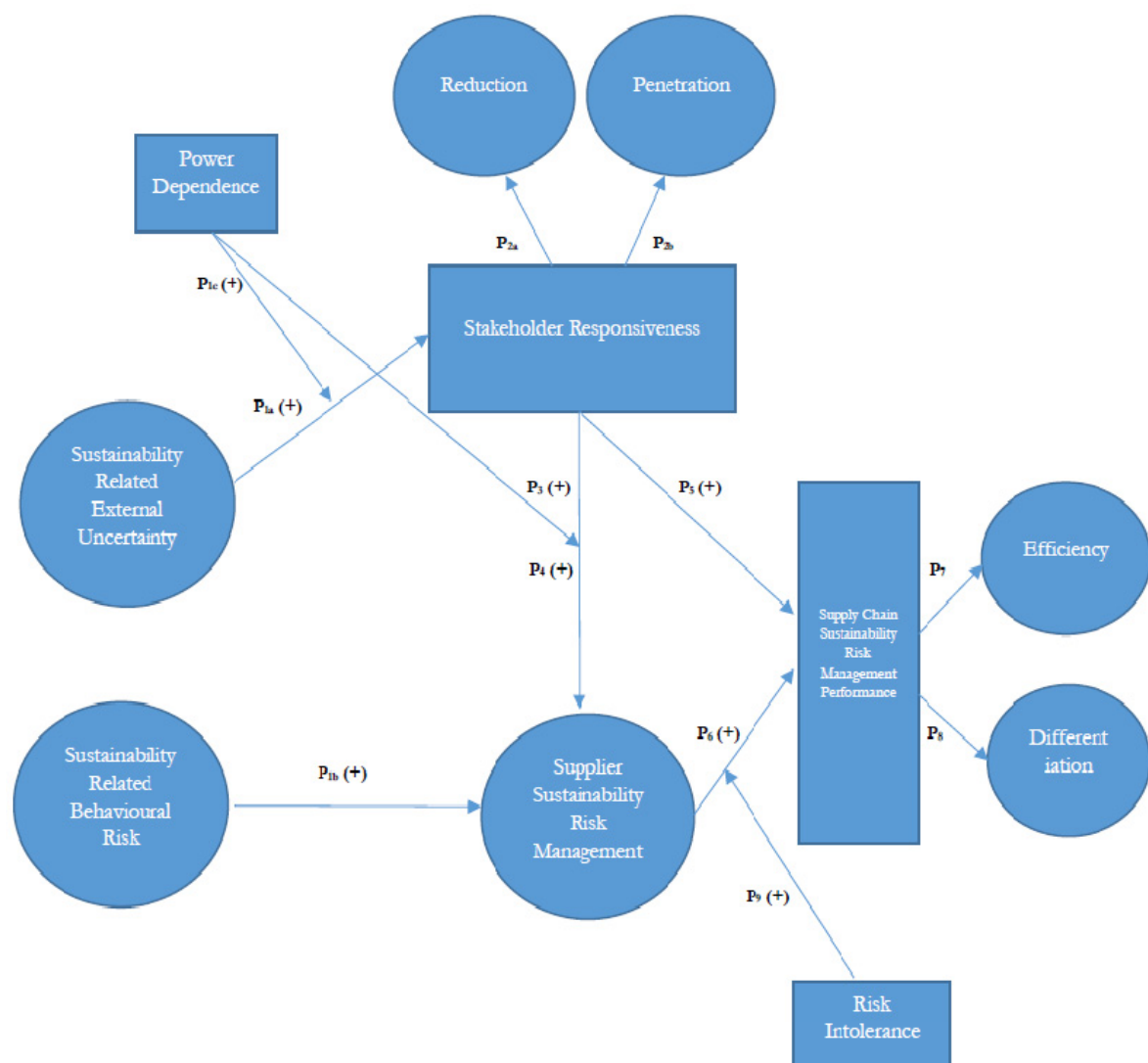
*Proposition 9: The higher the firm's risk intolerance, the stronger its moderating effect on the positive*

*relationship between supplier sustainability risk management and SC risk management performance.*

The foregoing argumentation, is summarised in the following Figure 1.

## 5. Discussion

The motivating reason for the current writing has been the steadily growing frequency of sustainability-related misconduct from suppliers (i.e., environmental and social). At the same time, the lack of a deeper understanding of corresponding uncertainties, which entail the essence of an “unpleasant” or “undesirable” event, has become common within current literature. Given also the increasing practical significance of securing a long-term and steady transition towards a greener and more equal economy, understanding the role of the “unforeseen” within sustainable SCs and how it affects relevant practices seems imperative. Furthermore, there is a common myth supporting forms of dilemmas that P&S managers are confronted with throughout their responsibilities; dealing with sustainability issues is a straightforward matter. This in turn lends credence to a “mash-up” between uncertainty and risk and eventually corroborates confusion in management decision making for developing the appropriate supplier and SC governance mechanisms. As a remedy, unconventional thinking and understanding of these intricacies is suggested.



**Figure 1. Summary of Theoretical Framework**

Drawing on multiple theoretical lenses, we argue that P&S managers should discern between sustainability uncertainty and risk. This comes forth as an imperative when delineating the necessary supplier practices as well as stakeholder responses. In more, we suggest that dealing with supplier sustainability questions requires a multi-level consideration of different issues at stake. This leads to the differentiation between SC stakeholder responsiveness and supplier risk management approaches. We maintain that they are not only compatible between each other but also coincide under the auspices of an ongoing interaction with an overall SC sustainability performance viewpoint. In this respect, we provide a holistic view of SC sustainability risks and enrich the commonly-held perspective that disruptions and operational disturbances emanating from supplier behavior constitute the sole source of danger. In doing so, we evade the trap of underestimating the potential influence of the external environment and pave the way for seizing opportunities towards proactively establishing a proper sustainability risk management framework.

### 5.1 Theoretical Implications

The theoretical framework in Figure 1, conceives of the aforementioned two approaches as distinctive sets of practices whereas SSCM research has in the majority dealt only with supplier risk management through the issues of purchasing, supplier criteria as well as monitoring and development activities. Furthermore, and in contrast to the general premise of SSCM literature that supplier sustainability governance is a pre-requisite for contemporary SCs, we elevate this general principle and draw a parallel with the overall external environment where supplier evaluation and verification requires tailored responses. Thus, we answer the calls from Hajmohammad and Vachon (2016) and further present a refined model towards aligning corporate sustainability strategies with operational principles. Another consideration prompted by the current study is the extended notion of supplier monitoring and verification. We depart from the majority of available SSCM research where verification is applied in a static manner. We extend it to stakeholder legitimacy and the external business environment's uncertainty. In this respect, we further extend the work of Gualandris et al. (2015) and incorporate the contingency variable of sustainability issues knowledge (through the strategies of uncertainty reduction and penetration) in the subsequent formulation of firm responses towards supplier sustainability governance.

Furthermore, and in the same spirit found in Busse (2016) concerning instrumental stakeholder theory, we delineate the "technical" divide between instrumental and normative stakeholder theory and demonstrate that in essence it is a matter of the external environment's uncertainty referring to sustainability interests. In more specific, we bridge these two facets and abide by van de Ven and Jeurissen's (2005) position of *moral instrumentality*. In addition, we specify the impact of these practices on SC risk management performance. Delving into commonly held assumptions of SSCM research, that supplier sustainability management is beneficial, we discern between efficiency as a facet of market competition and stakeholder credibility as an aspect of non-market competition. We acknowledge that the latter is a precondition for the former but the inverse does not hold true from one point and afterwards.

Moreover, we complement the work of Hofmann et al. (2014) by delineating different legitimacy requirements as expressed through stakeholder vulnerability and power dependence of the focal firm with its external environment. To this end, we also advance the work of Busse et al. (2017) and explicate the moderating role of risk in tolerance in the elaboration of contingent stakeholder responses. In continuation, we add clarity and answer the calls from Schoenherr et al. (2012) by highlighting how SC stakeholder responsiveness complies with efforts for SC traceability and transparency.

Our work also elevates Krause et al.'s (2009, p. 20) assertion that "purchasing must become sustainable supply management". This last sentence, in a more or less straightforward manner, summarizes the foregone discussion about sustainability and risk implications within the context of SCs; risk covers both reputational and operational aspects that could prove detrimental to both firm and SC profitability and prosperity. Consequently, untangling sustainability challenges and existing dilemmas through uncertainty and risk entails a more nuanced comprehension of relevant contingencies. Additionally, looking at the interface of uncertainty as well as reputational and SC risk (i.e., strategic versus operational aspects), we answer to calls for a multilevel integration in conducting research associated with corporate sustainability (e.g., Aguinis & Glavas, 2012) and SSCM (e.g., Quarshie et al., 2016; Touboulis & Walker, 2015) issues.

### *5.2 Managerial Implications*

One main argumentation of the current paper is that SSCM is conducted in light of associated benefits. This in turn develops a confusing landscape for P&S managers and the respective role they are assumed to serve within the company. On one hand, they are well aware of cost savings but on the other hand sustainability performance is not only measured against operational indicators but also receives a wider stakeholder determination through the uncertainty covering issues that should potentially be in focus. We demonstrate that in the era of sustainability concerns, P&S managers serve both a "soft" and a "hard" role and should exhibit both practice and reflection. By differentiating between environmental uncertainty and supplier risk management, we propose that they are interlinked but require different approaches pending on the power balance between the firm and its external environment. Breaking down this overall contribution, the ensuing managerial implications are twofold.

On one hand, this work unveils the relationship between the operational and strategic levels touching on the notion of the "unforeseen". We opine that an important organizational managerial challenge in practice rests upon the development of supplier evaluation and verification mechanisms that seamlessly respond to the firm's overall business environment. This implies that P&S managers (as well as firm managers through internal collaboration) should also embrace two more aspects of integration when dealing with supply issues.

First, they need to align themselves with the strategic function, thus influence and be informed of strategic decision-making and make inquiries with respect to new market factors. Second, they must co-operate with other internal functions since supplier sustainability comprises of inter-functional determinants such as operations through production competencies and marketing such as market and non-market influencing factors. On the intersection of these two additional aspects, lies the central role that needs to be granted to the CSR/Sustainability function or executive of the company and how relevant knowledge could materialize effectively within and across the firm. In essence, P&S managers could view this perspective as an echoing reminder of possessing and developing those necessary capabilities that would facilitate both the function's and the firm's objectives. Furthermore, this deeper engagement of purchasing managers could serve as an insurance mechanism against biased behavior. Consequently, they will need to adapt themselves towards considering sustainability trade-offs apart from cost reductions in a more critical manner.

Second, given that our conceptual framework clarifies Kraljic's (1983) purchasing tool and makes it strategically relevant, we offer purchasing managers insight into how to effectively tackle suppliers. We also extend Pagell and Wu's (2009) work by highlighting the issue of opportunity costs as explicated through the available options of dealing simultaneously with operational risks and

environmental uncertainty towards achieving both efficiency and effectiveness in SSCM performance. For example, in case a certain supplier is “powerful” but her sustainability performance with respect to sustainability issues is deemed highly “unsafe” according to stakeholder expectations, then a potential exit from this “lock-in” situation could be either the development of industry-wide standards (Hajmohammad & Vachon, 2016) or an increased coupling between expected and perceived credibility of stakeholders through strengthening verification efforts of their suppliers’ sustainability performance via collaborative approaches with NGOs and oversight bodies (Gualandris et al., 2015).

### 5.3 Future Research

Throughout the paper, a concerted effort to integrate different literature sets in an interdisciplinary manner has taken place. Thus, empirical validation of the developed framework is recommended. In order to achieve this, suitable measures for the involved variables need to be developed and empirically verified in order to explicate the operationalization of the various framework constituencies. The propositions transcend both operational and corporate levels. Hence, an additional useful means of building on this research would be to delve into the integration between these two levels of action and further investigate how stakeholder responsiveness manifests into intra-organizational practices. In more specific, insight could unfold on the effects of stakeholder responsiveness on P&S management’s risk factors that are considered in buyer-supplier relationships.

Another logical step following from this latter suggestion, would be to explore the way supplier assessment and development programs concerning sustainability is adjusted and re-framed after the input emanating from external responsiveness. This bodes well with earlier remarks from Igarashi et al. (2012) about the necessity of conceptual clarity into the manner of developing green purchasing criteria. Recently, Canzaniello et al. (2017) and Meinschmidt et al. (2016) identified some of the mechanisms firms use to acquire and disseminate sustainability knowledge to the SC context. Still, more insight needs to be acquired and validated.

## 6. Conclusions

P&S managers are confronted with a commonly established myth; defining sustainability criteria is a straightforward and problem-free issue of the purchasing cycle. This poses threats on buying firms. It might convince them to adopt a more static and “traditional” style of supplier monitoring and governance leading to loss of external legitimacy and public acceptance of their actions. It rests upon the fact that the majority of literature often conflates uncertainty with risk, thus leading to a reductionism of the former into the latter. Yet, proactive business practice calls for alignment between strategic and operational perspectives that is often not the case. A “narrow” view is no longer adequate since challenges on SSCM issues are more dynamic and require a more interactive approach better aligned with treating SC risk and uncertainty holistically.

To achieve this, a synthesis of risk management, SSCM, paradox and management accounting literature (s) suggests a simple but powerful advice; stakeholder responsiveness towards capturing external uncertainty that might affect the firm’s SSCM actions and supplier sustainability risk management on the operational level, are two distinctive yet associated processes. Both in terms of interrelation and in terms of performance impact. Our conceptual framework connotes a theory building step towards understanding uncertainty and risk within the SSCM context, a field still embryonic. While we acknowledge that further empirical confirmation is much in need, our model provides an important and well defined conceptual baseline for not only elaborating on specific constructs and measures or comprehending multilevel relationships and actions but also foreseeing any



potential practical implications with respect to sustainability-related supplier governance within the SC context.

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