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Inside out: The interrelationships of sustainable performance metrics and its effect on business decision making: Theory and practice

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ABSTRACT

There has been an increasing interest in the use of decision-making models to achieve sustainability goal in recent decades. However, a systematic review of performance metrics, which are an important element of decision-making models to evaluate the outcomes regarding firm's economic, environmental and social performance, is lacking. This study provides critical reflections on the current state of literature and industry development regarding sustainable performance metrics and offers concrete suggestions to guide future research. This study contributes to existing studies by (1) exploring the interrelationship between sustainable triple-bottom performance in the decision making process; (2) integrating corporate governance mechanism into decision making process for sustainable consideration; and (3) conducting a comparison between academic theory and industry practice regarding the performance metrics proposed and employed.

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1. Introduction

Business decision-making and sustainable supply chain management (SSCM) are both relatively established research fields. The former conceptualizing as “a locus of innovation, planning tools, heuristic logic, or market device” (Hacklin and Wallnöfer, 2012; pp. 166). The latter exploring “the management of material, information and capital flows as well as cooperation among companies along the supply chain, taking goals from the three perspectives of sustainable development, i.e., economic, environmental and social, into account which are derived from customer and stakeholder requirements” (Seuring and Müller, 2008). With customers' expectations and demands rapidly changing, companies targeting a customer base with high awareness of all three perspectives of sustainability need careful consideration of these in their business decision-making. Unfortunately, one of the most challenging aspects of decision-making to achieve sustainability, is that elements of the process are beyond the reach of companies' control (Gimenez and Tachizawa, 2012). A high level of environmental performance achieved by one firm can be brought to nothing by its supply chain partners' poor environmental/social performance (Faruk et al., 2001). For example, Apple, Samsung and Sony who has

invested heavily in its Corporate Social Responsibility (CSR) development face child labour claims due to the poor performance of its supply chain partners (Wakefield, 2016). The problem arises where the two parties have different interests and asymmetric information, such that the one player cannot directly ensure that the other player is always acting in mutual best interests, particularly when activities that are useful to the one player are costly to the other, and where elements of what the other player does are costly to observe. This asymmetric information problem exists between the companies and its partners in the value chain. The extant literature has documented the important role of governance mechanisms, which are defined as a set of arrangements “that coordinate all stakeholder interests to ensure that the decision-making is more scientific and safeguards all corporate interests” (Li et al., 2014), see also Gillan (2006), Jensen (2002) and Zingales (1998), in reducing asymmetric information problems. Therefore, to meet with the newly developed sustainability requirements, firms have recognized the need to not only guide their business decision internally through governance mechanisms but also extend their traditional business making decision process beyond the firms' boundary to involve their supply chain partners through external governance mechanisms. This prompts questions about how sustainability should be measured into different levels of management decision-making through the value chain and supply network to achieve sustainable production from upstream relationships to sustainable consumption from downstream relationships.

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To operationalize the triple bottom line (economic, social and environmental perspectives) (Elkington, 1997; Seuring and Müller, 2008) and to interpret the interrelationships between these perspectives and to guide decision-making processes, clear metrics of “performance are needed in order to judge the efficacy of any decision on the resulting sustainability performance” (Hutchins and Sutherland, 2008). Against this backdrop, the authors hereby extend the existing literature by investigating how the academic literature address the decision-making process in the context of sustainable supply chain management and identifying the gap between the academic literature and industrial practices regarding sustainability related factors that influence decision makers aiming to fulfil strategic sustainability goals. Current research has been conduct regarding the performance indicators applied for decision-making regarding sustainability (Seuring and Müller, 2008; Hutchins and Sutherland, 2008; Hervani et al., 2005; Bai et al., 2012). However, this study identifies little existing research that examines the interrelationship between the triple perspectives, especially from the lens of triangulation between theoretical and practical viewpoints. Thus, the authors contribute to the extant literature by comparing the performance metrics proposed by scholarly research and employed by industry. More specifically, the authors aim to answer three questions: what are the metrics of performance suggested by the academic literature and what is the interrelationship between these? Has industry used these metrics? What is the impact of governance mechanisms on decision-making models that focus on corporate sustainability performance?

In doing so, this study attempts to follow a systematic review method to identify the performance metrics across a broad range literature of business decision-making processes and their use within industry. Although some previous reviews (Koh et al., 2016) can be found, this systematic review distinguish itself from previous reviews by demonstrating its in-depth rigour of the methodology adopted and also the new research directions proposed as a result of the triangulation between theory and practice to comprehensively understand the interrelationship between the triple perspectives. A major debate of this study is that a significant proportion of current business model building research assume there is an implicit or explicit win-win situation between three sustainable perspectives: economic, social and environmental, however this may not exist. More specifically, current literature argues that by investing in social and environmental perspectives, the company can realise better economic performance. Even if there might be short-term conflict, a long-run win-win situation exists. However, this study suggests that instead of turning a blind eye on the interrelationship between the three sustainable perspectives by assuming a win-win situation for all cases, it is practical to go inside the box and test the interrelationship among these perspectives before building business decision models; a reverse causality from improved economic performance to improved environmental and social performance or a negative relationship between economic performance and environmental and social performance might exist, which have significant implications in the building of decision-making models. As such, the authors urge the examination of this interrelationship under different governance mechanisms and conditions and call attention to the contingency perspective in future study.

The unique points of this study also involve a content analysis of annual reports, sustainability reports and corporate reasonability reports of the top 50 listed manufactures selected from FTSE 250 companies. Consequently, this study contributes to both the academic and professional communities. For researchers, the authors summarize current knowledge and suggest some directions for future research. For professionals, this study can be used to guide what performance metrics can be implemented by businesses.

The structure of this study is as follows. The next section provides a summary of the methodology and outlines the research protocol adopted to identify the systematic review sample papers. The results of the search and initial analysis are presented, followed by a discussion of the findings. Finally, conclusions are drawn, with implications for management practice and further academic research.

2. Methodology

This study applies a systematic review approach to provide a comprehensive literature review. Systematic review is a rigorous review methodology originally developed mainly within medical research and first outlined for the field of management and organization studies by Tranfield et al. (2003). By adopting a scientific, transparent and replicable process, systematic reviews differ from more traditional approaches to literature reviews. Through exhaustive searches of published work, with a clear audit trail of the decisions and actions taken, the aim is to reduce bias and error (Tranfield et al., 2003). The principle aim is to draw a balanced understanding of research in a specific field without selecting for publication field or location, and to obtain a reliable overview of a subject that cannot be achieved by a single non-longitudinal study (Tranfield et al., 2003). As outlined by Thorpe et al. (2005), a systematic literature review should provide: *transparency* – each search of the available research studies is recorded (Denyer and Neely, 2004), *clarity* – a clear, stepped series of searches is presented (Tranfield et al., 2003), *focus* – unify research and practitioner communities (Leseure et al., 2005), *equality* – studies are reviewed on their own merits with no distinction between the nature of journals (Pittaway et al., 2004), *accessibility* – the reviews are made available outside of the specialist in the forms of searchable database with broad coverage (Pittaway et al., 2004).

Following the procedures laid out by recent systematic review (Dekkers et al., 2013; Fogliatto et al., 2012; Keupp et al., 2012), the authors applied two stages of search strings. Step one involved identifying potential relevant papers, the authors selected keywords related to the topic of sustainability. Sustainability is a broad concept (Hubbard, 2009). The triple bottom line, of environmental, social, economic sustainability is a central concept to help operationalize sustainability (Elkington, 1997; Seuring and Müller, 2008). As such, three search strings (“environmental sustainability” AND “management”, “economic sustainability” AND “management”, and “social sustainability” AND “management”) are searched using 2 databases: Scopus and Web of Science, using key word search of [“Environmental sustainability AND management”], [“Economic sustainability AND management”] and [“Social sustainability AND management”] within title, abstract and keyword fields (Table 1). The sample period covers from January 2007 to March 2016, to ensure this study reflect the recent development in this field.

The choice for Scopus and Web of Science is due to the fact that each of the two databases are documented to have extensive coverage for peer review journals (Meho and Yang, 2007). As of 5th May 2016, Thomson Reuters Web of Science had covered more than 12,000 of the high impact research journals and contains over 90 million records. By January 2016, Elsevier’s Scopus has covered over 21,500 peer-reviewed journals and over 60 million records.

Both databases are searched individually with the selected keywords. Only published peer-reviewed journal articles were considered. Equally, As argued by Newbert (2007), David and Han (2004) and Gosling and Naim, (2009), the authors considered that by restricting the search to peer-reviewed journals, the quality control of search results was enhanced due to the peer review process to which articles published in such journals are subject to prior to

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