



A Multi-research-method approach to studying environmental sustainability in retail operations



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ABSTRACT

Retailers increasingly incorporate environmental protection measures to improve their value chain operations. Although environmental sustainability in operations management has been widely examined in the manufacturing context, its adoption in the retail industry is largely recent. In this study we explore, through both qualitative and quantitative approaches in the real retail context, what green practices retailers have put in place to meet the needs of diverse stakeholders and examine whether or not such practices improve retailers' financial performance. Undertaking this study in two phases, we first conducted a secondary data analysis of 345 publicly traded retailers in Japan to identify the green retail operations (GROs) that retailers have adopted. We presented empirical evidence on the performance impact of GROs adoption and analyzed changes in the performance before and after GROs adoption as measured by return-on-assets (ROA). In the second phase, we carried out an empirical study with survey data collected from 141 retailers in Hong Kong to validate the measurement of GROs and examined the financial implications of GROs adoption. We conclude that there is a positive impact of GROs adoption on firms' financial performance in the retail industry.

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1. Introduction

Environmental sustainability is undeniably one of the growing important operations management issues faced by retailers today. A longitudinal survey by Retail Systems Research (2009) found that 48% of retailers viewed sustainability as a strategic direction in their business operations, up from 44% 12 months earlier. Retailers worldwide such as Wal-Mart, Tesco, Carrefour, have adopted environmental protection practices in managing and improving their retail operations. However, research on socially responsible operations is largely confined to manufacturing (Lai and Wong, 2012; Melnyk et al., 2003; Vachon and Klassen, 2007; Zhu et al., 2011) and the literature is in serious lack of a focus on the retail sector. Traditionally, socially responsible operations refer to the integration between economic and social value. The growing concern for environmentally friendly operations leads to the development of full integration of economic, environmental, and social values. The terms socially responsible operations and

environmental sustainability are regarded as interchangeable by researchers advocating the notion of the “triple bottom line” (profit, plant, and people) (Gong, 2013). Lai et al. (2010) suggest that retailers minimize emissions, effluents, and waste through continuous improvement in their internal operations, which are called internal-improvement operations in green retailing. In short, we refer to them as *green retail operations (GROs)*. The concept of internal improvement is applicable to both retailing and manufacturing operations, emphasizing management practices that seek to mitigate the environmental damages caused by their activities. However, manufacturers place a greater emphasis on the product perspective in handling end-of-life or returned products by recycling and re-manufacturing (Lai and Wong, 2012). Retailers differ from manufacturers in their operational considerations. The former stress store settings and design, and offering goods and services to satisfy end customers, whereas the latter emphasize product lines, production sites, capacity schedule, and materials requirements planning. Service enterprises differ from manufacturers with regard to the investment rationale, institutional treatment, and performance measurements (Chan, 2005). The approach used by manufacturers for “greening” their activities may be irrelevant to retailers operating in the service context. This situation leads us to pose the first research question: *What practices of GROs have retailers put in place to satisfy various*

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stakeholders' needs and how such green retailing practices differ from those of manufacturers?

On the other hand, there has been ongoing debate about whether “it pays to be green” (Ambec and Lanoie, 2008; Bruce, 2006). Some studies have found a positive relationship between environmental sustainability and financial returns (Guenster et al., 2011; Kimitaka, 2009). However, there is also evidence that the effects of environmental sustainability on economic performance (Henri and Journeault, 2010) and stock return (Gilley et al., 2000) are insignificant. These inconsistent findings are attributable to the different datasets used and the industry types investigated (Plaza-Úbeda et al., 2009; Schaltegger and Synnestvedt, 2002). As previous studies mainly examined whether greening benefited performance in manufacturing, it leads to the second research question: *Do GROs bring financial benefits to retailers that practise them?*

To answer the two research questions, we conducted this study in the real retail context in two phases. We first conducted a qualitative analysis of 345 publicly traded retailers in Japan using secondary data to explore what GROs practices have been adopted in the retail industry. After that, we measured the abnormal changes in performance over the period before and after the GROs adoption. To further support our findings, we carried out a quantitative survey study with data collected from 141 retailers in Hong Kong on their GROs practices in the second phase. The aim is to empirically validate the measurement of GROs and examine the financial outcomes of GROs adoption in Hong Kong retail context. In sum, to better understand retailers' practices of environmental operations, we set out to 1) identify the practices that retailers adopt in their GROs, 2) reveal the differences in environmental sustainability between the manufacturing and retailing contexts, and 3) examine whether GROs will improve financial performance in the retailing context. Given green retailing practices have become the hallmark of successful retailers (Lai et al., 2010), our findings shed light on the value of GROs in yielding financial gains.

2. Literature review

2.1. Environmental sustainability

The World Commission on Environment and Development (1987) defines sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” To transpose the idea of sustainability more precisely to the organizational level, sustainability is defined as meeting the needs of a firm's direct and indirect stakeholders without compromising its ability to meet the needs of future stakeholders as well (Dyllick and Hockerts, 2002). It calls on organizations to view their responsibilities in terms of the “triple bottom line”, a perspective based on measuring performance with respect to the effects of strategy on people, profits, and the planet (Kleindorfer et al., 2005). Although sustainability has been defined in many ways, it has often concentrated on corporate environmental management, requesting firms' efforts to undertake activities to prevent erosion of natural resources (Bansal, 2005; Chabowski et al., 2011). In the literature, business sustainability is viewed as a market opportunity that provides a viable way for firms to differentiate their offerings and achieve a competitive advantage, while adapting their conduct to society's norms (Fraj et al., 2011). Organizational commitment to sustainability opens the door for enterprises to new markets and attract customers (Connelly et al., 2011). Proponents of sustainability argue that environmentally conscious and ecologically friendly strategies are favorable for firms to attain superior financial performance (Hart, 1995; Sharma et al., 2010). A better environmental record gains consumer approval and hence long-term profits (Iyer, 1999). Lash and Wellington (2007)

warn that firms will be at a competitive disadvantage should they fail to pay attention to sustainability issues.

We have seen the co-evolution of “green” and “efficient” as the concept of eco-efficiency which is widely recognized in both academia and industry. The World Business Council for Sustainable Development (2006) defines the concept as follows: “Eco-efficiency is about the delivery of competitively-priced goods and services that satisfy human needs and bring quality of life, while progressively reducing ecological impacts and resource intensity throughout the life-cycle to a level at least in line with the earth's estimated carrying capacity. In short, it is concerned with creating more value with less impact”. It also goes along with the advocacy of Porter and Van der Linde (1995) that pollution is a form of waste, whereas cost reduction means enhancing efficiency and minimizing waste. Although there is a view that environmental initiatives are expenses or costs of doing business (Pagell et al., 2004), some scholars argue that improvements in financial performance stem from better resource utilization and increased efficiency so that superior environmental sustainability is associated with a lower cost of capital and increased profitability (Klassen and McLaughlin, 1996; Sharfman and Fernando, 2008; Uotila et al., 2009).

2.2. Green operations practices in the retail context

Traditionally, retailers' replenishment policy is based on demand forecasting that retailers place an order before the customer demand. Any shortages will become backorders (Chiang and Feng, 2007). The risk of stock-outs, and the inventory carrying cost and transportation cost, are mainly borne by the retailers (de Brito et al., 2008). In recent decades, retailers have sought operational integration with suppliers through information technologies, such as Electronic Data Interchange (EDI) or Efficient Consumer Response (ECR) to share inventory data with suppliers on a real-time basis (Yao et al., 2007). Such integration is consistent with the just-in-time (JIT) concept that the right part in the right quantity at precisely the right time goes into assembly in the production system (Ohno, 1982). The coupled operations allow smaller buffers of capacity and inventory to prevent stock-out. Better resource utilization in production and transportation will lead to cost reduction. From the retailers' perspective, service is usually assessed on the basis of product availability. Not only does the company lose sales but also its goodwill when customers cannot buy the product due to stock-out (Waller et al., 1999). These practices, which ensure the optimal amount of inventory is ordered and transported, not only save cost but also mitigate the environmental damage caused by the waste of extra inventory stock.

There are corporate social responsibility (CSR) studies conducted in the retail context. For example, Jones et al. (2005) explored CSR reports and statements of 20 retailers in the UK to examine how retailers tackle the issue of sustainable development from the environmental, societal, and economic standpoints. Kolk et al. (2010) examined the CSR practices of four Chinese retailers and four international retailers from the economic, environmental, and social perspectives with specific categorizations including employee compensation, donation, local sourcing, recyclable materials and energy conservation, emissions and waste, labor relations, occupational health and safety, equal labor etc. de Brito et al. (2008) conducted a study in the context of a fashion retail supply chain surveying 48 respondents, who included suppliers, manufacturers, retailers, textile recycling actors, service providers, and independent experts, to study how economic, environmental, and social pillars can be achieved in managing fashion retail supply chains. Adopting a multiple case study approach with 14 cases, Quak and de Koster (2007) examined the impact of environmental regulatory pressures on the logistics practices of retailers and the performance outcomes. Kolk (2003) studied the

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