



Antecedents and outcomes of sustainable shipping practices: The integration of stakeholder and behavioural theories



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ABSTRACT

This paper analyses the drivers and outcomes of sustainable shipping practices through the lenses of stakeholder, planned behaviour, and resource dependence theories. Theoretical models were systematically developed and compared using survey data collected from 186 shipping companies. The results reveal that a shipping company's stakeholder pressure, attitude, and behavioural control directly influence the adoption of sustainable shipping practices, and indirectly influence business performance. Furthermore, stakeholder pressure directly influences attitude, behavioural control, and business performance. This paper contributes to the integration of stakeholder and behavioural theories on sustainable practices. Strategies to improve the adoption of sustainable shipping practices are discussed.

1. Introduction

Shipping is a key facilitator of international trade (Lam, 2015). It is the most efficient mode of transport and is responsible for transporting approximately 90 per cent of world trade. Whilst it is relatively safe and clean, compared to other transport modes, the shipping industry has a significant impact on the society and environment. It accounts for 3 per cent of greenhouse gas emissions globally (Scott, 2014). Additionally, ships' main engines consume heavy fuel oil, the lowest grade of fuel oil, which contributes to global pollution considerably.

Sustainable shipping is recognised as one of the biggest challenges of the 21st century (Lirn et al., 2014). This is reflected by increased international regulations such as Energy Efficiency Design Index, Ship Energy Efficiency Management Plan, and Ballast Water Management System to curb greenhouse gas emissions or reduce the impact of invasive marine biological species from ship operations (Albert et al., 2013; Tzannatos and Stournaras, 2015). In addition, self-regulated or market-driven initiatives, technologies and measures, for instance, ISO 14000, ISO 26000, slow-steaming, cold-ironing, biocide-free paints, and renewable fuel alternatives are increasingly being adopted by shipping companies to lower operating cost, differentiate their services, as well as reduce the impact of their operations on the society and environment (Ballini and Bozzo, 2015; Maloni et al., 2013; Woo and Moon, 2014).

Sustainable shipping involves meeting the needs of the present without compromising the ability of future generations to meet their own needs. It requires shipping companies to achieve a balance in their economic, social, and environmental performances (Cheng et al., 2015). The dimensions underlying sustainable shipping are 'the environment', 'diversity', 'safety', 'human rights', and 'philanthropy' (Carter and Jennings, 2002). Alternatively, it can be explained from the stakeholders' perspective which involves satisfying the social and environmental needs or welfare of stakeholders comprising shareholders, customers, employees, suppliers, regulators, the community and environment at large (Yuen et al., 2016b).

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Stakeholder theory has been instrumental in the existing literature to explain firms' motivation for practising sustainability (Lozano et al., 2015). It suggests that the needs of shareholders cannot be met without satisfying, to some degree, the needs of other stakeholders (Sen and Cowley, 2013). Particularly from the institutional perspective, the notion is that stakeholders have the ability to exert mimetic, coercive, or normative pressure on firms to practise sustainability (Lai et al., 2013b; Zhu and Sarkis, 2007). Stakeholders' ability to punish or reward confers them power to influence the performance outcomes of firms. This compels firms to integrate social and environmental concerns of stakeholders into their business operations while considering or maintaining the economic viability of these integrations (Pagell and Shevchenko, 2014).

Although stakeholder theory or pressure represents a central theme in legitimising the adoption of sustainable management or practices (Touboulic and Walker, 2015), it has not adequately accounted for *non-stakeholder-related drivers* arising from firms' attitude, strategy or resource constraints. For instance, Philipp and Militaru (2011) revealed that a firm's ecological purchasing behaviour (i.e. a component in sustainable practices) is motivated by its perceived compatibility between ecological attributes and functional services, the visibility of its ecological actions within the supply chain, and its overall ecological strategy. In another study, Yuen et al. (2017) suggested that the availability of slack resources and the configuration of existing competitive resources predict shipping companies' decision to implement corporate social responsibility.

In general, sustainable practices can be viewed as an organisational behaviour reflecting the conduct of a firm's social and environmental activities. Despite such observation, it is to the authors' knowledge that very few studies have analysed sustainable practices from the behavioural perspective. Therefore, to bridge the gap in the literature, the aim of this study is to complement stakeholder theory with behavioural theories to analyse the drivers of sustainable shipping, and examine their effects on the adoption of sustainable shipping practices and business performance.

The first objective of this paper is to introduce the theory of planned behaviour to examine the drivers influencing the adoption of sustainable practices in shipping companies. In this context, the theory asserts that a firm's (1) attitude, (2) perceived norms or pressure, and (3) perceived behavioural control influence the practice of sustainability (Montano and Kasprzyk, 2008). It encompasses the premise of stakeholder theory by considering the pressure exerted by stakeholders and their expectations of sustainability practices, reflecting the perceived norms of a firm. In addition, the theory also recognises the firm's instrumental and experiential beliefs (i.e. attitude) as well as its capacity or ability to practise sustainability (i.e. behavioural control).

The second objective of the paper is to examine the effects of a firm's attitude, perceived norms, behavioural control, and sustainable shipping practices on business performance. According to Carter and Rogers (2008), if a practice has a negative impact on the economic bottom line, it is not *sustainable*, regardless of its contribution to the environment or societies. Therefore, it is crucial that sustainable practices and their drivers are linked to business performance. Existing studies anchoring on stakeholder theory mainly analysed the relationships at the dyadic level (i.e. drivers-practice or practice-performance) rather than at the triadic level (i.e. drivers-practice-performance) (Lai and Wong, 2012; Lun et al., 2014; Yang et al., 2013; Yang, 2012; Zhu et al., 2016; Shin and Thai, 2016). In addition, this disconnection seems to suggest that the drivers of sustainable shipping practices have no direct effects on business performance (Pagell and Shevchenko, 2014). The current paper queries this assumption by drawing on resource dependence theory, a behavioural theory that links the motivations of a firm to business performance.

The remaining parts of the paper are organised as follow. First, three theoretical models were systematically developed, with each extending from its predecessor with the introduction of a theory. This incremental, hierarchical approach to model development allows the network of relationships posited by each theory to be empirically validated. Next, scales were developed to operationalise the constructs in each model. Thereafter, a survey questionnaire was developed and administered on shipping companies with business offices in Singapore. The data were then analysed and the results are presented and discussed. Finally, conclusions are drawn based on the results.

2. Theories, theoretical models and hypotheses

The current paper proposes three theoretical models. Each model introduces a unique theoretical lens i.e. stakeholder theory, theory of planned behaviour, and resource dependence theory to identify the drivers of sustainable shipping practices and examine their effects on sustainable shipping practices and business performance. Fig. 1 depicts the models and their anchoring theories.

As shown in Fig. 1, Model 1 serves as a baseline model which reflects the premise of stakeholder theory, and its views on the relationships between stakeholder pressure, sustainable shipping practices, and business performance. Herein, in this context, stakeholder pressure is referred to the degree of accountability an organisation perceives for the actions and decisions it has taken to address the sustainability needs of its stakeholders (Parmigiani et al., 2011). Model 2 addresses the first objective of the paper by introducing the theory of planned behaviour which expands the drivers of sustainable shipping practices with the introduction of two additional latent constructs, namely, attitude and behavioural control. Finally, Model 3 addresses the second objective by introducing resource dependency theory which specifies the connections between the drivers of sustainable shipping practices as well as their effects on business performance.

2.1. Stakeholder theory

Stakeholder theory holds that managers should partake in sustainable practices since they have a moral obligation to satisfy a variety of constituents who have a legitimate (e.g. shareholders, customers and employees) or silent (e.g. the environment and community) interest on a firm (Freeman, 2010).

Stakeholder theory has been frequently used to explain firms' motivation for practising sustainability (Meixell and Luoma, 2015).

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