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Evaluating the impact of security management practices on resilience capability in maritime firms—a relational perspective

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ABSTRACT

Increasing the risk of interruptions or shutdowns of supply chains, the development of multiple security initiatives to enhance security and resilience capability without affecting efficiency has become an important issue for multinational firms. This study aims to examine the enablers and performance outcomes of resilience capability in maritime firms from a relational perspective. Data collected from a questionnaire survey and a structural equation modeling (SEM) was subsequently performed to test the research hypotheses. Results indicate that relationship orientation is positively related to maritime firms' security management practices and resilience capability, whereas security management practices are positively associated with maritime firms' resilience capability and cargo operational performance. Moreover, results reveal that resilience capability is positively associated with cargo operational performance. Although the direct impact of relationship orientation on cargo operational performance was not found in this study, security management practices are found to play a mediating role. The finding implies that relationship orientation indirectly affects cargo operational performance via security management practices and resilience capability.

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1. Introduction

Given an open system, globalization has increased the risk of interruptions or shutdowns of supply chains. Maritime firms moving a container to different countries of the world involve various service parties and accordingly are vulnerable to various risks, such as natural disasters, management system fragility, political and economic turbulence, and steadily rising trade and insurance costs (Forbes, 2013; Yang and Wei, 2013; Lam and Bai, 2016; Moslemi et al., 2016). Due to its vital role connecting all organizations in the supply chain and handling and carrying cargoes across the ocean, assurance of security is crucial to maritime firms for facilitating international trade (Closs and McGarrell, 2004). Facing greater environmental uncertainty and complexity, it is thus imperative for maritime firms to adopt more effective and active security initiatives to deal with the different situations encountered by their maritime supply chain without affecting efficiency (Thun and Hoenic, 2011).

Approximately 90% of international goods are carried by maritime transport, and thus container carriers play a key role in the global movement of goods and services. Unfortunately, the frequency of global transport network interruptions has

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increased since 2012, and 26% of shippers worldwide have reported losses from delayed international shipments of goods (WEF, 2013). In particular, maritime transport had been regarded as the most fragile point in supply chain security after the 911 terrorist attacks (Lee and Whang, 2005). Disruptions of the transport system and other unforeseen incidents thus can have a negative impact on companies' supply chain performance (Hendricks and Singhal, 2005; Lam and Bai, 2016). If maritime firms cannot quickly respond to and effectively deal with ongoing incidents along the maritime supply chain, maritime firms and their shippers will face even greater and difficult-to-estimate losses, and may even be at risk of bankruptcy. This suggests that one of the major challenges currently faced by maritime executives is how to reduce the incidence of maritime supply chain risks and ease the impact of possible unpredictable incidents, and thereby ensure that their companies can quickly adjust and adapt to supply chain incidents and even achieve overall supply chain performance and improved competitiveness. The ability of a company to survive, adapt, and grow when encountering changes in the business environment is also known as resilience capability (Fiksel, 2006).

A number of compulsory or voluntary security initiatives, such as Authorized Economic Operator (AEO), Customs-trade Partnership Against Terrorism (C-TPAT), 24-Hour Advanced Vessel Manifest Rule (24-h rule) and Container Security Initiative (CSI), were thus implemented by maritime firms to prevent and ease the impact of transportation system interruptions and thereby facilitate the movement of cargo (Closs and McGarrell, 2004; Yang and Wei, 2013). Although prior studies have demonstrated the crucial role of resilience capability in a firm's performance and competitiveness (Wieland and Wallenburg, 2013; Pettit et al., 2013; Gligor et al., 2015; Lam and Bai, 2016; Li et al., 2017), the building of resilience capability imposes additional costs on firms to implement various security management practices (Sarathy, 2006; Zailani et al., 2015). In particular, it requires the organizational capacity to maintain and mobilize inter-organizational resources across a maritime supply chain (Hendricks and Singhal, 2005; Sirmon et al., 2011; Brusset and Teller, 2017). As such, maritime firms must seek to cooperate and integrate with other partners to forge their resilience capability. A relationship orientation can thus boost overall operating efficiency, implement security practices, and thereby allow maritime firms to enhance resilience capability (Panayides, 2007; Deloitte, 2013; Scholten and Schilder, 2015).

The topic of resilience capability has gained considerable attention in the field of operations and logistics management. However, most previous studies mainly focused on manufacturing industries (Williams et al., 2008; Hintsä et al., 2009; Li et al., 2009; Jüttner and Maklan, 2011; Gligor, 2013), and there is little knowledge about the enablers of resilience capability and its outcomes on maritime firms. There are also few studies from a resource-based view to realize the important of inter-organizational relationships for acquiring external resources and capabilities to adopt security management practices and thereby build resilience capability. Thus, to fill this literature gap, the research question asks how relationship orientation may act as an enabler to successfully facilitate the implementation of security management practices and building of resilience capability. Additionally, based on a resource-based view (RBV), this study aims to investigate the relationships among relationship orientation, security management practices, and resilience capability, and in turn its outcomes on maritime firms' cargo operational performance.

The contribution of this study is threefold. First, this study empirically demonstrates the importance of security management practices in building a firm's resilience capability. This can give maritime firms additional incentive to implement security management practices for enhancing security performance and resilience capability. Second, while prior studies have posited the effect of security management practices on firms' security operational performance, they have ignored the mediating role of security management practices. This study thus contributes by examining whether security management practices play a mediating role between relationship orientation and resilience capability as well as the relationship between relationship orientation and cargo operational performance. Finally, to successfully implement security management practices across the maritime supply chain, maritime firms should acquire resources and capabilities through inter-organizational relationships to forge their resilience capability. In particular, RBV asserts firms can gain superior performance and competitive advantages by developing and deploying unique organizational resources and capabilities (Wernerfelt, 1984; Barney, 1991). Thus, building on RBV theory, this study contributes to a better understanding of the enablers of resilience capability and examines its outcomes from a relational perspective in the context of maritime firms.

There are five sections in this study. Section one introduces the motivation and purpose of the research. Section two reviews the literature on resource-based theory, relationship orientation, security management practices, and resilience capability. A conceptual framework and research hypotheses are also provided in this section. Section three describes the research methodology, including the questionnaire design, sampling technique, and research methods. Section four presents the results of analysis. The conclusions and implications are discussed in the final section.

2. Literature review and hypotheses development

2.1. Resource-based view (RBV)

The RBV theory views the firm as a bundle of resources and asserts that a firm's superior performance and sustained competitive advantage is rooted inside its unique resources and capabilities (Wernerfelt, 1984; Barney, 1991). Thus, a firm can generate and gain superior performance by developing and deploying its resources and capabilities which are rare, valuable, imperfectly imitable, and not be easily substituted (Barney, 1991). The RBV theory has been widely employed in the fields of security management and resilience capability (Brandon-Jones et al., 2014; Zailani et al., 2015). In particular, grounded in the

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