



# The effects of dynamic capabilities, service capabilities, competitive advantage, and organizational performance in container shipping



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## ABSTRACT

Recent changes in the world economy have had a significant impact on container shipping in recent decades. A growing number of studies have demonstrated that service capabilities are related to competitive advantage and organizational performance. When encountering an environment characterized by economic uncertainty, the shipping industry was required to emphasize dynamic capabilities associated with adaptation to sustain competitive advantage. The purpose of this study was to examine the linkages between dynamic capabilities, service capabilities, competitive advantage, and organizational performance in container shipping using data surveys from 134 respondents in container shipping firms in Taiwan. Exploratory factor analysis was employed to identify the crucial dimensions underlying dynamic capabilities, and service capabilities. Furthermore, structural equation modeling (SEM) was used to test the research hypotheses. The research findings indicated that dynamic capabilities positively influenced both competitive advantage and service capabilities. Service capabilities and competitive advantage were positively related to organizational performance. Practical implications of the research findings for container shipping firms are discussed.

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## 1. Introduction

Maritime transport is essential for the development of trade and global economy. Over 80 per cent of global merchandise trade was carried by sea and administered by ports worldwide (UNCTAD, 2015). However, the current shipping environment remains complex and unpredictable. This is due in particular to economic variation, ship overcapacity, the restructure of strategic alliances, significant fluctuation in bunker prices, imbalance between supply and demand, and environmental requirements (UNCTAD, 2015). For instance, growth in container shipping companies has emerged in the form of more routes and increased frequency of service, which in turn have increased the number of port calls (Das, 2011). Container shipping companies have launched a restructuring of their networks and adjusted their strategic alliances in response to the dynamic environment. Major strategic alliances will be formulated include THE Alliance (Hapag-Lloyd, K-Line, MOL, NYK, and Yang Ming), Ocean Alliance (CMA CGM, COSCO, Evergreen, and OOCL), and 2M (Maersk and MSC) (Alphaliner, 2016a). Moreover, global container carriers are suffering from severe economic stagnation and overcapacity. For example,

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Hanjin was the 7th largest container shipping company in the world in 2015. However, Hanjin filed for receivership on 31 August 2016 (Alphaliner, 2016b). The rapid disintegration of Hanjin sent shock waves across the container shipping market. As Hanjin crashed, carriers and shippers scrambled to take contingency measures to fill the void left, which caused turmoil in global freight rates, and is expected to lead to further restructuring in the shipping market. Since global container carriers occupy an environment characterized by economic uncertainty as well as divergent supply and demand in different cycles of the container shipping market, they are required to emphasize important capabilities related to adaptation in order to meet changes related to organizational resources (Teece, 2007).

Container shipping is an international industry that provides maritime transport service on a regularly scheduled basis to predetermined ports based on customers' needs (Tran et al., 2012). In the field of strategic management, the resource-based view (RBV) suggests that an organization's capabilities are a core source for the creation and development of sustainable competitive advantage (Barney, 1991; Schreyögg and Kliesch-Eberl, 2007). Two distinct categories of capabilities may be distinguished: dynamic capabilities and service capabilities.

Service capabilities reflect service providers' ability to successfully employ their resources to satisfy their customers' needs (Lai, 2004). With the significant changes taking place in the global business environment, the container shipping industry has become highly competitive and seeks to enhance its service capabilities in order to better meet the various requirements of shippers (Lu, 2007). In the container shipping industry, the capability relates to transit time, freight rate, and frequency of service. Service capabilities are drivers for superior competitive advantage (Lu and Yang, 2006), and have been discussed in previous research (Barney, 1991). However, in an uncertain environment with increasingly higher costs and risks (UNCTAD, 2015), container shipping companies also need to focus on dynamic capabilities to renew and adjust their management strategies (Tsekouras et al., 2011; Yang et al., 2009).

A firm's dynamic capabilities are its ability "to renew itself in the face of a changing environment by changing its set of resources" (Danneels, 2010, p. 1). They can be disaggregated into these capabilities: "(1) to sense and shape opportunities and threats, (2) to seize opportunities, and (3) to maintain competitiveness through enhancing, combining, protecting, and when necessary, reconfiguring the business enterprise's intangible and tangible assets" (Teece, 2007, p. 1319; Wilden et al., 2013). Romme et al. (2010) stated that dynamic capabilities can enhance an organization's ability to change and adapt to new environmental requirements. In a changing environment, therefore, dynamic capabilities are a necessary resource by which to sustain competitive advantage (Haleblian et al., 2012).

Drawing on the resource-based view of firms, one of the purposes of this study is to examine the role of dynamic capabilities in developing and sustaining competitive advantage. While prior studies (Lu, 2007; Lu and Yang, 2006; Schreyögg and Kliesch-Eberl, 2007) have focused on the effects of different capabilities on organizational performance, they have failed to consider in detail how dynamic capabilities influence organizational performance. Additionally, most of the previous studies on service capabilities have described how to provide a satisfactory service to customers, but few studies have examined the relationship between dynamic capabilities and service capabilities. This study endeavours to empirically examine how dynamic capabilities influence service capabilities. Furthermore, prior studies have usually been based on a single capability, and have examined specific concepts. There has been a noticeable absence of research projects dealing with dynamic capabilities and service capabilities in container shipping. Therefore, this study seeks to investigate the relationship between dynamic capabilities, service capabilities, competitive advantage, and organizational performance in the container shipping industry.

There are five sections in this paper. The first section introduces the motivation for the study. The second section reviews the literature on dynamic and service capabilities in order to develop the study hypotheses. The third section describes the research methodology, including the study sample, the research instrumentation, and data analyses. Section four presents the analyses results relevant to the research hypotheses. The research findings and their implications for container shipping firms are discussed in the final section.

## 2. Theoretical background and hypotheses

### 2.1. Definition of resource-based view

The resource-based view (RBV) defines a firm as a bundle of resources and capabilities (Nath et al., 2010), which can be used to create and develop competitive advantage (Talaja, 2012). Barney (1991) identified four characteristics of resources that can sustain a firm's competitive advantage, namely, value, rarity, imperfect imitability, and imperfect substitutability. Amit and Schoemaker (1993, p. 35) referred to resources as "stocks of available factors that are owned or controlled by the firm". They comprised tangible components such as financial and physical assets, equipment, land, and buildings; and intangible components, which include human resources, client trust, firm reputation, and know-how (Nath et al., 2010). The resource-based view suggests that superior organizational performance is dependent on the manner in which shipping service providers leverage their resources (Lai, 2004). Gavronski et al. (2011) viewed capabilities as the organizational ability to use current resources to perform tasks or activities. Wu (2010) stated that a firm can use its capabilities to develop its resources to create competitive advantage.

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