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# Logistics capability and performance in Taiwan's major manufacturing firms

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## Abstract

This study, based on a survey of 1200 manufacturing firms in Taiwan, uses structural equation modelling to examine the relationships among logistics capabilities, logistics performance, and financial performance. Results show that the information-based capability is the most critical since it can impact upon benchmarking capability, flexibility capability, and logistics performance. Moreover, information-based capability also indirectly impacts on financial performance through logistics performance.

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*Keywords:* Information-based capability; Benchmarking capability; Flexibility capability; Logistics management; Resource-based view of the firm; Structural equation modelling

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## 1. Introduction

One of the most significant changes in the paradigm of business management is the fact that individual businesses no longer compete as solely autonomous entities, but rather as supply chains (Christopher, 1998). Logistics and supply chain management (SCM) have become important sources of sustainable competitive advantage (Olavarrieta and Ellinger, 1997; Day, 1994). However, the roles of logistics and SCM in strategic issues are still deeply influenced by the value chain approach (Porter, 1985). Consequently, the resource-based view of the firm and the related capabilities approach (Barney, 1991; Barney et al., 2001; Wernerfelt, 1984; Grant, 1991) have not

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often been the focus of attention in the logistics literature (Olavarrieta and Ellinger, 1997; Skjoett-Larsen, 1999).

In the last decade, Taiwan, the Republic of China, a small, resource-absent, densely populated island, has become a world-class supply source of electronic hardware products. ‘Almost 60% of the world’s desktop PCs were either made in Taiwan or contained a motherboard made by a Taiwanese company’ (Ernst, 2000, 226). Nevertheless, how top manufacturing firms can maintain their success in an extremely competitive market is an ongoing question. Logistics may be the answer. For example, the key success factors of the Acer Group, based in Taiwan and one of the largest, widely renowned computer manufacturing groups in the world, famous for its “fast-food business model” (i.e. assembly into a computer just before purchase) (Mathews and Snow, 1998), belong to the logistics domain. However, empirical studies have rarely focused on logistics management in Taiwan but have usually concentrated on logistics management in Western developed countries (Luo et al., 2001), displaying a particular bias towards the USA. Moreover, even though many researchers have demonstrated that various logistics capabilities are positively associated with logistics and/or financial performance (Stank and Lackey, 1997; Bowersox et al., 1999; Zhao et al., 2001; Fawcett and Cooper, 1998; Rogers et al., 1996; Narasimhan and Kim, 2001; Wisner, 2003), there is still insufficient evidence to conclude that logistics practices in a huge geographic area such as America have exactly the same effect in a smaller geographic area such as Taiwan.

This study applies the resource-based theory of the firm to explore the relationship between performance and logistics capabilities, focusing especially on information-based capability, flexibility, and benchmarking, in the manufacturing industry of Taiwan. In the following section, the existing literature is reviewed to build a theoretical base for proposing comprehensive hypotheses in Section 3. Section 4 describes the questionnaire design and responses. The collected data have been examined using structural equation modelling (SEM). The results of the statistical analysis are detailed in Section 5, while the final section concludes the findings and contributions of this study. The implications and limitations of the study and suggestions for future research are also presented.

## **2. Literature review**

The resource-based view (RBV) of firms mainly emphasises their internal strengths and weaknesses, in contrast to industrial organisation economics which focuses on firms’ external opportunities and threats (Grant, 1991; Foss and Eriksen, 1995), because when the external environment is unstable, a firm’s own resources and capabilities may be easier to control (Grant, 1991).

The resource focused perspective contends that a firm is a collection of tangible and intangible resources (Collis, 1991). This collection is unique to each firm so that each firm can be considered different (heterogeneous) from each other within the same industry i.e. no two companies possess the same experiences, or have acquired the same assets or skills or built the same organisational culture (Collis and Montgomery, 1995). Such differential endowment of resources among firms is the ultimate determinant of strategic decisions.

The RBV contends that the idiosyncratic resources and capabilities of firms are the key resources of sustained competitive advantage (SCA) (Hoskisson et al., 1999; Oliver, 1997). This premise also appears to be supported by logistics and supply chain management (SCM) research (e.g. Michigan

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