Chapter 3
Supply Chain Process Efficiency (SCPE) and Firm's Financial Efficiency (FFE): A Study of Establishing Linkages

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ABSTRACT

The core object of this chapter is to develop efficiency measurement technique which links SC processes' efficiency (SCPE) to a firm's financial policy (FFP) through demonstrating and utilising the connection between SCPE and a firm's financial efficiency (FFE). The Dempster Shafer/Analytical Hierarchy Processes (DS/AHP) model is employed to link SCPE to the firm's financial efficiency through defining the relevant importance weights of SCPE measures regarding the preferences of FFE. The chapter also introduces a SC Financial Link Index (SCFLI) to examine the degree to which SCPE is linked to the FFE objectives. This index offers an effective supply chain management (SCM) tool to provide continuous feedback on SCPE and recognise the suitable employed remedial actions. Analysing this index offers opportunities for detailed evaluation of SCPE and empowers firms to trace SC processes that need improvement, causing in more control on daily SC operations. The proposed method permits the evaluation, monitoring, and control of SCPE to enhance SC policy for better alignment with the FFP. Linking SCPE to the FFP objectives empowers firms to gain competitive advantages and formulate strategies for improved SCM through linking such strategies to the focus area of improving the FFE.

1. INTRODUCTION

As a result of the strong domestic and international competition that firms currently face, firms will not be able to contend or endure unless they develop strategies to attain cost reduction, quality improvement and enhanced productivity. The real challenge for firms is how to manage the trade-offs between such

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strategies as they generally work against one another. For example employing a policy to achieve cost reduction could adversely impact quality or result in reduced productivity. The management of material, products, information and time flows through the SC has an immediate effect on the success of these strategies (Chan et al., 2002). A SC is a set of a firm's complete operations directly and indirectly interlinked and interacted to transform inputs into outputs that are supplied to the end customer. Harrison and New (2002) stated the results of a major international survey undertaken in 1998 into the relations between corporate policy, SC policy and SC efficiency management in manufacturing firms across the major industrialised countries. The survey publicized that 90% of the respondents alleged that SCPE was important or very important for attaining competitive advantage in the future (Forslund, 2007). Managers at different levels should be aware of the connection between SCPE and the FFE and how the firm's daily actions can influence the overall FFE. Presutti and Mawhinney (2007) stated that 70% or more of manufacturing firms' expenditures are on SC related activities, which highlights the potential effect of an effectively managed SC in contributing to overall improvement in FFE.

To effectively quantify the impact of SC activities on the FFE, SC efficiency needs to be connected to the firm's financial strategic goals (Kremers, 2010). The challenge for many firms is that the alignment of efficiency measurements between SC and financial roles is still comparatively poor. The main reason for this is that SCPE metrics and FFE metrics are defined in different ways which generates difficulty to translate SC operational measures, with their emphasis on day to day operations, into financial targets (Camerinelli & Cantu, 2006). The chief long-term financial goal of the firm is to maximise profit. To achieve this overall long-term goal, the firm should translate it into meaningful short-term efficiency objectives that can be measured and monitored. These objectives can be realized through recognizing the source of poor efficiency in terms of precise activities and designing short-term strategies for enhancing the efficiency of these activities (Grant, 2005). Understanding the link between SCPE metrics and the overall metrics used to measure the FFE is vital to align SCPE to the firm's financial strategic goal.

The core object of this paper is to develop an efficiency measurement technique which links SC processes' efficiency (SCPE) to a firm's financial policy (FFP) through demonstrating and utilising the connection between SCPE and a firm's financial efficiency. According to the proposed method, SCPE metrics assess the efficiency of SC processes in terms of trustworthiness, responsiveness, agility, cost, and asset management based on SC Operations Reference-model (SCOR) standard efficiency metrics (SEM), while FFE metrics evaluate and analyse the efficiency of the outputs of these processes in terms of efficiency and profitability using Du Pont ratio analysis. To link SCPE to the FFE, the proposed method employs the Dempster Shafer/Analytical Hierarchy Processes (DS/AHP) model developed by Beynon et al. (2000).

According to the DS/AHP model, the significance weight of the evaluation criteria is determined with regard to the preferences of associated decision elements. Applying this model, the significance weights of SCPE measures can be determined with regard to the preferences of the FFP. Consequently, SC policy is formulated based on these preferences through linking SC policy to the focus area of improving the FFE. The developed method introduces a SC Financial Link Index (SCFLI) to test the extent to which SCPE is linked to the firm's short-term financial policy objectives. Analysing this index provides more control over the daily SC operations as it enables firms to trace SC processes that want enhancement and thus identify their connected efficiency pointers for healthier SCM. The remainder of this chapter is organised as follows. Firstly, a review of related literature is presented. In Section 3, the rationale for the proposed method is discussed. Then, the framework for the proposed method is illustrated in Sec-