Antecedents and Consequences of Dynamic Supply Chain Design and Learning Capabilities

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ABSTRACT

This study applies Dynamic Capabilities View (DCV) to the study of supply chain capabilities. While the literature in the area of dynamic capabilities (DCs) from supply chain perspective or Dynamic Supply Chain Capabilities (DSCCs) has grown steadily, few important questions have remained unanswered. Specifically, this study seeks to find out the antecedents and consequences of DSCCs.

In this study, DSCCs are operationalized based on the framework presented by Teece (2007), as a second-order factor consisting of sensing, seizing, and transforming capabilities. Entrepreneurial Orientation (EO) and Supply Chain Learning (SCL) are proposed as antecedents of DSCCs. The role of Environmental Dynamism (ED) in the process of capability formation is also considered. Finally, direct and indirect relationship between DSCCs and Supply Chain Performance (SCP) is considered. Indirect relationship is studied using the Operational Flexibility (OFL), Operational Improvement (OIM), and Operational Innovation (OIN) as mediating operational capabilities.

Survey research was used to test the hypothesized model. Data were collected from 275 managers working in supply chain and related functions in manufacturing sector of Pakistan. Structural equation modelling (SEM) was used to validate the measurement model and test hypotheses. Results of the study showed that the research model was generally supported. Sensing, seizing (supply chain agility), and transforming (supply chain adaptability) provide a parsimonious framework for measuring DSCCs as indicated by fit indices in CFA. Results of the hypotheses tests showed that EO and SCL have a positive impact on DSCCs. Furthermore, DSCCs had a stronger direct impact on SCP compared to the indirect impact.

This research contributes to the literature by providing a framework for measuring DSCCs. It provides a better understanding of capability levels by empirically showing that capabilities operate at different levels and capabilities at each higher level modify the next level capabilities. It helps develop an understanding about DC-performance relationship in a better way. The study also showed that environmental dynamism does not play a significant role in the relationship between higher-order and lower-order dynamic capabilities. Finally, for executives and managers who are concerned about better managing their supply chains, this study provides insights for how firms can develop competitive advantage through DSCCs.

Keywords: Strategic management, dynamic capabilities, dynamic supply chain capabilities, environmental dynamism, operational capabilities, supply chain performance

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LIST OF ACRONYMS & ABBREVIATIONS

Dynamic Capabilities View	DCV
Dynamic Capabilities	DCs
Supply Chain Management	SCM
Supply Chain	SC
Standard Operating Procedures	SOPs
Resource Based View	RBV
Knowledge Based View	KBV
Entrepreneurial Orientation	EO
Supply chain learning	SCL
Environmental Dynamism	ED
Sensing	SE
Seizing	SZ
Transforming	TR
Operational Improvement	OIM
Operational Flexibility	OFL
Operation Innovation	OIN
Supply Chain Agility	SCA
Supply Chain Adaptability	SCAD
Supply Chain Efficiency	SCE
Supply Chain Responsiveness	SCR
Structural Equation Modeling	SEM
Confirmatory Factor Analysis	CFA
Average Variance Extracted	AVE
Modification indices	MI

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1- INTRODUCTION

1.1- Overview

Strategic management researchers have sought answers to some important questions in recent decades. These include: (1) why and how firms are formed? (Wilden, et al., 2016); (2) how firms become successful and what are the causes behind their failures? (Porter, 1991); (3) on what grounds are firms different from each other? (Zott, 2003) and (4) how competitive advantage is developed and sustained over a period of time (Ambrosini & Bowman, 2009)? Various strategy frameworks have explored these questions from different angles. For example, two dominant frameworks looking at the sources of sustainable competitive advantage include market-based and resource-based approaches. Market-based framework focused on curtailing the factors outside the firm, such as: firm's buyers, suppliers, competitors, potential new entrants and substitutes, as a source of competitive advantage (Porter, 1980, 1985). It was criticized on the grounds that it breeds short term and reactive approach to strategic management (Wilden, et al., 2016). Contrary to the market-based framework, resource-based view (RBV) of the firm looked at firm's resources and capabilities as the source of competitive advantage (Penrose, 1959; Wernerfelt, 1984). According to RBV, assuming the heterogeneous distribution and imperfect mobility of strategic resources amongst the rival firms, firm resources can lead to sustainable competitive advantage if they are valuable, rare, inimitable, and non-substitutable (VRIN) (Barney, 1991). However, RBV has also been criticized on the grounds that it assumes a very static nature of product markets (Eisenhardt & Martin, 2000; Lengnick-Hall & Wolff, 1999; Priem & Butler, 2001; Teece, et al., 1997). Researchers have argued that resources are not intrinsically valuable. Their value lies in helping firms to perform activities that provide market edge. The competitiveness of the resources thus can be taken away by the changes in technology, competitive situation, and customer needs (Porter, 1991). As a response to