The Impact of Supply Chain Risk on Agility Practices: A Theoretical Review and a Critique

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ABSTRACT---- ***While the importance of agility practices for the strategic management and firm performance has been well recognized, content analysis findings illustrating the impact of agility practices on the supply chain risk have been discouraging. In the current study, we provide a theoretical review and critique of the previous literature by highlighting issues associated with conceptualization and theoretical development of agility practices. By providing a narrative review on the theoretical review, we underscore the nature of the supply chain risk as well as agility practices and provide a synthesis for future research. Discussion of the recommendations for conceptualization and theoretical development of agility practices are also provided.***

Keyword--- Supply Chain Risk, Agility Practices, Content Analysis, Theoretical Review

1. INTRODUCTION

Supply chain management was introduced almost 30 years ago, from a socio-economic theoretical basis; supply chain management cannot adequately explain and provide an understanding of the special forms of inter-organizational arrangements. The decision of supply chain management can be efficiently deal with a dozen of theoretical approaches [1] (e.g. dynamic capabilities theory, transaction cost theory, contingency theory, resource-based view theory, industrial organizational theory, supply chain operations reference model), nevertheless, the paradigm of rational decision remains to have priority. Due to the inconsistency and disagreement on the supply chain theories, the study has reviewed and analysed previous articles on theories supply chain. In recent papers, there are several theories are dominating especially those that related to supply chain practices studies [2].

2. CONTENT ANALYSIS

By referring definition of content analysis by Li and Cavusgil (1995) as quoted in [3], content analysis defines as a "research method for systematic, qualitative and quantitative description of the manifest content of literature in particular phenomena". They also suggested that there are three basic approaches can be used when conducting an investigation of the state of knowledge in a field or subject. First approach is Delphi method through which experts who are familiar with the area are surveyed. The second approach is meta-analysis in which empirical studies on the specific subject are gathered and statistically analysed. The third approach is content analysis or a research method for systematic, qualitative and quantitative description of the manifest content of literature in an area. The study is adopted the third method which

is content analysis in identifying the supporting research gaps. For this paper, content analysis was used to confirm the documents or archival records, etc. provide a repeated and stable review process which can provide a broad coverage of data over an extended time span [4]. Other authors [3, 4, 5, 6, 7] claim the usefulness of content analysis such an approach to detect underlying concepts and themes of previous studies. As for the first step, the study needs to analyze the articles for any related to the agility and supply chain risk. It is decided to limit the search only to academic journals. The choice of these outlets was based on previous studies that identified and ranked the journals making the highest contribution to the supply chain/logistics discipline [8, 9]. Several issues that need to be analyzed such as purpose of research, journal selection, methodologies, country of study, sample of industry, research issues and article classification. This paper, therefore, is believed can add knowledge to the literature review by empirically investigating agility practice and supply chain risk in the context of electrical and electronic (E&E) industry.

3. THEORETICAL BACKGROUND

Referring to the definitions of content analysis mentioned in the previous section, it could be noted that the agility practices are complicated as various theories are involved. As a result, obviously, the agility practices as a multi-inter organizational relationship between suppliers, government, intermediaries, local traders and customers all over the world. Given the complex view of agility practices, the approach to the literature content analysis has focused on crucial aspects that reveal such relationships. More specifically, the selected dimensions of agility practices delineate why, how and with what consequences [6].

3.1 Contingency Theory

Contingency theory is identified to be as main underlying theory in the study; therefore, it has been conceptualized as the fundamental theory of the study. Concerning the study contains three different variables namely, independent variables as inputs or antecedents, focus of study as process and the dependent variables as outputs or outcomes. Specifically, supply chain risk is the antecedents, whereas for the focus of study (agility practices), and finally for the outcomes. Generally, contingency theory is consistent with commonly used by previous researchers for supply chain studies. Contingency theory empirically tested direct relationships between particular contextual variables and organizational structure or performance [10]. However, from the contingency theory perspective, practices are merely necessary responses to the environment. Therefore, the role of the constructs of context or environment has received a great deal of attention both in strategic management research and in organizational theory. This is supported by Braunscheidel and Suresh (2009) as quoted in [11] stated that agility as a risk mitigation strategy that involve and responsive to the environment. However, the risk mitigation strategy is not a major part of this article. This is because they investigated on how company is oriented in culture and organization impacts on a firm's supply chain agility, contrary to what the title implies. They argued that by enhancing agility practices, firms are also reducing supply chain risk and performance as well. This in turn establishes a causal structure supply chain risk for are affecting agility practices and performance.

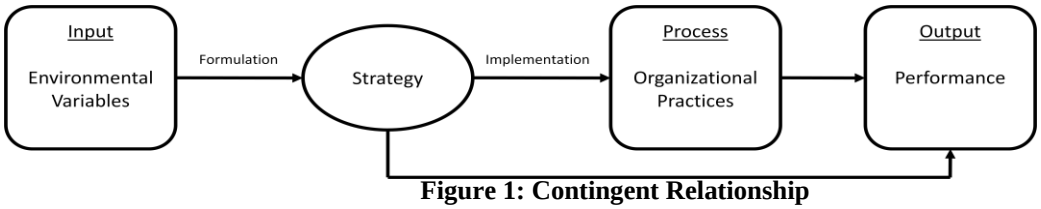

Figure 1: Contingent Relationship

There are three types of contingency variables, i.e. organizational contingencies, environmental contingencies and level of performance [12]. Concerning of the study is believed the contingency relationships as main theory for the study; antecedents as the inputs; focus of study as the process; and the outcomes as the outputs (Figure 1). Furthermore, [13] and [14] argued conceptually that firm's supply chain strategy also should adapt to the environmental uncertainty. In this paper, the supply chain risks considered as internal and external environmental uncertainty. These characteristics are reflected to characteristics of organization and explained that these organizational characteristics influence the environment in which the organization is located [15].

In order to be effective, the organization needs to fit the structure to the factor of contingency and thus to the environment that are taken directly into consideration in the decision making behaviour of individuals in the organization and this includes factors that are internal and external to the firm [16, 17]. Consequently, in the context of study, the manufacturing risks are the internal factors; both supply and demand characteristics are external factors that have impact on both supply chain practices, and supply chain practices towards performance.

3.2 Resource Based View Theory

Resource-based view (RBV) theory has been stated as a paradigm that a firm's performance in the marketplace depends critically on the resource perspective in which it competes [18]. The observed relationship between firm's performance

and firm's internal strengths and weaknesses might be explained in this way. RBV theory view the assumptions are heterogeneous and immobility whereby firm's resources are determined by firm, which in turn determined business strategies to boost its performance [19]. Since then, more scholars' study looks directly at core competencies and competitive advantage in trying to explain performance. Therefore, RBV theory strongly relates associated with firm performance. Gligor and Holcomb (2014) as quoted in [20] discussed that RBV defined resources as a portfolio of capabilities that can enhanced performance and sustained the competitive advantage to a firm as analyzed by [18] contradict with [19], who emphasis on the firm's goal to mitigating the supply chain risk by reducing the uncertainty for its survival. This view is supported by [21] who writes a firm's resources are primarily a function of the industry competitiveness and simply reflected the industry environment. Hence, as being pointed by [22], the RBV theory, by nature, is more appropriate to handle issues creating a competitive advantage with low cost and the same time mitigating the risk. The RBV theory can be applied in the supply chain management field. But due to the evolutionary nature of supply chain management study, the literature has been able to identify the implementation of agility practices are very crucial to assist the practices in order to mitigate the risk in term of consideration both sides (upstream and downstream) simultaneously [23, 24]. By addressing supply chain risks and agility practices simultaneously will assist researchers better understand the scope and the activities associated with supply chain management. The study attempts to show that the absence of the holistic framework, incorporating all the activities (upstream and downstream) of the supply chain and linking such activities to organizational performance and detracts from usefulness of the implementation of agility practices on mitigating the risks. Thus, the RBV theory asserts that organizational to be multi-dimensional concept and integrates all the supply chain activities.

3.3 Dynamic Capabilities Theory

Despite the RBV explain the firms' competitive advantage, one of the most influential extensions to this theory is the dynamic capabilities (DC) theory which has been proposed to fill the gaps in nature and inadequate in changing environments [25]. This is supported by [26] explicitly suggest the DC theory emphasize on the essential role of strategic management which consider on the integration, building and reconfiguration of internal and external competences. DC theory has attracted increasing attention and importance to the strategic management and environmental conditions literature [26]. In recent years, DC are built for a particular type of external context, namely, rapidly changing environments and this theory creation is embedded in organizational processes [20]. This theory consists of specific strategic and organizational processes that create value for firms within dynamic markets by manipulating resources into new value-creating strategies. This theory is also combined the commonalities across firms that are associated and idiosyncratic to a firm which offer the 'best practice' and superior effectiveness to the performance [27]. DC theory considered agility practices to have a competence-capability relationship when organization facing fast-changing demands in the marketplace [28]. Typical examples would be electrical and electronics (E&E) markets which involved high velocity and unclear market boundaries, change occur often and unpredictable directions [27]. Under such environmental conditions, the concept of this theory is used to explain the sustainability of competitive advantage. This leads to the realization on the integration from both sides, internal and external competencies in order to achieve the sustainable competitive advantage. DC approach highlights the ability to rapidly change a firm in response to a changing environment and also the firm's ability to integrate, build, and reconfigure internal and external competencies [26]. This theory suggests the need to work effectively across organizational boundaries including both inter-functional and inter-firm. Several alternative conceptualizations of DC were subsequently offered. Some of them followed an approach closer to RBV, whereas others tended to undertake an approach more akin to evolutionary economics.

3.4 Transaction Cost Theory

Supply chain management seeks to improve the performance through better use of internal and external resources as well as organization capabilities in order to create a seamlessly coordinated supply chain. Thus it can evaluate the inter-company competition to the inter-supply chain competition [29, 17]. The transaction cost incurred by these two factors: uncertainty and asset specificity [30]. The term uncertainty refer to the cost associated with the unexpected outcome and asymmetry of information whereas the term asset specificity is generally understood to "durable investments that are undertaken in support of particular transactions, the opportunity cost of which investment is much lower in best alternative uses or by alternative users". It can be suggested that a higher level of uncertainty generally implies a higher transaction cost. Furthermore, the transactions that are supported by high levels of asset specificity should be governed by most efficiently structures. For the purpose of this paper, the uncertainty and asset specificity of the product offered in electrical and electronic (E&E) firms will affect the transaction cost and, in turn, affect the customer decision of whether to buy or not. Schematic diagram of transactional costs theory is shown in Figure 2 was adapted from [30].

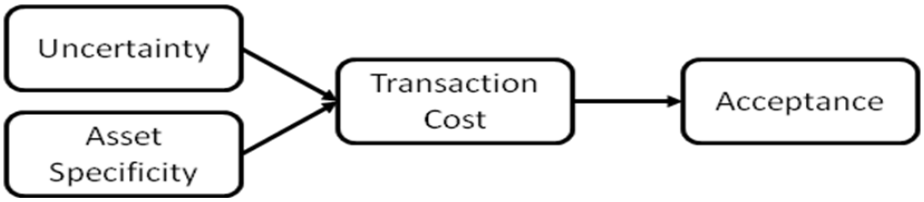

Figure 2: Diagram/Schematic of Transactional Cost Theory

The study argue that assets specificity, the uncertainty of transaction and the frequency of transaction make up appropriate factors to explain the decision of agility practices. The study supposes that high levels of assets specificity with low levels of uncertainty, and frequency are definitely linked to the decision of agility practices by the company. This paper has shown that to move beyond the transaction cost perspective by considering supply risk, supplier responsiveness and supplier innovation to provide a richer theoretical foundation for explaining supply base management practices through the lens of supply base complexity. Thus, transaction cost theory put forward the idea of the uncertainty and asset specificity combined with a high level of risk and supply chain function, may reinforce in a positive way the company's decision of agility practices.

4. DISCUSSION

In this section, two subsections are included, recommendations for conceptualization and theoretical development. It is believed that when these theories are clearly identified and well understood, they can assist researchers to effectively synthesis for future research. First, from a conceptualization perspective, RBV and DC theory have regarded to response to an exogenous variable or as a variable directly influencing performance across different contexts [31]. Therefore, this paper will contribute to the interdisciplinary approach to support and ground the conceptualization of supply chain management theories. Furthermore, major theoretical contribution of this paper is related to the outcomes of supply chain risk will identified, conceptually defined, and analyzed through the theoretical lenses of various theories. A combination of theoretical lenses is used in this research to guide and support the development of a research model and its subsequent empirical investigation. Specifically, this paper will contributes to the literature by providing empirical support for the agility practices with supply chain risk.

Second, absence of an integrated model in studying agility practices with supply chain risk have been growing attention paid to the study of the strategies and practices of inter-organizational ties. Theories applied in previous studies are not without weaknesses. RBV has been applied to a number of research studies from several research disciplines [32]. After conducting an extensive analysis of the related literature, this paper addresses some of the current theoretical gaps in the RBV theory based on [33] study. Table 1 summarizes the most important and relevant to the current research and applicable to this research.

Table 1: Assessment of Critique to the Resource-Based View Theory

No	Critique	Relevant to this research
1.	No managerial implications	An integration of the RBV and other theory (DC theory) in this research framework has both theoretical and managerial implications.
2.	Applicability is too limited	A DC theory could be successfully applied in the context of current research.
3.	Does not sufficiently or necessary for competitive advantage	A DC theory extension of the RBV applied in this research.

A proponent of the DC theory has suggested that the concept of organizational capability perspective views the firm to adapt and reorganize quickly to survive and respond to a wide variety of uncertainty market [34]. Although this theory provides an explanation to the capacity to renew competences so as to achieve congruence with the changing environment which reflects the major of strategic management in adapting, integrating and reconfiguring resources, organizational skills and functional competencies to respond with the corresponding environmental context [26]. RBV theory explains how the firm's resources are able to exploit opportunities and neutralize threats in the competitive environment which faced by the firm and facilitate it to sustain competitive advantage [19]. However, the most obvious limitation in this theory (RBV) is that it considers the firms are substitutable by the competitors. Although the application of DC theory for their ability to manipulate resources and minimizing uncertainty and risk, a specific description and explanation about creating new value strategies has remained obscure [27]. As such, the emphasis of agility practices should be increased since elements like value-creating strategies have been identified in literature to be very crucial for successful supply chain practices.

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