

Uncertain Supply Chain Management

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Factors affecting Lychee supply chain linkage and business performance

Pham Thi Dinh^{a*}, Mai Thi Huyen^a, Nong Huu Tung^a, Bui Anh Tu^b and Pham Van Hung^c

^aBac Giang Agriculture and Forestry University, Vietnam

^bThuy Loi University, Vietnam

^cVietnam National University of Agriculture, Vietnam

ABSTRACT

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The objective of this study is to investigate the relationship between supply chain linkage and business performance in the lychee supply chain in Vietnam. The study collected 395 matched samples after sample screening. Partial least squares (PLS) algorithm is used to process the data. Research results show a link between supply chain linkage and business performance. Furthermore, research shows that risk supply chain, quality management, and business strategy also impact supply chain linkages and business performance.

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1. Introduction

When companies recognize the advantages of joining and collaborating, supply chain management becomes more focused (Spekman et al., 1998). Organizations will tend to enhance collaboration with other supply chain participants to utilize resources as the economy expands and specialization rises (Lazzarini, 2001). Having a partner's quality at a cheaper cost than inefficient self-production as a result, businesses are becoming more intertwined to better manage supply and distribution networks, reduce costs, and improve customer satisfaction, all of which contribute to increased productivity (Birachi, 2006). Participating firms' competitiveness and profitability will be improved. As a result, many academics agree that rivalry happens between supply networks and supply chains, rather than between companies and firms (Osarenkhoe, 2010).

Supply chain management has been characterized by many academics and business leaders as the link between basic business operations from the ultimate consumer to the primary supplier, delivering products, services, and information to maximize added value for consumers and supply chain companies (Ellram & Cooper, 1990; Mabert & Venkataramanan, 1998; Robinson & Malhotra, 2005). To establish a sustained competitive advantage, supply chain management is the management of all operations linked to the movement and transformation of goods and information from raw materials to the ultimate customer (Felea & Albăstroiu, 2013; Tracey et al., 2005). There are many levels of supply chain connections, ranging from loose to closely coupled.

Many academics have attempted to uncover and define preconditions for supply chain linking participants concerned with the supply chain (supply, market, information, and environment) (Christopher & Jüttner, 2000). Many academics ascribe supply chain links to global competitive pressures or environmental concerns, such as changes in supply, demand, and technology, as well as new market possibilities (Jüttner et al., 2007). Other external constraints, such as hazards connected

* Corresponding author

E-mail address: ptdinh8888@gmail.com (P. T. Dinh)

with the supply chain, and internal variables, according to specialists in the seafood industry and worldwide competitive pressure, have a major influence on the degree of connection between members in the supply chain. One of the most important elements affecting the amount of collaboration with partners—supply chain members—is the company's business plan.

2. Literature review

2.1. Risk supply chain

Risk influences the degree of connection, which is consistent with the environment-organization link (Ellis et al., 2011). When the climate changes, the organization must adjust as well to survive and grow. Organizations seek to strengthen partnerships to reduce the impact of supply, demand, technology, and the environment in general on supply, demand, and technology (Saberli et al., 2019). However, there are differing perspectives on this connection. According to some writers, the more unstable and hazardous the environment is, the more organizations tend to deepen their ties. Meanwhile, some other studies have found an opposite relationship: the higher the risk, the less likely companies are to connect with one another; instead, they build normal ties with other businesses' partners to adjust when the environment changes fast (Hallikas et al., 2004; Shimizu & Hitt, 2004). As a result, a more detailed explanation of this relationship is required.

2.2. Business strategy

The relationship between design, structure, and company success is also consistent with the influence of corporate strategy on supply chain links (Cagliano et al., 2006). According to this idea, strategy is the driving force for change in corporate structures and processes, and it has an impact on outcomes. However, it remains to be seen which system will push the company to enhance supply chain links and how their relationship affects business results (Byrd & Davidson, 2003). To put it another way, determining whether changing organizational structure in the direction of increasing supply chain linkage is appropriate for what type of business strategy, or a combination of many designs from which to improve business efficiency, is still a problem that needs to be researched and explained.

2.3. Quality management

Suppliers, manufacturers, and consumers are all part of a typical supply chain (Ambe & Badenhorst-Weiss, 2010). The goal of supply chain management is to create a link between a product's complete manufacturing and distribution networks to confirm or fulfill consumer needs (Van Der Vorst & Beulens, 2002; Tracey et al., 2005). Product quality, pricing, product line, order fill rate, order cycle time, shipment information, and delivery frequency are examples of such criteria. One of the most essential methods to respond quickly, properly, and profitably to market needs is through quality management. The link between quality management methods used by suppliers and organizational success is yet unknown.

2.4. Supply chain linkages

Bechtel and Jayaram (1997) divided four different schools of thought on supply chain linkage: (1) functional chain awareness school; (2) linkage/logistics school; (3) information school; and (4) integration/process school.

The relationship between an organization's commercial success and supply chain links is examined from a resource-based theoretical approach. The relationship between supply chain links and an organization's business success has been examined to various degrees. Linkage, in the context of the supply chain, refers to connections with suppliers and customers. On a logistical level, the phrase can also relate to the connection between the customer and the seller. Most of the studies show that external linkages have an influence on a company's business performance. The financial and marketing performance of a company are immediately and long-term influenced by supply chain management and alignment.

Based on empirical studies and theories, the research hypotheses are:

H₁: *Risk supply chain has a positive effect on supply chain linkages.*

H₂: *Risk supply chain has a positive effect on business performance.*

H₃: *Business strategy has a positive effect on supply chain linkages.*

H₄: *Business strategy has a positive effect on business performance.*

H₅: *Quality management has a positive effect on supply chain linkages.*

H₆: *Quality management has a positive effect on business performance.*

H₇: *Supply chain linkages has a positive effect on business performance.*

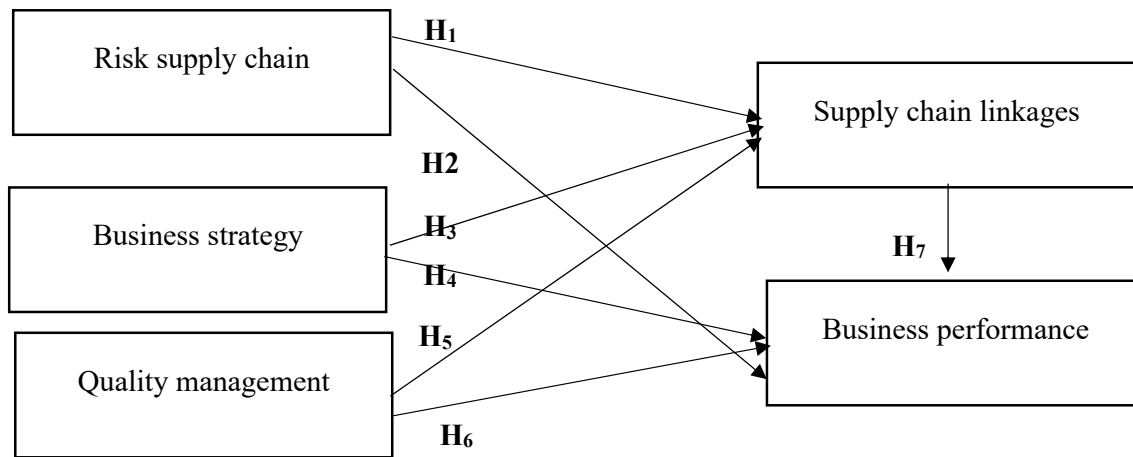


Fig. 1. Model Concept

3. Methodology

We created an internet survey to measure the constructs, with responses graded on a five-point Likert scale (1 = Strongly Disagree; 5 = Strongly Agree). We utilized the partial least squares approach to analyze these results statistically. We received 420 replies, with a total of 395 legitimate questionnaires after filtering the data. This sample size is suitable for the model's conditions. The sample size must meet the so-called "rule of thumb" which states that the sample size must be at least ten times bigger than the number of predictors (Gefen et al., 2011).

4. Results

Testing the reliability test construct using composite reliability (CR), average variable extracted (AVE), and Cronbach alpha is 0.50 or more (Hair et al., 2014) shown in Table 2.

Table 2

Test of the validity and reliability

Code	Variable	Factor's loading	VIF
Risk supply chain (Cronbach's alpha: 0.761, CR: 0.845, AVE: 0.578)			
R1	Supply risk	0.736	1.272
R2	Market risk	0.800	2.111
R3	Information risk	0.725	1.915
R4	Environmental risk	0.778	1.499
Business strategy (Cronbach's alpha: 0.879, CR: 0.925, AVE: 0.805)			
S1	Cost strategy	0.919	2.932
S2	Customer strategy	0.877	2.242
S3	Mixed strategy	0.895	2.387
Quality management (Cronbach's alpha: 0.775, CR: 0.870, AVE: 0.691)			
Q1	Product Standards (GAP)	0.866	1.791
Q2	Production process	0.797	1.462
Q3	Shipping process	0.829	1.662
Supply chain linkages (Cronbach's alpha: 0.831, CR: 0.888, AVE: 0.666)			
L1	Linkages between farmer households	0.715	1.446
L2	Linking farmer households and suppliers	0.810	1.833
L3	Linkage between farmer households and purchasing enterprises	0.876	2.671
L4	Link between purchasing businesses and customers	0.854	2.370
Business performance (Cronbach's alpha: 0.758, CR: 0.861, AVE: 0.674)			
B1	Revenue	0.809	1.427
B2	Profit	0.800	1.555
B3	Cost	0.852	1.761

So, the overall evaluation research model can be expressed well, and we can further proceed with the analysis of hypothesis testing.

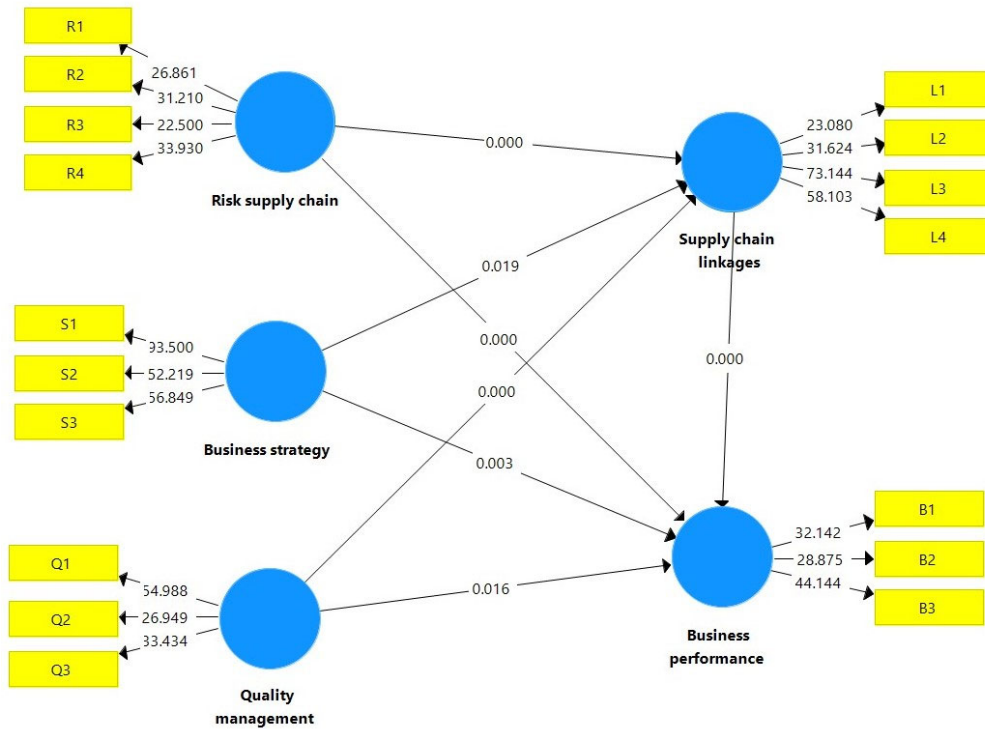


Fig. 2. Bootstrapping Result

Table 3
Test Results Path Coefficient

	Hypothesis Test	P value	Results
H1	Risk supply chain → Supply chain linkages	0.000	Supported
H2	Risk supply chain → Business performance	0.000	Supported
H3	Business strategy → Supply chain linkages	0.019	Supported
H4	Business strategy → Business performance	0.003	Supported
H5	Quality management → Supply chain linkages	0.000	Supported
H6	Quality management → Business performance	0.016	Supported
H7	Supply chain linkages → Business performance	0.000	Supported

Based on the results of the direct relationship analysis from Table 3, it indicates that the hypothesis (H1, H2, H3, H4, H5, H6 and H7 are accepted).

5. Conclusion

Research results have shown that risk variables in the supply chain impact supply chain linkages, including risks from supply sources and risks from the market, risks from information sources. Specifically, sourcing risk was negatively related to supplier linkage. This is consistent with the studies' view, but it is contrary to the theory of the relationship between environment and organization. In contrast, this theory states: the more unstable the environment, the more businesses need to strengthen linkages to limit that instability. The results of this study also have indicated that sourcing risk had no impact on customer linkage. This contrasts with the results of previous studies. Market risks had an impact on relationships with both customers and suppliers. Risks from information sources only affect the level of linkages between enterprises and suppliers. In addition, environmental risks produce surprising results when there is no impact on supply chain linkages. This result completely contradicts the results of previous studies. Ultimately, supply chain alignment, in turn, has had a positive impact on business results. The results in this case study are also consistent with previous studies that suggest that forms of association with suppliers and with customers both affect business results. The above results have shown that managers need to pay more attention to risk management in the supply chain, especially from supply sources, market risks, and information sources. Effective risk management will help improve the relationship between partners in the supply chain and improve production and business efficiency.

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