OPERATIONS AND SUPPLY CHAIN MANAGEMENT
Vol. 11, No. 1, 2018, pp. 45 - 54
ISSN 1979-3561 | EISSN 2759-9363

Logistics Capability, Supply Chain Uncertainty and Risk, and Logistics Performance: An Empirical Analysis of Australian Courier Industry

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ABSTRACT

The purpose of this paper is to examine the applicability of logistics capability for mitigating supply chain uncertainty and risk and improving logistics performance in the Australian courier industry. Based on the resource-based view, a quantitative research study is designed to investigate the relationships among three latent variables: logistics capability, supply chain uncertainty and risk, and logistics performance. Structural equation modelling is used to analyse the data. The results indicate that there are significant relationships between logistics capability, supply chain uncertainty and risk, and logistics performance. The results provide insights into supply chain uncertainty and risk management. This paper provides empirical support for the resource-based view as it applies to mitigating supply chain uncertainty and risk management in the Australian courier industry. These findings suggest that managers might develop and deploy logistics capability to support and enable supply chain risk management strategies.

Keywords: *logistics capability, supply chain uncertainty and risk, logistics performance, risk management, courier*

1. INTRODUCTION

Due to the increased supply chain complexity, higher customer expectations, shorter product and technology life cycles, and unstable environment, supply chain uncertainty and risk have become major obstacles to achieving on time delivery, increasing customer satisfaction, improving the efficiency and reducing costs(Christopher and Lee 2004; Christopher and Peck 2004). In addition, the worldwide trend in globalization has led to firms outsourcing their logistics function to the third-party logistics (3PL) providers. One of the significant advantages of using 3PLs is transferring the supply chain uncertainties and risks to the 3PLs (Zsidisin and Ritchie 2009). However, 3PLs have to manage these uncertainties and risks. 3PLs now face more uncertainties and risks than ever (Marasco 2008). Courier is a typical 3PL model (Cowles 2012).

Based on the resource-based view theory, each firm is a unique bundle of resources and capabilities that provided the basis for its competitive advantage (Mohamed, Ann, and Yee 2014). A firm has to establish logistics capability focusing on delivery speed, quality service, flexibility, cost, and innovation in order to achieve optimal logistics performance (Fawcett and Stanley 1997). In other words, logistics capability may improve the logistics performance. In contrast, supply chain uncertainty and risk is an issue in supply chain and logistics (Prater 2005). It has negative impacts on logistics performance such as delays, damages and customer satisfaction (Sanchez-Rodrigues et al. 2009; Simangunsong et al. 2012). Many businesses do not have a Supply Chain Risk Management (SCRM) (Andreas 2013). Especially, courier businesses need SCRM to improve their performance. In addition, the knowledge of managing supply chain risk and uncertainty is very limited (Peck 2006; Sanchez-Rodrigues et al. 2010; Waters 2011; Zsidisin and Ritchie 2009). Therefore, this study examines the applicability of logistics capability for mitigating the supply chain uncertainty and risk in order to improve logistics performance. This may draw attention to the advancement of resource based view approach for supply chain uncertainty and risk management.

Traditional risk management focuses on rare and extreme events, and events with low probabilities and high consequences (Aven 2012). However, for managers the greatest threat is often from the day-to-day operations in supply chain. We consider the resolutions on mitigating supply chain uncertainty and risk simultaneously, because the managers have to manage both supply chain uncertainty and risk at the same time. Sometimes, a little problem or mistake may cause supply chain disruption in a real world environment. In addition, supply chain uncertainty and risk are often happened together, they both influence decision makers in the supply chain resulting in ineffectiveness (Vorst and Beulens 2002). This study measures the impact of both supply chain uncertainty and risk, they both have very similar impacts in logistics and transport firms (Sanchez-Rodrigues et al. 2009). And the problem has been raised in many previous studies (Simangunsong et al. 2012; Sanchez-Rodrigues et al. 2010). Therefore, this study focuses on the approach for mitigating both supply chain uncertainty and risk. The empirical study offers opportunities for theory building and verification, which is important for the advancement of supply chain uncertainty and risk management.

In the paper, we examine the applicability of logistics capability for mitigating supply chain uncertainty and risk in order to improve logistics performance. We empirically analyse a key question: whether or not logistics capability can be used for mitigating supply chain uncertainty and risk in order to improve the logistics performance. To answer the question, we construct a research model, in which the effect of logistics capability on logistics performance is mediated by the supply chain uncertainty and risk. Empirical evidence is gathered from 98 Australian courier firms. The partial least squares approach for structural equation modelling (PLS-SEM) analysis is used for analysing the model.

PLS-SEM is an approach to structural equation modelling. In SmartPLS, the PLS algorithm estimates the values for latent variables (factor scores) in an iterative procedure. The idea is to first construct each latent variable by the sum of its observed variables, then in the inner approximation to try to reconstruct each latent variable by means of its neighbouring latent variables and in the outer approximation to find the best linear combination to express each latent variable by means of its observed variables. The coefficients are referred to as outer weights. Finally, each latent variable is constructed as weighted sum or linear combination of its observed variables. It is a conceptual approach to data analysis involving the interplay of theoretical thinking and empirical data. The results indicate that the measurement models have high reliability and validity and there are significant relationships between logistics capability, supply chain uncertainty and risk, and logistics performance in the structural model. The empirical evidence supports the idea of mitigating supply chain uncertainty and risk.

The reminder of this paper is organized as follows. The literature review and hypothesis is presented in Section 2. Section 3 describes operationalization and dataset. In section 4, we use a partial least squares (PLS) approach to analyse the model. In section 5, we summarize and discuss the findings. The final section provides the conclusions of the paper and the recommendations for future research.

2. THEORETICAL BACKGROUND AND RESEARCH HYPOTHESES

Wernerfelt (1984) asserts that firms can gain and sustain competitive advantages by developing and deploying valuable resources and capabilities. The resource-based view of the firm provides important insights for understanding how competitive advantage within firms is created and how such advantage is sustained over time. Briefly, resource-based view theory states that firms obtain competitive advantage by accumulating internal resources and capabilities that are rare, valuable, and difficult to imitate (Barney, 1991). Thus, one of the main objectives for firms applying a resource-based view is to identify their capabilities and develop them further (Day, 1994).

Capability is an ability to make use of resource to perform some task or activity and defined a resource as anything tangible or intangible owned or acquired by a firm (Hafeez et al. 2002). Firm capabilities are complex bundles of skills and accumulated knowledge, exercised through organizational processes, which enable firms to coordinate activities and make use of their assets (Day 1994). Logistics capability has become an important capability of the 3PL (Coyle et al. 2008). 3PL firms require a high level of logistics capability to carry out the outcome of delivery and meet customer's needs. It comprises a series of abilities, capacities, skills, and intelligences (Lai, Ngai, and Cheng 2004). Logistics capability is a distinctive capability by reviewing characteristics such as added value, rarity, and difficulty for imitating (Olavarrieta and Ellinger 1997). In addition, logistics capability plays a distinctive role in the integrative strategic process due to the expected benefits of improving logistics performance (Mentzer et al. 2004). In this paper, the measurement of logistics capability was derived from previous studies (Lu and Yang 2010; Fawcett and Stanley 1997; Hayes et al. 1988; Braunscheidel and Suresh 2009).

Supply chain uncertainty and risk is a major obstacle to the delivery of superior logistics performance (Davis 1993; Mason-Jones and Towill 1998; Simangunsong et al. 2012). Knight (1921) illustrates the distinction between two notions, uncertainty is risk that is immeasurable, not possible to calculate; and risk is defined as uncertainty based on well-grounded probability. Miller (1992) argue about the difference between risk and uncertainty, risks in business refer to unanticipated variation or negative variation may influence business performance such as revenues, costs, profit, market share; uncertainty refer to the unpredictability of environmental or organizational variables that impact business performance or the insufficient information about these variables.

Supply chain uncertainty and risk are complex notions that come in many different forms and may include supply chain uncertainty and risk sources, risk consequences and risk drivers (Christopher and Lee 2004; Manuj and Mentzer 2008; Rodrigues et al. 2008; Jüttner et al. 2003). Traditionally, risk and supply chain risk refer to two attributes (1) the expected value does not adequately capture events with low probability but high consequences, (2) rare and extreme events cause substantial negative consequences (Tang and Nurmaya 2011; Aven 2011). This study provides new insights into supply chain uncertainty and risk. We do not only focus on these extreme situations, but also concern the day-to-day operations risk and uncertainty in logistics and transport service providers. The day-to-day supply chain uncertainty and risk, which most managers want to deal with imminently in a real world environment. Moreover, the managers have to face and manage the supply chain uncertainty and risk at the same time. The study indirectly measures the impacts of both supply chain uncertainty and risk in the logistics and transport firms, rather than directly calculate the probability (Wang et al. 2014). Therefore, the study does not separate supply chain uncertainty and risk.

Resource-based view provides special lens to review the supply chain uncertainty and risk management in a firm. It also provides a unique opportunity to manage the supply chain uncertainty and risk without altering sources of supply chain uncertainties and risk. In the paper, the measurement of supply chain uncertainty and risk was adopted from a recent study Wang et al. (2014). They identified major types of supply chain uncertainty and risk in a transport industry including company-side uncertainty and risk, customer-side uncertainty and risk, and environment uncertainty and risk.

Logistics performance is important for transport logistics service providers in delivering value to members in the supply chain (Lai et al. 2004). The logistics performance is a success factor for both logistics service providers and their customers (Richard and Rein 2004). Thus, the effect of the 3PL logistics performance is significant. Moreover, logistics performance was one of the important factors drive the choice of a third-party logistics provider (Mentzer and Flint 1999; Feng et al. 2007; Ho et al. 2012; Thai 2013). In this paper, logistics performance is measured based on the previous studies (Najmi and Makui 2012; Pichet and Shinya 2008; Fawcett and Cooper 1998; Morash 2001).

2.1 Logistics Capability on Supply Chain Uncertainty and Risk

Logistics capability has been widely discussed in the logistics and transport industry, such as logistics capability decreased the risk of damaging goods in transportation (Daniel and Fredrik 2011). Moreover, logistics capability is critical for strengthening the LSP-customer relationship, generating customer loyalty (Flint et al. 2005; Wagner and Sutter 2012). A good relationship between 3PL and customers may reduce the customer related uncertainty and risk. In addition, increasing capability to mitigate environment uncertainty and risk has been promoted in previous studies (Hayes et al. 1988; Kim 2006; Chopra and Sodhi 2004).

Moreover, responsiveness is considered as an important element of logistics capability, which addresses supply chain uncertainty and risk (Martin and Denis 2001), for example changing delivery address, prompt response to customers' requirements may reduce the uncertainty of delays (Christopher and Lee 2004). On time delivery may reduce the supply chain risk (Christopher 1998). Therefore;

H1. *There is a negative association between logistics capability and supply chain uncertainty and risk in the Australian 3PL courier companies.*

2.2 Supply Chain Uncertainties and Risks on Logistics Performance

Supply chain uncertainties and risks have significant impacts on the logistics performance (Rodrigues et al. 2008; Simangunsong et al. 2012; Zsidisin and Ritchie 2009). According to literature review, supply chain uncertainty and risk can broadly be categorised as the potential disturbances to the flow of goods (Ellegaard 2008). This study focus on the logistics uncertainty and risk in the Australian courier company, Some supply chain uncertainty and risk including "delays" (Rodrigues et al. 2008; Simangunsong et al. 2012), "communication issues" (Sanchez-Rodrigues et al. 2008), "storage issues" (Hauser 2003), "carrier strength" (Hauser 2003) and "freight transport operations" (Sanchez-Rodrigues et al. 2010). They may disrupt the normal operations and cause the problems, which could directly affect the logistics performance. This study concerns the negative impacts of supply chain uncertainty and risk on the logistics performance.

Customer relationship is one of the important topics in supply chain and logistics. As mentioned previously, customer related uncertainty and risk are most likely occurred between the logistics companies and customers. There is a very close relationship between courier firms and customers, the customers may directly affect the logistics performance. For example, one of the main causes of delay is a problem at the collection point, the unanticipated or very volatile customer may cause the delay at the pickup point (McKinnon and Ge 2004).

Furthermore, environment uncertainty and risk include road congestion, unstable fuel price, bad weather, natural disasters, industrial action, labour shortage have negative impacts on performance obviously (Simangunsong et al. 2012; Rodrigues et al. 2008; McKinnon and Ge 2004; Hoffman 2006). Overall, this hypothesis indicates that supply chain risks and uncertainties have significant negative effects on the logistics performance as follows.

H2. *There is a negative association between supply chain uncertainty and risk, and logistics performance in the Australian 3PL courier companies.*

2.3 Logistics Capability on Logistics Performance

According to the resource-based view, the firm capability and resources may lead to generate the competitive advantage in the market. This is mainly reflected in the logistics performance of the courier company. Providing better logistics performance is the key to obtain the competitive advantage in logistics industry. Thus, the logistics capability may improve the logistics performance by achieving competitive advantage. Further, logistics capability is a distinctive capability, it can create new capabilities and improve other firm capabilities (Olavarrieta and Ellinger 1997; Mentzer et al. 2004). These capabilities also may improve the performance. In addition, many studies found that there was a close relationship between the logistics capability and logistics performance (Fawcett and Stanley 1997; Jay et al. 2008; Shang and Marlow 2005; Tan et al. 2007). The study investigates the relationship between logistics capability and logistics performance in the Australian courier industry. This would provide a direction for both managers and academics to manage supply chain uncertainty and risk, and improve the logistics performance in couriers. Therefore;

H3. *There is a positive association between logistics capability, and logistics performance in the Australian 3PL courier companies.*

The conceptual model is shown in **Figure 1**.

3. METHODOLOGY

3.1 Instrument Development

In this section, we develop an instrument to measure the three main constructs including logistics capability, supply chain uncertainty and risk and logistics performance. An extensive literature review was conducted to identify the key constructs. Considering the measures of logistics capability, supply chain uncertainty and risk, and logistics performance, we measures respondents' opinions. The questionnaire is structured and presented on a 7-point Likert scale. Rensis Likert developed the scale in 1932. Likert-type scales are considered as reliable and are recommended for obtaining people's attitudes, values and perceptions. It allows the individuals to make a decision based on the level of agreement. This is a common format for assessing participants' opinions of usability. In the seven point likert-type scale used in this study the value "1" represents 'Strongly disagree' or 'No problem' and the value "7" represents 'Strongly agree' or 'Very severe problem'.

The multiple-item measures of logistics capability, supply chain uncertainty and risk, and logistics performance are derived from previous researches. In order to ensure the content validity, a pilot study is conducted to test the questionnaire before conducting a comprehensive survey. It was discussed with managers from Australia's leading courier firms and supply chain and logistics academics. The respondents are asked to rate how the respondents consider logistics capability and logistics performance in their firms compared to the major competitors in the market. There are very few studies on the Australian courier firms. Although the measures were adopted from previous studies, they are used for the first time in the Australian courier firms in this research. Therefore, the item measures were assessed by factor analysis, in order to generate a reliable and accurate instrument for the Australian courier firms. In terms of the measures of supply chain uncertainty and risk, we measure the severity of impact of uncertainties and risks in the Australian courier firms. The scale of supply chain uncertainties and risks is adopted from a recent study (Wang et al. 2014). Results indicate the instrument has a high level of reliability and validity.

3.2 Data Collection

This section presents the data collection used to conduct the research. Purposive sampling is used in this study. It is defined as selecting a sample in a systematic or purposive way, based on what we know about our target population and the purpose of study (Walter 2013). In this study, a survey population was selected from the Australian business register online and yellow page online. Total 98 courier firms are identified and invited to participate the study in Australia. The practitioners, who work in the Australian courier industry, have been approached by emails and telephone calls. The empirical data was collected through a web-based survey. There are five states and three territories in Australia. In order to improve the effectiveness and efficiency of data collection, the web-based survey is chosen as the main data collection instrument in the study. The questionnaire is designed to ensure objectivity, generalizability and reliability by conducting statistical techniques. The participators can access the questionnaire via the internet 24/7. It provides greater flexibility for practitioners to answer the questions.

Overall, 75% of respondents hold management positions including senior managers, operations managers and supervisors. 18% of respondents were company employees including customer service, sales and operations staff and 7% of respondents were independent contractors including truck drivers and couriers. In addition, 38% of respondents were from Victoria, 25% of respondents were from New South Wales,9% of respondents were from Queensland, 8% of respondents were from Western Australia, 7% of respondents were from South Australia, and rest of respondents were from Australian Capital Territory (4%), Northern Territory (5%) and Tasmania (4%). The cases with any missing values are excluded from analysis. With an approximate survey response rate of 20%, total 167 valid questionnaires are used for data analysis.

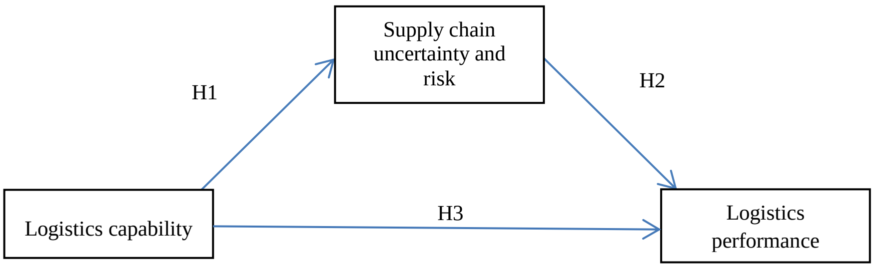

Figure 1 Conceptual model

3.3 Data Analysis Using PLS-SEM

The partial least squares approach (PLS-SEM)is an approach for structural equation modelling. Many business studies used PLS-SEM as a primary tool to analyse the data (Hair et al. 2012). Moreover, it has become a popular statistical technique in today's business research (Henseler et al. 2009). The SmartPLS version 2.0.M3 statistical software package was chosen in this study. The SmartPLS can be obtained free of charge compared to other PLS software, such as XLSTAT-PLSPM. The SmartPLS provides a graphical user interface (GUI). It is easy to indicate the results of study and relationships in a model. In SmartPLS, PLS algorithm estimates the values for latent variables (factor scores) by an iterative procedure. The idea is to first construct each latent variable by the sum of its observed variables. Then in the inner approximation, we try to reconstruct each latent variable by means of its neighbouring latent variables. All variables are standardized to zero mean and unit variance. A bootstrapping approach is used to estimate the significance of path coefficients and item loadings.

4. RESULTS

4.1 Measurement Model

This section presents confirmatory factor analysis (CFA) for validating measurement models. CFA is used to study the relationships between a set of observed variables and a set of continuous latent variables (Byrne 2010). This enables researchers to evaluate how well the measured variables represent the constructs in a model (Hair 2010).

4.2 Reliability and Validity

The measurements were tested for its reliability and validity. Reliability is an assessment of the degree of consistency between multiple measurements of a variable (Hair 2010). This study applies reliability coefficient with Cronbach's alpha to test the reliability of the scale. The reliability is demonstrated by Cronbach's alpha greater than 0.7 (Hair 2010). In the study all loadings are above the threshold of 0.7.The results indicate the measurements have a high level of reliability in the study.

Validity is an important dimension to indicate the degree of accuracy of measurements. Face / content validity are tested in a pilot study. This section examines both convergent validity and discriminant validity. Convergent validity assesses the degree to which two measures of the same concept are correlated (Hair 2010). High correlations are required to ensure the convergent validity, Composite reliability (CR) great than 0.7 is considered as a satisfaction level. In contrast, discriminant validity is the degree to which two conceptually similar concepts are distinct (Hair 2010). Convergent validity is demonstrated by loadings greater than 0.700, average variance extracted (AVE) greater than 0.500, and Communalities greater than 0.500. Discriminant validity is demonstrated by the square root of the AVE being greater than any of the inter-construct correlations (Hair et al. 2012). **Table 1** summarizes the results.

Table 1 Item reliability and validity

Items	Factor loading	t-value
Logistics capability *á=0.89, CR=0.91, AVE=0.62*		
My firm applies simplification of operations	0.75	15.99
My firm applies standardisation of operations	0.73	17.56
My firm applies protection for freight safety and risk	0.73	13.96
My firm is capable to keep low freight damage / loss rate	0.77	19.50
My firm is capable to maintain consistent on-time delivery for all customers	0.71	14.84
My firm is capable to handle problems and complaints	0.77	13.61
My firm has skilled and qualified personnel	0.72	09.92
My firm is capable to offer routine services	0.70	14.01
Company-side uncertainty and risk *á=0.90, CR=0.93, AVE=0.72*		
Inadequate operational strength (e.g. poor fleet/ delivery capacity)	0.87	23.56
Storage issues (e.g. school/company closed, temperature control)	0.74	09.15
Delays in pickup / delivery	0.82	17.25
Poor communication between company and drivers	0.92	36.10
Poor information sharing within company	0.88	25.56
Customer-side uncertainty and risk á=0.90, CR=0.93, AVE=0.77		
Delays due to customer's mistakes (e.g. not home, incorrect paperwork)	0.85	18.54
Customers changing the preference	0.92	29.71
Inaccurate forecast of customers' freight volume	0.89	25.27
Higher customer expectation (e.g. misunderstanding transit time)	0.84	15.18

Table 1 Item reliability and validity (Con't)

Environment uncertainty and risk *á=0.88, CR=0.91, AVE=0.67*		
Labour / driver shortage	0.83	22.16
Road congestion/closures	0.82	20.61
Weather / natural disasters/ industrial action (e.g. bushfire, strike)	0.81	19.15
Unstable fuel prices	0.82	20.70
Government laws / regulation	0.81	18.40
Logistics performance *á=0.94, CR=0.95, AVE=0.66*		
My firm maintains low operating costs	0.70	11.47
My firm has low frequency of disruptions / delays	0.77	14.07
My firm has less damaged / lost freight	0.85	21.25
My firm has low rate of customer complaint	0.86	25.81
My firm has on-time and accurate delivery	0.87	28.48
My firm has higher customer satisfaction	0.91	30.13
My firm has short customer response time	0.79	12.76
My firm has reputation in the industry	0.73	11.52
My firm has accurate billing / transit/ delivery information	0.80	19.58

Note: (1)á=Cronbach's alpha; (2) CR=composite reliability; (3) AVE=average variance extracted;

Structural Model

The path model is presented in **Figure 2**. The estimation of the structural relationships in the model was conducted by using a bootstrap routine with 1,000 iterations. The bootstrapping sample relates to significances of $p<0.1$ for $t>1.65$, $p<0.05$ for $t>1.96$ and $p<0.001$ for $t>2.58$ (Hair et al. 2010). A confidence interval indicates how reliable survey results are. In applied practice, confidence intervals are typically stated at the 95% confidence level ($p<0.05$ for $t>1.96$) (Zar 1984).

A path coefficient is used for testing hypotheses in the paper. The standardised path estimates (â) represent the strength, direction and significance of the relationship between constructs. â is considered to be large, medium and small for values of greater than 0.37, 0.24 and 0.1, respectively. Absolute value of a path coefficient should be not greater than 1. Negative value stands for the negative relationship between two concepts. Positive value stands for the positive relationship. According to the literature review and data analysis, the hypotheses in this study are supported as indicated in **Table 2**.

Table 2 Results of hypotheses using SEM

Path	Standardised coefficient (â)	t-value	Result
Logistics capability → SC uncertainty and risk	-0.46	6.35*	H1: supported
SC uncertainty and risk →Logistics performance	-0.17	2.23**	H2: supported
Logistics capability → SC uncertainty and risk	0.57	8.12*	H3: supported

Note: $^{*}p < 0.001$, $^{**}p < 0.01$

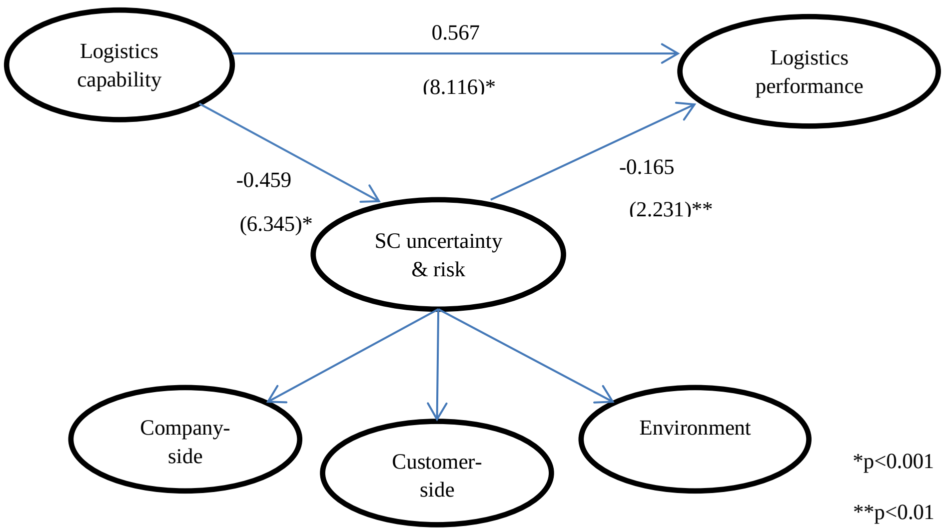

Figure 2 Path model

The assessment of the model's quality is based on its ability to predict the endogenous constructs. The following criteria facilitate this assessment: Coefficient of determination (R^2), and the effect size (f^2) (Hair et al. 2014). The criterions are used for the assessing the path model. Based on the study, the R^2 of0.46 the overall model fit is good. Our model explains 46% of the variance of logistics performance. The effect size is calculated based on the increase in R^2 relative to the proportion of variance of the endogenous latent variable that remains unexplained (Henseler et al. 2009). The formula is shown as follows $f^2 = (R^2in-R^2ex)/(1-R^2in)$. The value of 0.02, 0.15, and 0.35 can be viewed as a gauge for whether a predictor latent variable has a weak, medium, or large effect at the structural level (Henseler et al. 2009; Cohen 1992). We find that the logistics capability has the largest direct effect ($f^2 = 0.42$) on logistics performance in the model. Supply chain uncertainty and risk have weak effects ($f^2 = 0.04$) on logistics performance.

5. DISCUSSION AND IMPLICATIONS

In recent years, supply chain uncertainty and risk have become a popular topic for both managers and academics. Although mitigating supply chain uncertainty and risk were discussed in many previous studies, most of the studies focused on the identification and categorisation of supply chain uncertainty and risk (Simangunsong et al. 2012). This study provides a different angle on supply chain uncertainty and risk management. The study does not separate supply chain uncertainty and risk, because the study indirectly measures the impacts of both supply chain uncertainty and risk (Wang et al. 2014), they have very similar impacts in logistics and transport firms (Sanchez-Rodrigues et al. 2009), and the model based on the actual operations in the Australian courier firms, the managers often have to deal with both supply chain uncertainty and risk simultaneously in a real-world environment. The results are not only used to identify the supply chain uncertainty and risk, but also we may use them to detect the resolutions to manage supply chain uncertainty and risk.

In the paper, we investigate the role of logistics capability for mitigating supply chain uncertainty and risk and improving logistics performance. In general, this study provides empirical evidence that logistics capability mitigates supply chain uncertainty and risk in order to improve logistics performance in the Australian courier industry. The results indicate there are significant relationships among the three constructs. This may imply the possibility of implementing logistics capability for mitigating supply chain uncertainty and risk and improving logistics performance. This idea is different from the idea of building the supply chain resilience. The two ideas have a similar strategy to manage supply chain uncertainty and risk by implementing capabilities. However, the idea of supply chain resilience focuses on the recovery and building additional ability and/or capacity for supply chain resilience, and solving the severity problems such as disruptions or natural disasters. In this study, the resource based review approach proposes that developing the firm capability – logistics capability to mitigate the supply chain uncertainty and risk in the day-to-day operations. Simultaneously, it may improve the logistics performance. In other words, managers may optimise and develop the existing internal resources and capability to conduct risk management; this approach may help them to merge and transfer the complex and expensive risk management activities into day-to-day business operations. This may help companies to reduce the cost of risk management. For example, the companies may not need to hire additional risk consultants to conduct risk management activities. In addition, the strategy may continue improving the firm capability to mitigate the risks and uncertainties. This would minimise the additional costs caused by the damages, disruptions, delays, etc.

The result support the original idea of logistics capability mitigating supply chain uncertainty and risk in order to improve logistics performance. It shows that supply chain uncertainty and risk have a negative impact on the logistics performance. In contrast, logistics capability has a significant positive impact on the logistics performance. Thus, it is possible to attempt to apply the logistics capability for mitigating supply chain uncertainty and risk in order to improve logistics performance. Logistics capability may be used to generate new capabilities and competitive advantages (Olavarrieta and Ellinger 1997). This may lead to improve the logistics performance. In addition, the result in line with the resource based review theory; we find that logistics capability is positively associated with logistics performance. Overall, the empirical evidence supports the idea of resource based review approach for mitigating supply chain uncertainty and risk. The idea has a significant difference from traditional risk management theory. It does not try to influence or alter the source of uncertainty and risk. Instead, it tries to find alternative ways to adapt and hence minimise the impact of uncertainty and risk.

6. CONCLUSION

This paper presents that the logistics capability for mitigating supply chain uncertainty and risk in order to improve logistics performance. The primary contribution is that we find empirical evidence of the resource based review approach for mitigating supply chain uncertainty and risk in the Australian courier firms. The study investigates the relationships among logistics capability, supply chain uncertainty and risk, and logistics performance. The findings indicate that there is a negative relationship between logistics capability and supply chain uncertainty and risk, there is a negative relationship between logistics capability and supply chain uncertainty and risk, and there is a positive relationship between logistics capability and logistics performance. The relationships imply that logistics capability mitigates supply chain uncertainty and risk and improves logistics performance. This provides us an opportunity to manage both supply chain uncertainty and risk and improve logistics performance simultaneously by developing and deploying logistics capability. It may draw attention to the resource based review approach for mitigating supply chain uncertainty and risk.

The results have important practice implications for development of a practical guidance for managers developing and deploying logistics capability to support and enable their supply chain risk management strategies. In addition, the results may suggest alternative configurations for managers to resolve the problems, which may be caused by supply chain uncertainty and risk. The resource based review approach provides new insights into supply chain uncertainty and risk management. This study is dedicated to courier firms. Thus, any generalization to other industries or sectors must be made with caution. Supply chain uncertainty and risk may be affected not only by logistics capabilities, but also by various other variables or capabilities not considered in this study. Further research can be conducted to develop the resource based review approach for managing different supply chain and risk under the different supply chain risk management strategies, and investigate extent of different types of firm capabilities for mitigating supply chain uncertainties and risks. The approach also may be examined respectively in the different sectors by deploying different types of firm capabilities. Furthermore, the research enlightens the logistics participators to rethink the way to manage the supply chain uncertainty and risk in order to achieve superior logistics performance.

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