



Original Article

Contribution of Supplier Relationship Management to Firm Performance

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Received 08 December 2020

Revised 20 December 2020; Accepted 20 December 2020

Abstract: Supplier relationship management plays a crucial role in the firm's development and success. This paper examines the impact of supplier relationship management on the operational performance of firms. The data was collected from 304 manufacturing plants in 4 Asian countries in the period 2013-2015. The results of statistical descriptive analysis, correlation analysis, and regression analysis indicate that supplier relationship management has a positive relationship with operational performance. The study also proposes some suggestions for researchers and managers in developing and applying measurement scales of supplier relationship management to improve supply chain management effectiveness.

Keywords: Supplier relationship management, operational performance, manufacturing firms.

1. Introduction

In the context of increased competition and requirements of customers, supplier relationship management is becoming more and more important for firm survival and success. In fact, firms put great efforts into creating and maintaining collaborative relationships with their suppliers to improve supply chain efficiency and effectiveness. Higher efficiencies in sourcing, planning, producing and distributing, better resources and risk sharing

result in performance enhancement and ultimately sustainable competitive advantage.

Despite this undeniable role, supplier relationship management has not been properly and adequately addressed in both theoretical and practical works. A significant number of studies still consider supplier relationship as the extension of the traditional purchasing management activities [1]. On the other hand, the majority of current research considers supplier relationships as just a part of logistics and supply chain integration. In line with this approach, both the supplier management practices and customer relationships, which constitute external integration, have been examined simultaneously. Moreover, because of the profound and direct impact of suppliers

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<https://doi.org/10.25073/2588-1108/vnueab.4457>

on cost, quality, time and responsiveness of buyer firms, supplier relationship management is usually confused with supply chain management in many cases. Regarding the consequences of supplier relationships, the majority of current researches examined operational performance as a single measure in addition to financial performance, rather than identifying the contribution of supplier relationship management to different aspects of operation performance in terms of quality improvement, cost reduction or delivery enhancement.

Besides, in spite of a growing number of studies on supplier relationships over the past decades, the majority of these studies proposed that a broad range of supplier-related practices need to be implemented to gain a set of performance measures [2]. However, due to limitations of resources and abilities, it is relatively difficult for firms to execute all of these practices at the same time, and to target all aspects of performances at the same level. Meanwhile, firms need to focus on one key performance measure as part of their strategic choice. In fact, based on their own priority list of performance goals, it is more practicable to determine and develop the best supplier relationship management practices to address particular performances.

Given the research gap and practical issues, this paper aims to clarify the individual contribution of supplier relationship management practices to firm performance in terms of ability to meet customer requirements. Specifically, we try to answer two research questions: What are the contributions of the supplier relationship management to firm performance and which supplier relationship management practices have the most significant contribution for firm performance?

2. Literature Review

2.1. Supplier Relationship

Supplier relationship could be defined as the long-term relationship between a firm and its suppliers. The buyer-supplier relationship, which is oriented towards quality management,

tends to be very close, based on long-term common interests [3]. Under the pressure of maintaining a competitive position and responding to dynamic and unpredictable changes occurring in the business environment, the need for buyers developing and maintaining a strategic long-term relationships with their suppliers for the fulfillment of common goals is increasingly recognized [4]. Through close relationships with suppliers, buyers are more willing to share risk and reward, encourage mutual planning and problem-solving efforts, and maintain the relationship over a longer period of time [2].

The extant studies reveal the importance of supplier relationship. Supplier relationship management has received increasing attention from both researchers and practitioners. Effective supplier relationship management allows firms to exploit the capabilities, expertise and technologies, as well as the efficiencies of their supplier, which in turn helps firms to be more flexible and responsive to changing needs of customers [5]. A large number of researches from different theoretical perspectives have tried to explain the motivation of firms to develop and maintain strategic long-term relationships with suppliers, such as transaction cost economics, a resource-based view, a relational view and social exchange.

By combining the similarities of these various theoretical approaches, we could consider supplier relationship management as an interdependent relationship developed and fostered through strategic collaboration with the goal of deriving mutual benefits. Especially, supplier relationship management focuses on how to develop and maintain a strategic long-term relationship with suppliers.

2.2. Contributions of Supplier Relationship Management to Firm Performance

The linkages between supplier relationship management and the performance of a firm have been highlighted in the supplier alliance literature. This subject was addressed from different perspectives associated with a wide variety of relationship management approaches and outcome measurements:

i) Much of the recent research examined the relationship with suppliers in the context of supply chain integration. Lee et al. (2007) explored the influence of the supplier relationship, as well as customer linkage and internal integration [6]. The study of Liu et al (2016) showed the impact of the supplier relationship on both operational and financial performance while taking into account the interaction between supply chain integration and information technology competency [7].

ii) Regarding outcome measurements, the benefits of supplier relationship management could be measured by different indicators. Numerous studies provided support for the fact that a successful relationship with suppliers could substantially improve financial performance at firm level, including growth of sales, return on investment and profit margins on sales [8,9,10]. Operational performance was also considered in studies on supplier relationship. Such performance could be employed as a single scale in the study of Cousins and Menguc (2006) [11]. In some cases, different dimensions of operational performance were demonstrated to be positively

related to supplier relationship.

iii) The findings on the effectiveness of supplier relationship management are still mixed. While the positive impact of supplier relationship management on buyer performance was supported by both theoretical and empirical evidence, the opposite results were also reported in several studies [12-14].

Overall, while the empirical studies related to supplier relationship management are extensive, there is only little consensus on which approach is appropriate to assess supplier relationship, or on how to measure the contribution of supplier relationship management practices on performance. In addition, there is limited evidence of the impact of these practices on each aspect of firm performance and of which practices have the most significant contribution to firm performance suggesting the need for more research in this field. The complexity of both relationship management aspects and performance metrics, and the mixed findings concerned as to the contribution of supplier relationship to buyer performance motivated us to conduct further research.

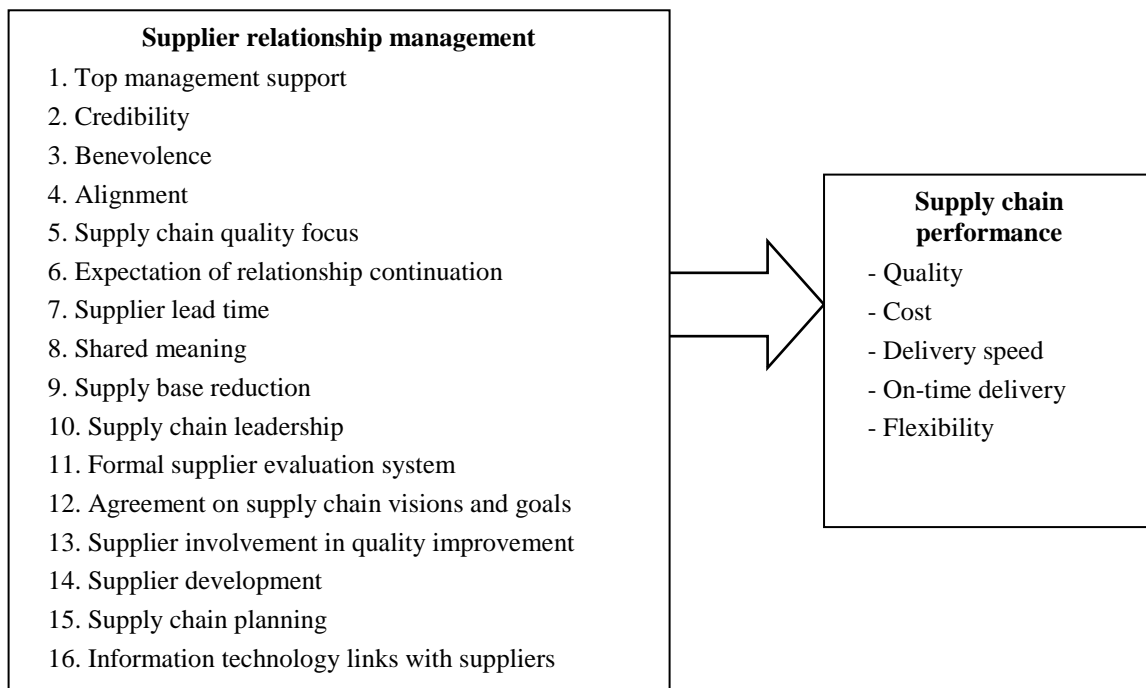


Figure 1. Analytical Framework.

3. Analytical Framework

In this study, we aim to clarify the role of supplier relationship management. We propose that supplier relationship management has potential benefits for operational performance of firms (Figure 1).

Based on the cited literature, we examined supplier relationship management through 16 scales, including 4 supply chain orientation practices and 12 supplier relationship practices. The detail description of these practices is shown in Table 1.

Although financial measures, such as market share, return on investment, income, and profits were frequently considered as a general measure to assess a firm's performance because of its simplicity, operational performance measures are more likely to clarify the distinct

impact of supplier relationship management. This is because an overall financial performance implicitly incorporates the effects of factors other than those related to the relationship with suppliers [5]. Meanwhile, operational performance measures could provide a relatively direct indication of the effects of the relationship between the various supply chain constructs [15]. Thus, for the purpose of comprehensively evaluating the contributions of supplier relationship management to buyer performance, the firm performance is measured by using five aspects of operational performance, including the ability to meet the customer's needs in terms of quality, cost, delivery speed, on-time delivery and flexibility.

Table 1. Descriptions of measurement scales

	Scales	Description	
1	Top management support	This scale describes the extent to which top managers considered relationship with suppliers as of critical importance to their firm.	[16, 17, 18]
2	Credibility	This scale describes the extent to which the firm builds a good reputation when doing business with its suppliers.	
3	Benevolence	This scale describes the extent to which the firm counts on its suppliers.	
4	Alignment	This scale describes the extent to which the firm is willing to share problems or openly communicate with its suppliers.	
5	Supply chain quality focus	Supply chain focus is the competitive strategy that underlies the plant's supply chain management efforts. This scale describes the extent to which a firm efforts focus on quality in its relationships with its suppliers, especially in supplier selection.	[2, 7, 19, 20, 21, 22, 23]
6	Expectation of relationship continuation	This scale describes the extent to which the relationship with key suppliers is expected to continue into the future	
7	Supplier lead time	This scale describes the extent to which supplier lead time is encouraged in the plant's supply chains.	
8	Shared meaning	This scale describes the extent to which the plant and its key suppliers have a shared understanding of supply chain relationships, activities, communication and information.	
9	Supply base reduction	Supply chain design is the way in which the supply chain focus is built into the supply chain. This scale measures the extent to which the reduction of the size of the supply base is emphasized.	
10	Supply chain leadership	This scale measures the extent to which the plant is perceived to be the leader with its supply chains.	

11	Formal supplier evaluation system	This scale measures the extent to which supplier evaluation is based on a formal system.	[2, 7, 19, 20, 21, 22, 23]
12	Agreement on supply chain visions and goals	This scale measures the extent to which all supply chain members share a common vision.	
13	Supplier involvement in quality improvement	Supply chain implementation takes the design of the supply chain and operationalizes it into specific practices. This scale describes the extent to which a supplier is involved with its supplier's quality improvement efforts.	
14	Supplier development	This scale describes the extent to which the plant provides support for supplier development.	
15	Supply chain planning	This scale describe the extent to which supply chain activities are planned and effectively monitored.	
16	Information technology links with suppliers	This scale measure the extent to which information technology is used to connect with key suppliers.	

The contribution of supplier relationship management to performance improvement is mentioned in both theoretical and empirical studies. Regarding the supply chain orientation practices, internal behavioral elements were suggested to influence not only financial performance but also the operational performance of firms [16]. Several studies showed that trust (credibility and benevolence) positively affects cost savings, market share growth and contributes to the long-term stability of the buyer-supplier relationship [24]. Other studies mentioned that strategically managed long-term relationships with suppliers helps firms achieve higher performance through communication, quality and coordination improvement and cost reduction; and generates competitive advantage [2, 8]. On the empirical side, the majority of studies provided evidence that operational performance of firms could be enhanced by implementing supplier relationship management practices [22, 23].

These discussions lead us to posit that supplier relationship management has potential benefits for the operational performance of firms.

H1: Supplier relationship management positively contributes to quality performance of manufacturing companies

H2: Supplier relationship management positively contributes to performance in terms of cost.

H3: Supplier relationship management positively contributes to performance in terms of delivery speed.

H4: Supplier relationship management positively contributes to performance in terms of on-time delivery.

H5: Supplier relationship management positively contributes to performance in terms of flexibility.

4. Data Collection and Analysis

4.1. Data Collection

The data used in this paper comes from the survey of manufacturing plants that was implemented from 2013 to 2015. This survey focused on investigating manufacturing plants that were better than others in terms of operational performance in order to clarify how they could achieve that superior performance. The data was gathered from 304 manufacturing plants which cover 4 countries in Asia: China, Japan, South Korea, and Vietnam. Three industries targeted were electronics/electrical, machinery and automotive.

In this study, we utilized 16 measurement scales to evaluate supplier relationship

management practices and 5 measurement scales to measure firm performance. The questions were developed based on the 5 point Likert scale which offers a range of answer options, from 1 - Strongly disagree to 5 - Strongly agree. In each manufacturing plant, the survey respondents are upstream supply chain managers.

4.2. Measurement Test

The data collected were firstly analyzed to check reliability, content and construct validity.

i) The reliability of measurement scale was affirmed with the Cronbach's alpha coefficient of each scale over the acceptance value of 0.6.

ii) The content was also validated by an extensive review of both theoretical and empirical studies concerned with supplier relationship management and firm level operational performance.

iii) For construct validity, we used within-scale factor analysis with three criteria: eigenvalues greater than 1, percentage of variance larger than 50 per cent and the value of item factor loadings higher than 0.4.

Table 2 show the results of measurement test for the pooled sample, which affirmed the reliability and validity of data.

Table 2. Measurement test and descriptive statistics

Measurement scales	Cronbach's Alpha	Min	Max	Mean	Standard deviation
Supplier relationship management					
Top management support	0.783	1.625	5.000	3.932	0.681
Credibility	0.693	2.000	5.000	4.153	0.591
Benevolence	0.749	2.250	5.000	3.931	0.569
Alignment	0.732	2.000	5.000	4.162	0.550
Supply chain quality focus	0.706	1.750	5.000	4.055	0.608
Expectation of relationship continuation	0.723	1.000	5.000	4.349	0.558
Supplier lead time	0.699	1.250	5.000	4.052	0.586
Shared meaning	0.755	2.000	5.000	4.111	0.534
Supply base reduction	0.691	1.000	5.000	3.508	0.696
Agreement on supply chain visions and goals	0.853	1.750	5.000	3.864	0.658
Formal supplier evaluation system	0.859	1.000	5.000	3.872	0.830
Supply chain leadership	0.793	1.000	5.000	3.682	0.686
Supplier involvement in quality improvement	0.700	2.000	5.000	4.134	0.615
Supplier development	0.801	2.333	5.000	3.887	0.609
Supply chain planning	0.843	1.000	5.000	3.788	0.704
Information technology links with suppliers	0.839	1.000	5.000	3.367	1.007
Operational performance					
Quality	0.740	2.000	5.000	4.306	0.589
Cost	0.800	1.000	5.000	3.207	0.875
Delivery speed	0.660	2.000	5.000	3.698	0.620
On-time delivery	0.718	2.000	5.000	3.879	0.654
Flexibility	0.840	1.500	5.000	3.818	0.679

4.2. Correlation Analysis

After ensuring that all scales were reliable and valid, we tested the correlation between Supplier relationship management and Operational performance. The result of correlation analysis is presented in Table 3. It is remarkable that On-time delivery has correlations with all supplier relationship management variables. Meanwhile, Cost performance has significant correlations with only 10 among 14 supplier relationship practices. Even so, the contribution of overall supplier relationship management to cost reduction is undeniable. Further observations on correlation results showed that Cost has medium correlation with Information technology links with suppliers with absolute value in a range from 0.3 to 0.5 [25]. The medium correlations of On-time delivery with Benevolence (0.342), with Shared meaning (0.325), with Agreement on supply chain visions and goals (0.312) and with Supply chain leadership (0.340) are also significant at the 0.01 level.

The stepwise regression analysis was performed between operational performance and 16 practices of supplier relationship management (Table 4). Firstly, 8.1 per cent of the variance of Quality performance can be explained by Agreement on supply chain vision and goals. For the second regression model, 14.7 per cent of the variance of Cost performance can be predicted by Information

technology links with suppliers. Similarly, Top management support can explain 4.9 per cent of the variance of Delivery speed; Information technology links with suppliers, Benevolence and Supplier lead time can explain 14.3 per cent of the variance of On-time delivery; Supplier lead time and Supplier involvement in quality improvement can explain 8.2 per cent of the variance of Flexibility.

Secondly, all of these supplier relationship management practices have a positive contribution to improving quality, reducing costs and enhancing delivery speed, on-time delivery and flexibility. Thirdly, Information technology links with suppliers and Supplier lead time have impact in multiple aspects of performance, respectively on both Cost and On-time delivery and on both On-time delivery and Flexibility.

Thirdly, a number of practices link with a single dimension of performance, while others link results in multiple performance outcomes. In fact, agreement between supplier and buyer firms on common visions and goals is predictive of quality performance; top management support directly impacts cost outcome; supplier involvement in quality improvement only impacts flexibility. Information technology has a positive effect on both cost and on-time delivery. Supplier lead time simultaneously impacts on-time delivery and flexibility.

Table 3. Results of correlation analysis

	Quality	Cost	Delivery speed	On-time delivery	Flexibility
Top management support	0.215**	0.221**	0.252**	0.276**	0.238**
Credibility	0.201**	0.066	0.169**	0.257**	0.216**
Benevolence	0.280**	0.174**	0.198**	0.342**	0.254**
Alignment	0.245**	0.069	0.212**	0.292**	0.259**
Supply chain quality focus	0.258**	0.071	0.130*	0.284**	0.144*
Expectation of relationship continuation	0.213**	-0.012	0.103	0.143*	0.147*
Supplier lead time	0.204**	0.114	0.186**	0.296**	0.269**
Shared meaning	0.282**	0.161**	0.197**	0.325**	0.223**
Supply base reduction	0.105	0.127*	0.072	0.125*	0.110
Agreement on supply chain vision and goals	0.296**	0.184**	0.229**	0.312**	0.223**
Formal supplier evaluation system	0.218**	0.202**	0.138*	0.219**	0.108

Supply chain leadership	0.169**	0.235**	0.214**	0.340**	0.196**
Supplier involvement in quality improvement	0.281**	0.184**	0.201**	0.281**	0.254**
Supplier development	0.213**	0.158*	0.144*	0.258**	0.184**
Supply chain planning	0.117	0.126*	0.143*	0.188**	0.095
Information technology links with suppliers	0.145*	0.381**	0.210**	0.278**	0.145*
**Correlation is significant at the 0.01 level (2-tailed).					
*Correlation is significant at the 0.05 level (2-tailed).					

4.3. Stepwise Regression Analysis

Table 4. Results of stepwise regression analysis

		Quality	Cost	Delivery speed			On-time delivery			Flexibility	
Adjusted R square		0.081	0.147	0.049			0.143			0.082	
ANOVA	F	22.706	43.480	13.851			14.737			11.966	
	Sig.	0.000	0.000	0.000			0.000			0.000	
Independent variables		Beta	Sig.	Beta	Sig.	Beta	Sig.	Beta	Sig.	Beta	Sig.
Agreement on supply chain vision and goals		0.291	0.000								
Information technology links with suppliers				0.388	0.000			0.164	0.010		
Top management support						0.231	0.000				
Benevolence								0.194	0.008		
Supplier lead time								0.147	0.040	0.181	0.015
Supplier involvement in quality improvement										0.157	0.034

Based on the overall results presented in this section, our five hypotheses can all be accepted, which means that supplier relationship management positively contributes to the operational performance of firms.

5. Discussion and Implications

The analysis results of this study provide several insights on the contribution of supplier management and operational performance at firm level.

First of all, this study suggests a measurement system, which allows the evaluation of supplier relationship management, with the scales demonstrating good consistency and reliability. The findings reinforce the fact that supply chain orientation is an indispensable part of supply chain management, and

particularly of supplier relationship management, which has been stressed in the works of Min et al. (2007) and Nguyen et al. [16, 18]. Once supply chain orientation is employed inside a firm, the implementation of supply chain orientation across suppliers and the focal firm can be defined as supply chain management. The results provide an implication for managers to employ supply chain orientation practices in advance of supplier relationship management implementation in order to facilitate long-term supplier relationship development. In other words, top management support, trust and other cooperative norms should receive the same attention that was afforded supplier relationship management practices, such as shared meaning and supplier involvement in quality improvement.

Second, the findings highlight the positive contribution of overall supplier relationship management to firm performance, as the ability to satisfy five aspects of the customer's needs: quality, cost, delivery speed, on-time delivery and flexibility. This empirical result reaffirmed the important role of developing and maintaining a strategic long-term relationship with suppliers in the competitive advantage of a firm through quality improvement, costs reduction, delivery and flexibility enhancement. Similar findings were found in much of the literature based on exemplar industries, such as the study of Kumar et al. (2015) on Indian small and medium manufacturing enterprises and the study of Nguyen et al. (2018) on manufacturing companies in Vietnam [26, 18]. Specifically, it is not surprising that several authors failed to find an insignificant direct relationship between supplier relationship and firm performance. These contrasting results could be explained by the small number of a firm's relationships examined, or by particular characteristics of the sector selected for the research design [14, 27]. One of the significant implementations is that the linkage between supplier relationship management and performance should be carefully applied to determine strategies to attain higher performance, depending on the specific industrial and environmental context of each firm.

Third, the regression analysis results reveal the key supplier relationship management practices that mainly contribute to the improvement of each dimension of operational performance. Moreover, different supplier relationship management practices could lead to different outcomes. A meaningful implication offered by this paper is that in the context of limited resources, firms should concentrate on a critical set of practices that are directly related to their targeted performances. This also supports the finding of Prajogo et al. (2012) that firms do not necessarily need to implement a broad range of supplier management practices in their operations, instead, they need to focus on the practices that best enable them to attain their desired performance outcomes [2].

6. Conclusions

This paper contributes to the current literature in the field of supplier relationship management by providing more empirical evidence that effectively managing supplier relationships contributes to the attainment of a higher level of operation performance. From a theoretical perspective, we make efforts to examine simultaneously a large number of practices related to supplier relationship management under a comprehensive framework in order to determine the positive effect of each practice in harmony with the others. In particular, implementation of supply chain orientation is not only a prerequisite to develop and manage the partnership with suppliers, but also an essential part of performance improvement. The second contribution is that each dimension of performance links with different supplier relationship practices. Based on the understanding of the effectiveness of single practices, each firm is able to set out its own list of practices while taking into account the context of the industry and the ability to allocate its resources. Investing in practices that do not match the objectives and competitive strategies of a firm will result in poor firm performance and resource waste.

Besides these important contributions, it is necessary to consider certain limitations related to the sample size and the design of the questionnaire. The former limitation that is due to the limited number of firms participating in our survey could be addressed in future researches by extending the number of observations covering both developed and developing countries. For the latter limitation, future research could use multiple methods of collecting data in order to minimize individual bias due to the use of self-reported questionnaires.

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