

The effects of supplier relationship management practices on organizational performance and competitive advantage of large manufacturing companies in Bahir Dar, Ethiopia

Abate Ayelign Yehuala^{a*}

^a*Logistics and Supply Chain Management Department, College of Business and Economics, @Dilla University, Dilla, Ethiopia*

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ABSTRACT

The purpose of the study is to examine the effects of supplier relationship management practices on organizational performance and competitive advantage of large manufacturing companies in Bahir Dar, Ethiopia. The study employed an explanatory research design. A standardized five-point Likert scale questionnaire was administered to manufacturing companies' executives, top managers, and procurement managers. Structural equation modeling with the help of analysis of moment structure 23 is used to analyze the relationship between variables. The result reveals that supplier relationship management practices lead to enhancing organizational performance and competitive advantage. Also, competitive advantage significantly affects the performance of manufacturing companies. The study is limited by the effects of supplier relationship management practices on organization performance and competitive advantage over a quantitative research approach. Further, it only focused on large manufacturing companies in Bahir Dar, Ethiopia. The study contributes evidence on the effects of supplier relationship management practices on organization performance and competitive advantage. Moreover, it helps the supply chain managers in large manufacturing companies to have a deeper understanding of supplier relationship management and its importance to organizational performance and competitive advantage.

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1. Introduction

In a dynamic and competitive world, supplier relationship management (SRM) is critical for firms to secure the supply of consistent and timely deliveries. A SRM that is productive and long-term allows mutual advantage for buyers and suppliers (Al-Abdallah, B. Abdallah & Hamdan, 2014). According to Tracey & Tan (2001) in a competitive world, organizations are challenged by a variety of changes in the business environment. This variety environment forces increasing pressures on organizations to adopt supply chain management (SCM), develop long-term strategic partnerships with a few competent & innovative suppliers, and collaborate with them in non-core process outsourcing to maintain & improve organizational performance, and generate competitive advantage. But Ethiopian manufacturing companies are not realizing the full benefits of supply chain management due to a lack of integration and collaborative practices, as well as a lack of motivation to manage supply chains. The traditional method of developing relationships between suppliers and customers is merely transactional (Demisse, 2011). In Ethiopia, SCM is still in the infant stage with only a few enterprises integrating it into their organizational systems (Deres, 2011). Furthermore, Addis (2015) cited in Felke (2016) added that most product and service delivery operations in Ethiopia have a significant performance gap, which could be attributable to a lack of proper SCM strategies. Most firms are at risk from SC shortcomings, especially those that do not recognize the importance of supplier relationships (Akintoye, Akintola, McIntosh, George, & Fitzgerald, 2000). In support of this Kiarie (2017) recognized that

* Corresponding author.

E-mail address: abatey36@gmail.com (A. A. Yehuala)

SC inadequacies have been shown to cause disruption and common difficulties that impede industry growth and development, particularly in the manufacturing sector.

The main motive in conducting this work is; foremost there is a gap in the literature that links the effects of SRM practices on organization performance and competitive advantage in one integrated single model. Secondly, a methodological gap is identified in which no prior works have studied the causal relationship between those three constructs through employing structural equation modeling. Thus, this study is aimed to empirically test the effects of SRM practices on organizational performance and competitive advantage of large manufacturing companies in Bahir Dar, Ethiopia. In this regard, the study addressed the following research questions; 1) Does SRM practices affect the performances of large manufacturing companies in Bahir Dar? 2) Does SRM practices improve the competitive advantage of large manufacturing companies in Bahir Dar? and 3) What is the effect of competitive advantage on organizational performance of large manufacturing companies in Bahir Dar?

In this study, SRM practice was examined by supplier selection, supplier development, supplier involvement, and supplier evaluation; organization performance explored by financial performance & market performance; and competitive advantage measured through four sub-constructs such as price/cost, quality, delivery dependability, and product innovation. The remainder of the study is structured as follows: the next section reviews literature associated with SRM practices, organization performance, and competitive advantage. Section three presents the study methodology. In section four results are discussed followed by conclusions. Lastly, research implications, limitations, and suggestions for future research are presented.

2. Review of literature

2.1 Supplier relationship management (SRM) practices

For this study, SRM practice is defined as a set of activities performed by a manufacturing company to ensure that SRM is more productive. Vendor selection, supplier evaluation, supplier segmentation, supplier development, and supplier performance are among the most typical SRM processes identified by the literature and authors (Wong, Lai & Cheng, 2009). Fogg (2009) also stated activities such as supplier selection, supplier evaluation, supplier segmentation, relationship building, performance measurement, risk management, supplier development, and supplier relationship performance measurement are among the functions of SRM. SRM practices used in this study are presented as follows;

Supplier selection: it's the process of selecting the best supplier based on different selection criteria from among many suppliers who can offer the required materials (Lambert, Cooper & Pagh, 1998). Here the buyer's task is to select the best supplier who can deliver the best value, cost, and functionality (Cox, 2004). At this stage, companies need to consider different selection criteria (Handfield, Monczka & Giunipero, 2009). According to Leenders, Flynn & Johnson (2001); Lysons & Farrington (2000) those criteria include financial health, technological capability, location, quality, domestic/international suppliers, low-cost provider, and delivery performance. Therefore, to select the best supplier, companies need to consider the aforementioned criteria.

Supplier development: the provision of finance, technology, or other forms of support by the purchaser firm to the vendor that enables the production of a product that satisfies the buyer's needs in a mutually acceptable manner is referred to as supplier development (Fogg, 2009). Supplier development is a method used for enhancing the performance of suppliers (Park et al., 2009). In his work Wagner (2006) indicated that supplier development is an essential practice of SRM. To achieve the organization's objective and be competitive, buyer firms need to invest in supplier development (Dyer, 1998).

Supplier involvement: it's the extent to which a company can collaborate with its suppliers on internal processes such as product creation and development (Feng & Wang, 2013). According to Melander & Lakemond (2014), supplier involvement has several advantages; including increased responsiveness, shorter lead or cycle times, lower costs (in production, product development, and marketing), and better change control.

Supplier evaluation: it's the process of determining the efficiency and effectiveness of the supplier's achievement (Neely, Richards, Mills, Platts & Boume, 1997). Evaluation allows a firm to execute or support changes in the behavior of the evaluated supplier company. Furthermore, supplier evaluation is important to make some effects on supplier action (Schmitz & Platts, 2003). It's used to manage successful relationships between suppliers and buyers.

2.2 Competitive advantage

Competitive advantage involves the potential of an organization to build a defensible position against its competitors (Porter, 1985). His strategy for competitive advantage centers to focus on the firm's potential to be a minimum cost producer or specialize in some of the most popular industrial areas. Robert, Zank & Lund (2002) recognized price/cost, quality, delivery dependability, and time to market as competitive indicators. Li et al. (2006) in their work employed competitive indicators

such as competitive price, premium pricing, and value to the consumer, as well as quality, on-time delivery, and product innovation. Competitive indicators used for this work are presented as follows:

- Price/Cost: the company's ability to compete based on lower prices (Li et al., 2006).
- Quality: the ability of a company to provide high-quality products and services that add value to customers (Koufteros, 1995).
- Delivery dependability: the ability of a company to provide on time, the type and quantities of products that a consumer requires (Li et al., 2006).
- Product innovation: an organization's ability to launch new products and services into the market (Koufteros, 1995).

2.3 Organization performance

According to Yamin, Gunasekaran & Mavondo (1999) organizational performance involves how well a manufacturing company achieves market and financial objectives such as profits, return on investment (ROI), return on assets, return on equity, and stock market performance (Tharenou, Saks & Moore, 2007). Li et al. (2006) in their study used ROI, market share, the profit margin on sales, growth of ROI, sales growth, market share growth, and overall competitive position to measure performance. In addition to the market and financial objective, performance can be measured in different ways; e.g. (Davis & Pett 2002) suggested indicators of both efficiency and effectiveness. However, due to the limited scope, this study used only financial and market indicators for organizational performance.

2.4 Study model and hypotheses

Through reviewing the literature, hypotheses relating to the study variables are developed in the following manner.

2.4.1 SRM practice on organization performance

Different evidence revealed the effect of SRM practices on performance. In their work Maloni & Benton, (2000) revealed that solid relationships with vendors have a favorable effect on manufacturer performance. Hughes (2010) argued that ineffective SC is the main cause of low firm performance. Further, he points out that organizations with integrated SCs have high profits than those who pay little attention to SCs. Organizations that practice SRM would improve their performance. The study by Carolyne et al. (2015) showed a significant association between supplier development and supplier segmentation with the performance of firms. Strategic partnership with suppliers plays a more direct role in organizations' quality performance. Therefore, based on the discussion hypothesis 1 is proposed as follows:

H₁: *Supplier relationship management practices significantly affect the performance of manufacturing companies.*

2.4.2 SRM practices on competitive advantage

According to Dries, Gorton, Urutyan & White (2014), the competitive advantage of a manufacturer is based on its network of suppliers. It can be done by collaborative relationships with suppliers, such as trust, supporting suppliers in improving their processes, information sharing, supplier engagement in new product introduction, and long-term relationships (Melander & Lakemond, 2014). Moreover, SRM has emerged as a major approach for firms to achieve success and remain competitive, and they have implemented it (Gakii, 2010). The impact of strategic supplier partnerships on different facets of competitive advantages, such as cost, and quality is significant. Time to market is reduced by coordinating and involving suppliers in the new product development process (Vonderembse & White, 2004). The buying firm's dedication to long-term partnerships with suppliers, as well as shared objectives and ideas with them and engagement in vendor developmental activities, were all strongly related to the buying company's competitiveness (Krause, Krause & Tyler, 2007). Therefore, the above discussion leads to:

H₂: *Supplier relationship management practices significantly affect the competitive advantage of manufacturing companies.*

2.4.3 Competitive advantage on organization performance

Competitiveness arises from the development of superior competencies that generate customer value and lower cost or differentiation benefits, leading to market dominance and profitability performance (Barney, 1991). Maintaining relations with suppliers will protect an organization from quality issues, increase efficiency, lower lead time, create value, and provide a competitive advantage, resulting in improved performance and profit (Maina & Kavale, 2016). Organizations that have a competitive advantage such as; better quality, high reliability, lower prices, and shorter delivery time can improve their overall performance over competitors (Mentzer, 2004). Therefore, hypothesis 3 is proposed as follows:

H₃: *Competitive advantage significantly affects the performance of manufacturing companies.*

The above three hypotheses support the study model presented in Fig. 1.

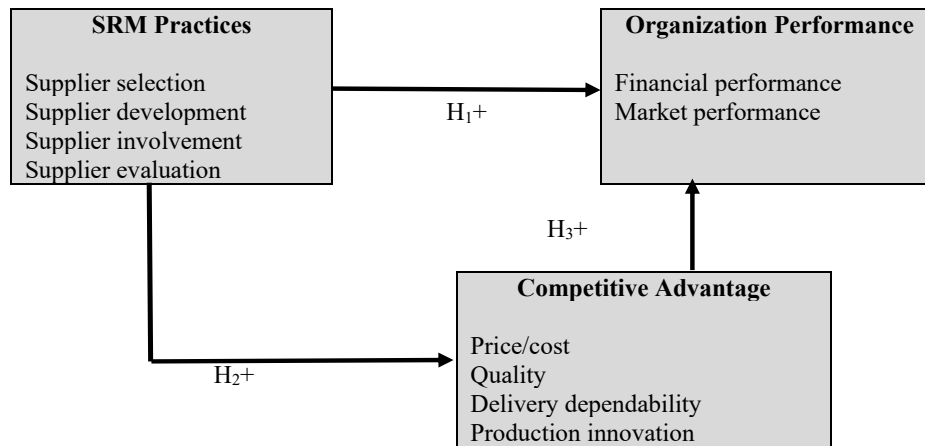


Fig. 1. Study model

The study model presented in Fig. 1 shows the causal relationship between the constructs. It indicates that SRM practices have a direct impact on organizational performance and competitive advantage. Competitive advantage has also an impact on organizational performance. Competitive advantage and organizational performance are operationalized from the work of (Li et al., 2006).

3. Research methodology

3.1 Research design

The study employed an explanatory research design. Such a design is important when the goal of the study is to see how one variable affects the other variables, which this study is all about. The populations of the study are executives, top managers, functional managers, and employees of large manufacturing companies in Bahir Dar, Ethiopia. Sample companies were selected randomly. Accordingly, four companies were randomly selected among eleven large manufacturing companies in the city and the total population of those companies is 395. To determine the exact sample size, the sample determination formula developed by Yamane's (1973) is used.

$$n = \frac{N}{1 + N(e)^2} \quad (1)$$

where 'n' is the sample size, N is the total population, and 'e' is the level of precision. Substitute numbers in the formula:

$$n = \frac{395}{1 + 395(0.05)^2} \quad n = 199$$

A total of 199 questionnaires were distributed to four companies according to their population proportion and from those only 171 qualified questionnaires were used for data analysis.

3.2 Measurement instrument

The three key constructs examined in this study were SRM practice, competitive advantage, & organizational performance. Four sub-constructs were utilized to assess SRM practice (i.e. supplier selection, supplier development, supplier involvement, and supplier evaluation). For measuring competitive advantage, sub-constructs such as price/cost, quality, delivery dependability, and product innovation were used. Financial and market performance were used to measure the third major construct of organization performance. The study variables SRM practices and competitive advantage were measured using a standardized five-point survey questionnaire ranging from 1 (strongly disagree) to 5 (strongly agree); and organization performance was measured using 1 (strongly decrease) to 5 (strongly increase). The tools that measure SRM practices were adapted from (Li et al., 2006; Maraka et al., 2015). Instruments of organization performance and competitive advantage were adopted from (Li et al., 2006).

3.3 Exploratory factor analysis

To purify measurement scales, an exploratory factor analysis of principal component analysis is conducted using SPSS v.23. From the initial factor analysis, items that had cross load and a low load of less than 0.40 (i.e. items SS5, SD3, SI2,

SE1, SE4, and FP3) were eliminated. The remaining items were factor analyzed after these six items were removed, and the results are reported in Table 1. All of the items are loaded on their respective factors with loadings greater than .70. The result also shows that the Kaiser-Meyer-Olkin (KMO) measure of sample adequacy was 90.3% with a P-value = .001 indicates that the sample is appropriate for factor analysis.

3.4 Confirmatory factor analysis

Confirmatory factor analysis (CFA) using AMOS v.23 was carried out to analyze the measurement model. The most widely used statistical procedures to evaluate the measurement model in SEM are Chi-square (χ^2), square multiple correlations (R^2), degree of freedom (DF), factor loading (λ), critical ratio, and model fit indices (Hair et al., 2010; Zainudin, 2012). The value of χ^2 was 608.5 significant at $P=.001$ with $DF = 450$ which is statically significant. R^2 measures the strength of the linear relationships of all items and the value of R^2 is greater than 0.4 which shows a sufficient level of statistical significance for the measurement model with $P=.001$ (Zainudin, 2012). From the result of CFA, the standardized factor loadings for the 33 items were above 0.70, and the t-values were between 10.178 and 28.382 statistically significant at $P = .001$. Moreover, to evaluate the validity of the measurement model, a series of recommended indices like GFI, AGFI, NFI, RFI, IFI, TLI, and CFI were assessed. The result of these fit indices shows that; GFI = .915, AGFI = .897 (approximate fit), NFI = .898 (approximate fit), TLI = .971, CFI = .971, and RMSEA = .046, indicates that the data fit the measurement model. Composite reliability (CR), average variance extracted (AVE), and Cronbach Alpha (α) were used to evidence scale reliability. The result of Table 1 indicated that the value of CR took values $> .70$, and AVE $> .50$. Thus, these results revealed the existence of reliability of the scales. Factor loading of the indicators $> .50$ and AVE $> .50$ were considered to assess convergent validity (Hair et al., 2010). Table 1 shows that the item loadings and AVE for each construct are $> .50$, indicating acceptable convergent validity. Discriminate validity was assessed by considering correlations between factors and the square root of AVE. The correlation between factors should not exceed 0.85 to evidence discriminating validity (Kline, 2011). According to Hair et al. (2014), if the correlation of two latent factors exceeds 0.9, they have significant overlapping factors. Discriminant validity is also determined by comparing the square root of AVE values to latent variable correlations (Fornell & Larcker, 1981). The square roots of AVE are shown in the correlation matrix along the diagonal from Table 2, and the value of AVE for each construct should be bigger than its highest correlation with any other construct (Hair et al., 2013). Based on the result of Table 2, discriminate validity was evidenced.

Table 1
The results of EFA & CFA

Constructs	Items	Factor Loading	Composite Reliability	AVE
SS	SS3	.92	.974	.903
	SS4	.92		
	SS2	.91		
	SS1	.91		
SD	SD5	.82	.919	.739
	SD4	.81		
	SD2	.80		
	SD1	.79		
SI	SI3	.86	.930	.770
	SI4	.83		
	SI1	.80		
	SI5	.79		
SE	SE2	.83	.915	.783
	SE3	.81		
	SE5	.77		
PC	PC3	.86	.906	.762
	PC1	.84		
	PC2	.80		
QL	QL3	.85	.844	.643
	QL1	.81		
	QL2	.69		
DD	DD1	.89	.958	.883
	DD3	.88		
	DD2	.85		
PI	PI2	.86	.894	.738
	PI3	.85		
	PI1	.77		
FP	FP2	.80	.950	.865
	FP1	.79		
	FP4	.77		
MP	MP2	.83	.942	.844
	MP3	.83		
	MP1	.82		

Note: SS = supplier selection, SD = supplier development, SI = supplier involvement, SE = supplier evaluation, PC = price/cost, QL = quality, DD = delivery dependability, PI = product innovation, FP = financial performance and MP = market performance.

Table 2
Correlation Matrix

Constructs	AVE	PI	SS	SI	SE	SD	FP	DD	PC	MP	QL
PI	.74	.86									
SS	.90	.34	.95								
SI	.77	.46	.31	.88							
SE	.78	.39	.34	.60	.88						
SD	.73	.43	.41	.54	.55	.86					
FP	.86	.45	.35	.59	.56	.61	.93				
DD	.88	.46	.30	.34	.36	.29	.46	.94			
PC	.76	.38	.20	.33	.40	.31	.56	.50	.87		
MP	.84	.45	.49	.38	.43	.48	.58	.41	.43	.92	
QL	.64	.43	.29	.37	.36	.33	.48	.48	.58	.39	.80

3.5 Validation of second-order constructs

SRM practice is examined by using four sub-constructs: SS, SD, SI, and SE, which are higher-order constructs. The standardized values for the sub-constructs are .47 for SS, .74 for SD, .75 for SI, and .77 for SE, and all are statistically significant at $P = .001$, indicating that SRM practice is a second-order construct. $GFI=.902$, $AGFI=.896$, $NFI=.946$, $TLI=.977$, $CFI=.963$ & $RMSEA = .064$ were the fit statistics for the second-order construct, indicating an acceptable model-data fit.

Competitive advantage is also a second-order construct that is made up of four first-order constructs: PC, QL, DD, and PI. The first-order construct had standardized factor loadings of 0.73 for PC, .75 for QL, .68 for DD, and .58 for PI, all of which were significant at $P = .001$, indicating the existence of a second-order competitive advantage construct. $GFI=.934$, $AGFI=.897$, $NFI=.953$, $TLI=.978$, $CFI=.983$, and $RMSEA=.055$ were the fit indices for the second-order model, showing a very strong model-data fit.

4. Result and discussion

Structural equation modeling (SEM) with the help of AMOS 23 was used to see the effects of SRM practices on performance and competitive advantage. The study model illustrated in figure1 has three hypothesized relationships among the constructs SRM practices, organization performance, and competitive advantage and SEM depicted in Fig. 2 is a replica of the study model shown in Fig. 1. As indicated in Fig. 2, the model has satisfactory recommended fit indices with $GFI=.948$, $AGFI=.911$, $NFI=.927$, $RFI=.897$, $IFI=.976$, $TLI=.966$ and $CFI=.976$, and $RMSEA=.051$ indicating a good fit of the data to the model. Further, the result shows that all measurements have significant loadings to their corresponding second-order construct. Although all of the measurement factor loadings are significant at the $P = .001$ level, their loadings on the associated second-order construct are different. Supplier selection, for example, has a low score of .50, indicating that when compared to the other three dimensions, supplier selection may not be a significant indicator of SRM practice. The result also suggests that product innovation has a lower loading than price/cost, quality, and delivery reliability. This could mean that product innovation isn't any more of a predictor of competitive advantage than the other three factors. That means the newly innovated product by itself can't generate a competitive advantage. Rather, it should fulfill the quality criteria of customers at reasonable prices. More detailed results about the three hypotheses are discussed as follows:

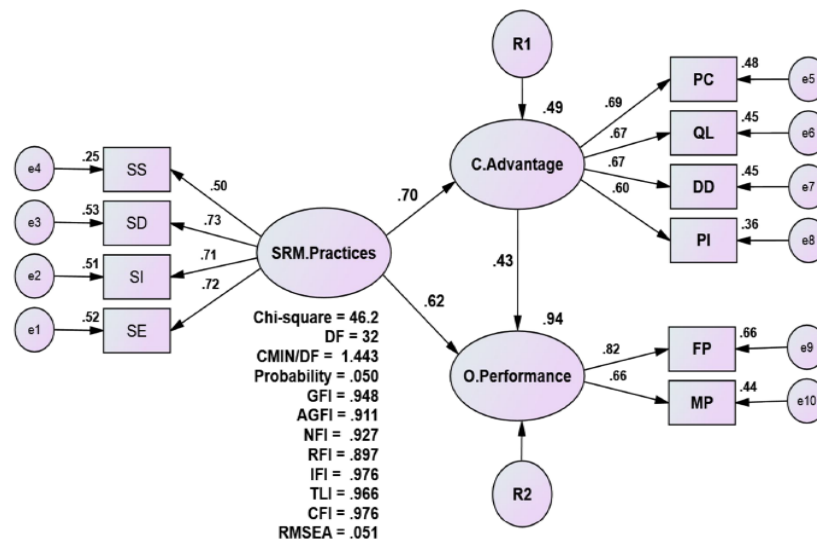


Fig. 2. Structural equation modeling

Table 3
Hypotheses results

Hypotheses	Relationship	Direct effect	Indirect effect	Total effect	Hypotheses Result
H1	O. Performance ← SRM Practices	.616***	.301**	.917	Supported
H2	C. Advantage ← SRM Practices	.701***	----	.701	Supported
H3	O. Performance ← C. Advantage	.430**	----	.430	Supported

*** Significant at $P < 0.001$.

**Significant at $P < 0.01$.

Hypothesis 1 is represented in figure 2 by the relationship between SRM practices → OP. It was found that SRM practices have a significant effect ($\beta = .62$) at $P = .001$ on organization performance and thus supported. SRM practices play a significant effect in increasing organizational performance. As a supplementary analysis, the finding of this study empirically support the theoretical premise that well-managed and implemented SRM leads to improved organizational performance.

SRM practices enable the uninterrupted supply of materials to manufacturing organizations in turn organizations can obtain a constant supply of raw materials from their suppliers, as a result, improving their performance. SRM practices improve performance in terms of increasing sales growth and market share, growth of market share, enhancing return on investment and maximizing profits of companies. Furthermore, developing close relationships with suppliers, having joint problem solving and decision making with them, taking their knowledge as inputs for product design, and evaluating and monitoring them regularly, boosts the organizations' performance.

Hypothesis 2 was found significant and thus supported. It is represented in figure 2 by the relationship between SRM practices → CA. It was indicated that SRM practices positively and significantly ($\beta = .70$) at $P = .001$ affect the competitiveness of the organizations. This means that implementation of SRM practices (i.e. supplier participation in the development of new products, supplier development, supplier evaluation, and supplier selection) together improve the manufacturing companies' competitiveness on cost, quality, delivery dependability, and product innovation and give them a superior position over its competitors.

SRM practices enable manufacturing organizations to be competent by avoiding regular searching of suppliers, lowering materials costs, being first in the market, and reducing material defects, which in turn, assures quality and low-price producers. Having good relations with suppliers will create a smooth follow of operation and reduce lead time. This helps manufacturing organizations to quickly respond to their customer's requirements.

Hypothesis 3 was found to be significant and thus supported. The result shows competitive advantage significantly ($\beta = .43$) at $P = .01$) affects performances of organizations. This implies that a one-unit change in competitive advantage will result in a 43% change in organizational performance. When organizations' competitiveness increased in terms of price, quality, innovation, and on-time delivery will maximize their performance through generating profit, controlling market share, and maintaining return on investment. In support of this Barney (1991) states that competitive advantage develops from the development of superior competencies that work to provide customer value and achieve cost or differentiation benefits, leading to increased market share and profitability.

Finally, the results of this study suggest that SRM practices have an indirect effect on organizational performance via competitive advantage. The indirect effect of SRM practice on the performance of the organization has a standardized coefficient of 0.30, which is significant at the .01 level. SRM practices, in other words, first produce competitive advantage, and then competitive advantage generates organizational performance.

5. Conclusions

The study gives empirical justifications for the research framework that identified the three key constructs i.e. supplier relationship management practices, organization performance, and competitive advantage, and tests the causal relationship among them. The study result indicated that SRM practices have a significant effect on the performance of manufacturing companies. Therefore, to be more efficient and effective, manufacturing companies shall implement SRM practices more than they did in the past. More specifically, to achieve advancement in marketing and financial performance, manufacturing companies should give due emphasis to supplier selection, supplier development, supplier involvement, and supplier evaluation. Furthermore, today's competition is no longer between organizations, but among supply chains. Therefore, to be competitive enough, manufacturing companies shall give due attention to SRM practices. The study helps the supply chain managers in large manufacturing companies to have a deeper understanding of supplier relationship management and its importance for the enhancement of organizational performance and competitive advantage.

6. Limitations and study forward

The span of this study is focused on the effects of SRM practices on organization performance and competitive advantage. The subject scope of SRM practice is supplier selection, supplier development, supplier involvement, and supplier evaluation. Therefore, future researchers can study by incorporating other SRM practices e.g. supplier appraisal and supplier

segmentation. Contextually, the study is limited to only large manufacturing companies in Bahir Dar, Ethiopia. For generalization, future research should be done by expanding the context of the study. Methodologically, the study is a quantitative research type and future researchers can validate the result by employing a mixed research design.

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