

## THE IMPACT OF BUYER SUPPLIER RELATIONSHIPS ON COMPANY PERFORMANCE: AN EMPIRICAL RESEARCH ON TURKISH AUTOMOTIVE SUPPLIER INDUSTRY

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### ABSTRACT

*In this study, the effects of buyer-supplier relationships on company performance of suppliers in the Turkish automotive industry are analyzed. In the context of suppliers, it is found out that the relationships in the Turkish automotive industry have a three-phase structure such as competitive, transition period, and collaborative periods. The performance of the companies demonstrating collaborative relationship is higher as compared to others.*

**Keywords:** Supply Chain Management, Buyer-Supplier Relationships, Performance, Turkish Automotive Industry

### 1. INTRODUCTION

Companies producing in the globalizing world strive to survive as competition becomes too tough, important and fast technological advancements are realized and a discerning and conscious mass of increasingly hard-to-satisfy customers emerge. In this process, producer's ability for innovation and the relationship with their suppliers are the two key components for their capability to sustain their existence and preserve their competitive power. Therefore, it may be concluded that buyer-supplier relationships developed within the context of supply chain management (SCM) can globally provide many advantages to companies.

The relationships between partners acting within a supply chain can be generally defined as the spread of partnership form. However, in previous publications, the types of these relationships, and their formation and development are assessed differently by various authors. There are two important models defining relationships between buyer and supplier, which are also accepted by many researchers. They are named "competition between rivals" and "collaborative partnership" [5]. These models are commonly called *Traditional Competitive Model and Collaborative Model* in the literature [1,6,3].

SCM have made positive contributions to basic financial indicators, indicators for productiveness, quality related indications, and basic company performance criteria among other performance indicators. These contributions have become more prominent in the developments of buyer-supplier relationship. There are a great number of studies in the literature seeking to find out the effect of SCM on company performance: improving quality, reducing costs, improving delivery, reducing delay time and design performance, reducing purchasing costs, taking part in product innovation activities and reducing new product development time, reducing transportation costs, reducing production delay time, increasing customer satisfaction and rapid responding to customers[4].

The main aim of this study is to reveal the effects of the relationships of companies in the Turkish automotive industry, with their suppliers and customers in terms of innovation for achieving sustainable competition.

## 2. RESEARCH METHODOLOGY, SAMPLE and HYPOTHESES

The data set for this study has been gathered by sending out a questionnaire to 255 companies (2009 data) that are the members of the Association of Automotive Parts and Components Manufacturers (TAYSAD). Hence, all companies involved in this survey operate in the same sector.

After applying the survey to 255 companies, 114 survey forms eligible for assessment have been gathered. The returned 114 survey forms correspond to a 44% return rate. As a matter of fact, compared to the return rates in similar studies and considering the return rates of the survey forms applied via mail in general, 44% rate of return is an acceptable level.

In order to determine the responsiveness of companies in the research, the company size (measured by number of employees) of the participating and non-participating companies is compared by applying independent sample t-test. No statistically significant difference has been determined between the participating and non-participating companies. On the basis of this result, we may conclude that the companies included in the study represent the main industry.

In this study, K-Means Cluster Analysis is used to explain the buyer-supplier relationships and One-Way Anova Test is used to *analyze the effects of the groups formed on company performance*.

The hypotheses of the study are developed by taking into consideration some studies on SCM and on the effects of buyer-supplier relationship on performance in the context of SCM. The hypotheses of the research are the following:

**Hypothesis 1:** There is a change towards more collaborative relationships between buyers and suppliers in the last five years.

**Hypothesis 2:** The performances of the suppliers with a collaborative relationship with the main industry are higher.

## 3. RESEARCH FINDINGS

The results have shown that the company with the lowest number of employment is 55 workers and the highest 2200. The mean number of employment in the survey is 273. Considering the number of workers, 86.8% (99 companies) of the companies are medium size and 13.2% (15 companies) large scale. The youngest of the companies (TAYSAD members) has been acting for 5 years and the oldest, in other words the most experienced, for 71 years. The mean operation period of the companies is 27 years. As regards to capital structure, 47.4% of the companies possess only domestic capital. On the other hand, the rate of the companies with a foreign partner is 39.5% and the rate of the companies owned by foreign companies is 13.2 %.

### 3.1. Buyer-Supplier Relationships

In order to measure the change of the buyer-supplier relationships, the 11 item scale developed by Sako [7] and modified by Güleş [2] is utilized, and information about the change in these items in the last five years are assessed. The results are given in Table 1 below.

Table 1. Variables Used in the Measurement of Buyer-Supplier Relationships

| Variables  | The Quality of the Relationship |      |           |      | Independent-Samples <i>t</i> Test |          |
|--|---------------------------------|------|-----------|------|-----------------------------------|----------|
|  | Five Years Ago                  |      | Currently |      | <i>t</i>                          | <i>P</i> |
|  | Mean                            | S.D. | Mean      | S.D. |                                   |          |
| The length of trade relationship                   | 1.59                            | 0.53 | 2.28      | 0.67 | -6.599                            | <.001    |
| The level and frequency of control and in shipment | 1.58                            | 0.68 | 2.21      | 0.68 | -7.742                            | <.001    |
| General supply policy                              | 1.32                            | 0.54 | 2.17      | 0.74 | -6.394                            | <.001    |
| Methods of decision making and application         | 1.40                            | 0.54 | 2.15      | 0.55 | -7.225                            | <.001    |
| The procedure of ordering                          | 1.29                            | 0.49 | 2.14      | 0.71 | -8.088                            | <.001    |
| Level of mutual commercial dependency              | 1.63                            | 0.55 | 2.12      | 0.63 | -7.264                            | <.001    |
| Level of risk sharing                              | 1.28                            | 0.54 | 2.10      | 0.65 | -7.326                            | <.001    |
| Channel of communication and frequency             | 1.39                            | 0.54 | 2.10      | 0.72 | -7.934                            | <.001    |
| Level of technology transfer                       | 1.36                            | 0.57 | 2.07      | 0.67 | -6.455                            | <.001    |
| Flexibility in the contracts                       | 1.53                            | 0.68 | 2.04      | 0.68 | -8.867                            | <.001    |
| Level of commercial trust                          | 1.30                            | 0.51 | 2.02      | 0.70 | -6.96                             | <.001    |
| Total  | 15.68                           | 3.78 | 23.39     | 5.43 | -7.447                            | <.001    |

Notes: (i) n=114; (ii) Ordered according to current situation.

Examining the items used to measure buyer-supplier relationships in Table 1, it is seen that each factor increases as compared to their level five years ago. The increase in each factor is significant according to the result of dependent Two Group *t* test. In this context, considering the scale as a whole, based on statistically significant increase for each item, it is possible to argue that the companies included in this study possess a more collaborative relationship as compared to five years ago. These results support the first hypothesis, which states that “there is a change towards more collaborative relationships between buyers and suppliers in the last five years.”

In order to determine the buyer-supplier relationships, the companies included in the study are classified with respect to similar features they share. Clustering analysis is employed to cluster companies in two groups such as those sharing similar features and those demonstrating high level of differences. In this pursuit, non-hierarchical k-means method is used. As a result, the companies are divided into three clusters such as “*competitive* companies”, “*collaborative* companies”, and “*transition-period* companies ranging from competition to cooperation”. There are statistically significant differences between the clusters at the level of  $p < .001$ . The resulting total scores gained for the companies in each cluster on the scale are given below.

Table 2. Total Scores Gained on the Scale for the Quality of Supplier Relationships

|                              | Adversarial<br>(n=30) |      | Transition<br>Period (n=47) |      | Collaborative<br>(n=37) |      | One way<br>Anova |       |
|------------------------------|-----------------------|------|-----------------------------|------|-------------------------|------|------------------|-------|
|                              | Mean                  | S.D. | Mean                        | S.D. | Mean                    | S.D. | F                | P     |
| Buyer-Supplier Relationships | 15.27                 | 1.41 | 24.32                       | 1.11 | 28.78                   | 1.81 | 739.64           | <.001 |

Note: Each group formed is different from one another. The differences between groups are statistically significant according to the results of scheffe test.

According to these results, 30 companies included into the study possess a competitive structure and 37 companies a collaborative relationship. Forty-seven companies are in a transition period from competitive structure to a collaborative one.

### 3.2. Buyer-Supplier Relationships and Company Performance

Regression analysis is used to examine the impact of buyer-supplier relationships on Company Performance (CP). Table 3 illustrates the results of regression analysis. The regression model is given below:

$$\text{Company Performance} = b_0 + b_1 \text{BSR}$$

Table 3. Regression Analysis: Company Performance

| Dependent Variable  | R <sup>2</sup> | ΔR <sup>2</sup> | Independent Variable | B    | Std. Error | t                  | F                   |
|---------------------|----------------|-----------------|----------------------|------|------------|--------------------|---------------------|
| Company Performance | .227           | .220            | BSR                  | .515 | .090       | 5.728 <sup>a</sup> | 32.810 <sup>a</sup> |

Note: <sup>a</sup> $p < .001$ .

In regression analysis, R<sup>2</sup> indicates the percentage of the variance explained and F the significance level of regression model. BSR contributes to the explanation of company performance to a crucial extent (0.227%). The results of the analyses are statistically significant. In other words, there is a positive relationship between BSR and company performance. Thus, BSR is investigated to explain if there is a change in company performance. The assessment of company performance criteria in the context of BSR identified with cluster analysis is given below.

Table 4. Company Performance According to the Quality of their Buyer-supplier Relationships

|                          | Adversarial<br>(n=30) |      | Transition<br>Period (n=47) |      | Collaborative<br>(n=37) |      | Oneway<br>Anova |       |
|--------------------------|-----------------------|------|-----------------------------|------|-------------------------|------|-----------------|-------|
|                          | Mean                  | S.D. | Mean                        | S.D. | Mean                    | S.D. | F               | P     |
| Growth in market share   | 4,53                  | 1,78 | 5,66                        | 1,42 | 6,35                    | 1,09 | 13,521          | <.001 |
| Growth in sales          | 4,23                  | 1,41 | 5,85                        | 1,32 | 6,05                    | 1,22 | 18,946          | <.001 |
| Investment profitability | 4,07                  | 1,46 | 5,72                        | 1,46 | 5,95                    | 1,39 | 16,733          | <.001 |
| Growth rate              | 4,10                  | 1,56 | 5,79                        | 1,27 | 6,11                    | 1,17 | 21,739          | <.001 |
| Total                    | 16,93                 | 5,71 | 23,02                       | 5,09 | 24,46                   | 4,48 | 20,224          | <.001 |

Examination of Table 4 reveals that there is a change in performance criteria of the companies with respect to their relationships with the main industry. Thus, we may say that the general performance criteria of companies in the transition period are higher as compared to competitive companies, and the general performance criteria of the collaborative companies are higher as compared to those in transition period. The results indicate that the differences are statistically significant. Therefore, these results support the second hypothesis stating that “the performances of the sub-industries who are in a collaborative relationship with the main industry are higher.”

#### 4. CONCLUSION

The companies operating in the automotive suppliers industry included in the study are found to have become more collaborative in their relationships with their suppliers as compared to five years ago. Examining the relationships of companies with their main industry, explains that companies can be classified into three different groups such as “*competitive* companies”, “*collaborative* companies”, and “companies in *transition period* from competitive to collaborative”. As the total scores of the companies in transition period are considered, we may conclude that companies are generally closer to collaborative structure.

As a result of regression analysis, it is found out that BSR has prominent impacts on company performance. As the company performances are examined within the framework of the triad structure revealed with cluster analysis, the performances of the companies with collaborative structures has higher performances as compared to the ones in the other groups.

As a result, the companies, which have a collaborative relationship with the main industry, have higher general performances as compared to the others. Therefore, we may conclude that it is recommended to the companies that have a competitive relationship or in a transitional period from competitive to collaborative to restructure their relationships to gain a collaborative relationship with the main industry.

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