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Strategy Under Uncertainty: A Sectoral Analysis of Strategic Posture and Performance in the Turkish Logistics Sector

Belirsizlik Altında Strateji: Türk Lojistik Sektöründe Stratejik Duruş ve Performans Üzerine Sektörel Analiz

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ABSTRACT

This study investigates the effect of environmental conditions on firm performance in the Turkish logistics sector, in the context of the mediating role of strategic posture and interaction between the variables. The data set covering the Marmara region was expanded to cover all Turkey, and the hypotheses in the research model created by extending the period were retested and the study was repeated. The sector was analyzed on a country basis by comparing the findings. In this research, a survey was conducted with 475 people working in managerial positions in firms operating in the Turkish logistics sector. Empirical evidence regarding the mediating role of strategic posture was obtained from this study. As a result, it was determined how important it is for Turkish logistics companies to have a strategic posture, and it is a very important complement in terms of improving performance. In addition, the necessity for companies examined within the scope of the study to make strategic choices in line with the impact of environmental conditions was revealed.

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ÖZ

Bu çalışmada, Türk lojistik sektöründe, çevresel belirsizliğin firma performansı üzerindeki etkisi özelinde, stratejik duruşun aracılık (mediator) rolünün varlığı ve değişkenler arası nasıl bir etkileşimin olduğu araştırılmıştır. Marmara bölgesini kapsayan veri seti Türkiye çapında genişletilmiş ve periyodu uzatılarak oluşturulan araştırma modelindeki hipotezler yeniden test edilerek

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çalışma tekrarlanmış, bulgular karşılaştırmalı olarak yeniden değerlendirilerek sektör ülkemiz çapında incelenmiştir. Araştırmada; Türk lojistik sektöründe faaliyet gösteren firmalarda yönetici pozisyonunda çalışan 475 kişiye, anket uygulanmıştır. Yapılan çalışma, stratejik duruşun arabuluculuk rolü hakkında ampirik bir kanıt sağlamaktadır. Sonuçta, Türk lojistik firmalarının stratejik bir duruşa sahip olmalarının ne kadar önemli olduğu ve performansın artırılmasında çok önemli bir tamamlayıcı olduğu belirlenmiştir. Ayrıca araştırma kapsamındaki firmaların, çevresel etkilerine uyan stratejik seçimlerde bulunmalarının gerekliliği ortaya çıkmıştır.

1. INTRODUCTION

Today, our world is faced with a series of interconnected crises that threaten billions of people and could lead to the collapse of civilization. Scientists draw attention to these big problems and warn us that these global crises, especially environmental ones, are getting worse every year. Human consumption is currently estimated to be 30% higher than natural reproductive capacity. This situation makes the logistics sector more important for the entire world and countries. The COVID-19 pandemic period, in which we live, has once again shown us the importance of this sector in our lives. While the sector, which is crucial, is trying to cope with changes in an environment that is more uncertain and complex than ever before, it's managers are rushing to plan investments and carry out performance-enhancing studies to meet increasing demand.

The basis of this study is composed of the uncertain changes in the environment in which companies operate, just as current global situation. One of the uncertain changes (1) refers to the change of the environment, that is, the process of adapting to changing Environmental Conditions (EC). Another important change (2) is that companies make strategic choices that fit their environmental impacts, thus having a Strategic Posture (SP) and determination. In such complex and rapidly changing environments, companies try to increase their performance levels. For this reason, companies should quickly adapting to the EC in which they operate and determine their SP. Thus, they can get ready to face the challenge of increasing competitiveness and adapted to EC, and put forward more efficient management processes so that managers can implement strategies that allow them to achieve better performance.

The main question that underlies this study is "Does environmental uncertainty interact with strategies as common determinants of Firm Performance (FP)? "or"Are EC and strategic choice assessments carried out separately without interacting with the common determinants of FP?" Organizational theory and strategic management literature were used in this study to answer these questions. Clarification of the answers to the questions and the results obtained are presented as evidence of both the academic literature and the Turkish Logistics Sector (TLS).

In the literature research, TLS has not been attempted regard the relationship between environmental uncertainty, SP and company performance have been encountered. The aim of this study was to investigate the mediating role of SP of logistics companies belonging to the service sector, in the effect of environmental uncertainty on FP. Moreover, it was examined which dimensions of environmental uncertainty constituting the EC of logistics companies and similarly, which dimensions of the SP are among the more applicable or preferable strategies in the logistics sector. Therefore, this is a pioneering study. The research conducted is considered as an evidence in terms of revealing the basic determinants of the performance of the TLS and providing empirical support to the existing literature.

Environmental uncertainty is an important factor shaping the lives of organizations, and there is diversity in the conceptualization of environmental uncertainty in the literature. Hannan and Freeman (1986) stated that environmental uncertainty is an important key factor in shaping organizational structure and actions. In our study, environmental conditions determined by Dess and Beard (1984) in order to facilitate the identification and analysis of the work environment of organizations are discussed. These three-dimensional environmental conditions are classified as "dynamism, complexity, munificence". Dynamism is defined as change that is difficult to predict and can result from market changes or technology. Complexity is defined as the heterogeneity of and range of an organization's activities and is measured by geographical dispersion and market. Munificence refers to the extent to which the environment can support sustained growth and the abundance or scarcity of resources in competition for those environments (Sharfman & Dean, 1991).

Strategic management directs firms to evaluate the environment. This evaluation helps firms make strategic choices that respond to the needs of the changing environment (Witcher, 2020). SP typologies classified by Venkatraman (1989), which help companies in the logistics service sector to respond to the needs of the changing environment, are discussed. These six-dimensional SP typologies are classified as "aggressive, analysis, defensive proactive, future, riskiness". Therefore, the reasons for evaluating the six-dimensional strategy typology developed by Venkatraman by the companies can be listed as follows: (1) It allows the determination of strategies that fit environmental changes; (2) It allows organizations to determine their strategic orientation according to the level of perception of their environment; (3) It ensures that the chosen strategy focuses on the performance criteria of the organization; (4) It enables

organizations to make rational decisions in achieving the targeted performance output. These strategic dimensions defined by Venkatraman, who developed the strategy typology of Miles and Snow (1978), contribute to determining the strategic orientation of the service sector (Zuckerman, 2005). For this reason, the strategy typology determined by Venkatraman was found useful for the study.

Although there are a large number of performance measures for the organizations (Karim & Arif-Uz-Zaman, 2013), overall performance measurement has financial, environmental, and operational dimensions (Dey & Cheffi, 2013). Financial practices are related to the achievement of an organization's economic goals, the growth and profitability of its sales (Centobelli et al., 2019; Wolff & Pett, 2006). Operational practices are product and process-related practices that explain what and how things going on, in organizations (González Benito & González-Benito, 2005). Logistics practices are related to the efficiency, effectiveness and degree of differentiation for fulfilling an organization's logistics activities (Ballou, 2004).

More clearly, environmental conditions affect the performance of organizations because an important aspect of performance is the result of changing strategic choices, as well as strategic management. In a structure-execution-performance model, performance can be determined according to the characteristics of the sector as a whole. Adopting a competitive SP in the sector depends on the examination of organization performance. (Barney & Hesterly, 2019). Therefore, we demonstrate the importance of harmonizing environmental conditions with SP in determining organization performance. The environment is an important aspect of the determinant of both SP and FP (Elbanna & Child, 2007; Elbanna et al., 2015). Still, literature has focused on the widely changing environment (Elbanna et al., 2015; Schilke, 2018) or environmental uncertainty (DeSarbo et al., 2005). Our study expands this line of research by revealing how EC and SP affect firm performance in the logistics sector.

In the context of the impact of environmental uncertainty on FP, this study aims to determine the mediating role of SP in Turkish logistics companies and the level of interaction between variables. This study contributes to the literature in four ways. First, previous research has focused on the impact of dynamism from environmental conditions in general on firm performance (Miles et al., 2000; Priem et al., 1995), but in this study, it has empirically analyzed whether all dimensions of EC have effects on SP and FP. Second, both EC and SP concepts have been generally evaluated in terms of their impact on financial performance (Centobelli et al., 2019; Jauch et al., 1980), but how companies measure financial performance, especially for other firms, is still unclear. However, we have studied on different firm performances that could yield more precise results. Third, there are a limited number of studies in the logistics sector and companies that adopt the SP approach (Bae, 2017; Ballou, 2004; Rojo et al., 2018). Fourth, EC is concerned with the application of SP rather than a complementary dimension of SP.

The variables of the study and the interactions among these variables have not been investigated in the TLS or the other sectors before. The logistics sector is a growing and developing dynamic sector that plays a strategic role by providing logistical support to all other sectors. That is why; this research is expected to provide contributions to the literature. It is expected that this study will constitute a basis not only for the logistics sector but also for other sectors as well as relevant future studies. In the following sections, the conceptual model, research methodology, data analysis and findings of the study will be discussed. In the last section, the implications of this study will be summarized and some of its limitations and a few aspects for future research will be shown.

2. LITERATURE REVIEW AND HYPOTHESES

In this section, the studies in the literature related to the subject of investigation have been mentioned and the list of hypotheses suggested in the study is presented. The research model is shown in Figure 1, which shows that the
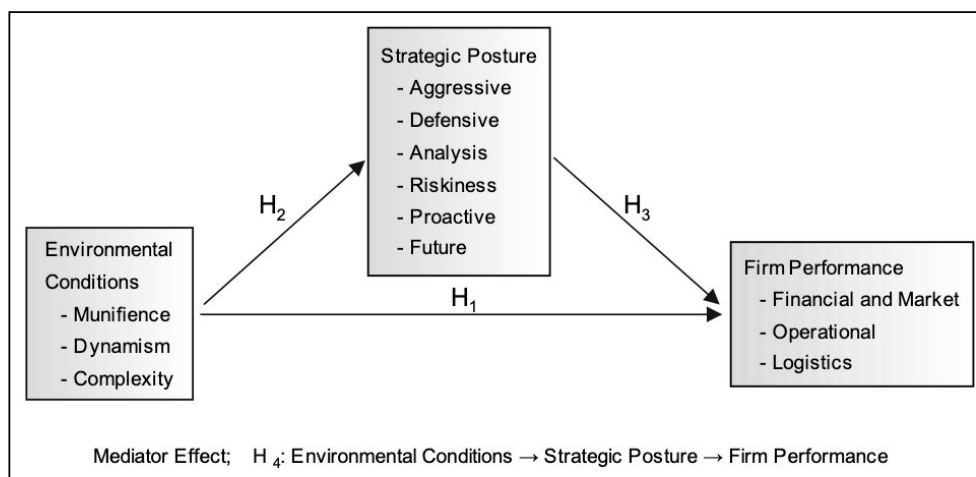

Figure 1. The Research Model.

impact of environmental conditions on firm performance is through SP.

2.1. Environmental Conditions and Firm Performance

Strategic management literature suggests that environment can be operationalized using three constructs dynamism, complexity and munificence (Dess & Beard, 1984). Dynamism is referred to as uncertainty and is defined as the rate of change of innovation in the industry as well as the uncertainty or unpredictability of competitors and customers' actions (Burns & Stalker, 1961; Goll & Rasheed, 2004). Complexity is referred to as heterogeneity and is defined as variations among the firm's markets that necessitate diversity in production and marketing techniques (Bradley et al., 2011; Chandler, 1962). Munificence is defined as the abundance or scarcity of resources and market potential in the environment (Elbanna & Child, 2007; Petrou et al., 2020). In today's business age with changing EC, the only distinction to be maintained between organizations is performance (Lakomski & Evers, 2011). Although there are different concepts in FP (Beadle & Moore, 2011), measuring FP is not an easy construct (Almatrooshi et al., 2016; Jacobsen & Johnsen, 2020). Researchers have shown that EC affects the performance of companies (Bae, 2017; Hansen & Wernerfelt, 1989; Uzkurt et al., 2017). Therefore, EC is an important factor that affects performance. More clearly, EC relates to FP, because an important aspect of performance changes as a result of the effects of EC. Therefore, the first hypothesis is:

H₁. EC have a significant impact on FP.

EC have three dimensions in the literature. Hence, sub hypotheses of the H1 are shown below.

H₁ₐ₋c. Munificence Dynamism and Complexity dimensions have a significant impact on FP.

2.2. Environmental Conditions and Strategic Posture

The relationships between strategy and environment have been widely discussed in the extant literature (Hambrick, 1983; Miller, 1988). Strategic management literature suggests that a successful firm's strategy and structure must be favourably aligned with its external environment (Dess & Keats, 1987; Hsiao & Wu, 2020). In addition, in the strategic management literature, an organization's strategy must be compatible with its internal and external environments to achieve the best results (Lee, 2002; Prajogo et al., 2018). Hence, continuously adapting to the changes in the environment is defined as strategic management (Schendel & Hofer, 1979). The matching of organizational strategies to the internal structure of the organization and its external environment can be termed as strategic fit (Nandakumar et al., 2010). The success of firm strategy is contingent on the firm's environmental characteristics. Organizations face significant constraints and contingencies from their external environments and their competitiveness depends on their ability to monitor the environments and adapt their strategies accordingly (Boyd & Fulk, 1996; Mohammad, 2019). Importantly, dynamism, complexity and munificence environments can change the effectiveness of the strategy (Nandakumar et al., 2010). Researchers have shown that EC can affect the strategies of companies (Burns & Stalker, 1961; Clark, 1971; Dess & Beard, 1984; 1989; Dollinger & Golden, 1992; Jauch et al., 1980; Rajagopalan et al., 1993; Selznick, 1949; White & Hamermesh, 1981). Thus, to comply with these variable environmental impacts, the business also should be flexible which can be the result of business SP. In this sense, the uncertainty of the external environment affects SP. Therefore, the second hypothesis is:

H₂. EC have a significant impact on the SP.

SP have six dimensions in the literature. Hence, sub hypotheses of the H2 are shown below.

H₂ₐ₋c. Munificence, Dynamism and Complexity dimensions have a significant impact on SP dimensions.

2.3. Strategic Posture and Firm Performance

Dess and Davis (1984, pp. 469), identified "the combination of competitive options used by the organization in its industry" as SP. Strategic posture is important to provide in allocating firms specific resources and calibrating activities to fit these resources to accomplish superior performance (Guo et al., 2020; Zhou et al., 2007). Firms can have a sustainable competitive advantage and high performance by adopting the strategy suitable for their environment. (Nakano, 2015; Zimmermann et al., 2020). Therefore, firms must be able to improve their strategic flexibility to take advantage of opportunities in the changing environments (Mason-Jones et al., 2000). Firms care about Venkatraman's (1989) SP to improve their strategic flexibility. Venkatraman identified aggressiveness, analysis, defensiveness, futurity, proactiveness and riskiness as dimensions of SP. Aggressive strategy focuses on resource allocation to improve an organization's market position compared with its competitors. Analysis strategy focuses on basic problem solving to understand the internal and external environments of the organization (Lumpking & Dess, 2001). Defensive strategy focuses on maintaining the current market position rather than increasing market share. In contrast to a defensive strategy, the proactive strategy focuses on innovation and change (Legionosuko et al., 2019). Future strategy is about firms' being prepared for environmental changes in the long term and turning the opportunities that may arise in their favor. Risky strategy focuses on entering new unknown markets with intensive resources (Lumpking & Dess, 2001). Researchers have shown that strategies can affect the performance of companies (Chi, 2015; Desarbo et al., 2005; Morgan & Strong, 2003; Tan, 2002; Tan & Tan, 2005; Talke, 2007; Zajac et al., 2000). As a result, in line with the literature (George et al. 2019; Gnizy, 2016; Arun & Yıldırım Özmutlu, 2021), effective strategy can increase organizational performance. Therefore, the third hypothesis is:

H₃. SP has a significant impact on FP.

H$_{3a-f}$. Proactiveness, Aggressiveness, Defensiveness, Futurity, Riskiness and Analysis dimensions have a significant impact on FP.

2.4. Environment-Strategy-Performance

Expressing his views on the relationship between environment-strategy-performance, Child (1972) suggests that EC are critical in determining strategies and achieving superior performance, there must be a harmonious match between EC and strategy. SP and EC are two important factor for the development of companies (Georg, et. al, 2019) and they generally focus on organization performance. EC interacts with a strategy to influence performance (McArthur & Nystrom, 1991). Firm performance depends on strategies and environmental conditions (Miles & Covin, 2000; Reeves et al., 2016). The performance of an organization largely depends on the strategy-environment fit (Mintzberg, 1979; Nandakumar et al., 2010) and not all EC and SP dimensions are equally important on performance (Schilke & Cook, 2013; Schilke, 2018). Strategic insights are needed to understand how ECs adapt to improve performance (Chandler & Hwang, 2019). In summary, the effectiveness of strategy and environmental situations have been associated with performance (Hambrick, 1983). Researchers have shown that strategies can affect the EC-performance-strategy relationship (Bae, 2017; McArthur & Nystrom, 1991; Miles et al., 2000; Priem et al., 1995; Sabherwal et al., 2019; Yayla & Hu, 2012; Yu et al., 2016; Arun & Yıldırım Özmutlu, 2021). Especially in the logistics sector, some researchers have found a lack of evidence on the effects of environmental conditions on strategic choices to improve firm performance (Zimmermann et al., 2020). Other authors claim that environmental conditions provide effective strategic choices and successful performance results (Lai et al., 2015; Shibin et al. 2020). Therefore, there is an important relationship in the environment, strategy and performance cycle. So the fourth hypothesis is:

H$_4$. SP mediates the relationship between EC and FP.

H$_{4a-c}$. SP dimensions mediates the relationship between EC and FP.

It was seen that the environmental uncertainty was considered either as an independent variable or as a regulatory variable and its effects were examined. The SP variable was treated as either dependent variable or regulatory variable under the name of strategic choice and its effects were examined. The study was conducted by focusing on the estimation of the existence of the mediation relationship of SP. Another important reason for this study is the thought that there is not enough research in the literature about this subject. In order to clarify this idea, the mediating role of SP in the impact of EC on the company, has been investigated.

3. RESEARCH METHOD

The mediating role of strategic posture in the impact of environmental conditions on firm performance was examined through the correlational research design, which is a quantitative research method. Correlational research design, which is one of the quantitative research methods, is a study conducted on the whole universe or a group, sample or sample taken from it in order to make a general judgment about the universe. Correlational studies aim to investigate how some variables affect other variables (Franken et. al., 2012). In other words, it aims to reveal the existence of a relationship between the variables subject to examination. However, variance-based structural equation modelling (SEM) method was used as the basic statistical method to test the hypotheses in the research. The SEM enables the modeling of the relationships between a large number of dependent and independent variables. This method is entirely based on theory and acknowledges the existence of a causality structure among the set of implicit variables (Hair et al., 2014). IBM AMOS (v25) software was used to analyze the variables.

3.1. Sample and Data Collection

The research population was consist of individuals working in managerial positions in 1175 logistics organizations currently operating in the logistics sector in Turkey. The sample of the study consisted of 475 managers selected among these individuals by random sampling method. The sample size for ±5%, precision levels where the confidence level is 95%, and P=.5, the assumption for normal size is supported if more than 284 (Israel, 2013).

Within the scope of the research, it is aimed to reveal the current interaction between variables in the logistics companies operating in the whole country, especially in Marmara, Aegean, Mediterranean and the Black Sea regions where the logistics network is developed in Turkey. A survey was conducted between September 2018 and November 2019 to reveal this interaction with companies operating in the TLS. A total of 475 data were collected through face-to-face interviews with one manager from each company reached by applying the random sampling method. In the first part of the research questionnaire, thirteen questions are asked about the information of the participants. In the second part of the questionnaire, 63 questions are about the items of the variables. All constructs were measured using 5-point Likert scales ranging from "Strongly Disagree" (1) to "Strongly Agree" (5) were used to evaluate EC, SP and FP. All scale items used within the scope of the study were adapted by considering the terminology suitable for the logistics sector. Cronbach alpha results are shown in Table 1.

3.2. Scales

Environmental uncertainty scale (α) .78 developed by Dess and Beard (1984) consists of dynamism (5 items),

Table 1. The Average, Standard Deviation and Correlation Coefficients of the Variables

Variables	M	SD	CR	AVE	1	2	3	4	5	6	7	8	9	10	11	12
1. Dynamism	3.20	0.87	0.82	0.55	(0.72)											
2. Munificence	4.28	0.55	0.84	0.57	0.21**	(0.75)										
3. Complexity	4.24	0.56	0.83	0.55	0.25**	0.49**	(0.73)									
4. Aggressive	3.23	1.06	0.88	0.59				(0.83)								
5. Defensive	4.36	0.55	0.83	0.55				0.01	(0.73)							
6. Future	4.28	0.61	0.84	0.57				0.29**	0.23**	(0.75)						
7. Analysis	4.32	0.49	0.89	0.63				0.20**	0.27**	0.51**	(0.84)					
8. Riskiness	3.40	0.68	0.90	0.73				0.38**	0.03	0.17**	0.16**	(0.86)				
9. Proactive	4.24	0.63	0.92	0.71				0.25**	0.25**	0.52**	0.68**	0.17**	(0.89)			
10. Operational	4.20	0.55	0.86	0.56										(0.80)		
11. Logistics	4.50	0.47	0.86	0.68										0.55**	(0.76)	
12. Financial	4.14	0.52	0.91	0.62										0.62**	0.53**	(0.87)

** $p < 0.05$, Values without asterisk; $p > 0.05$; M: Mean; SD: Standard Deviation. AVE: Average Variance Extracted. CR: Composite Reliability. Diagonals show the Cronbach's alphas.

munificence (6 items) and complexity (6 items) dimensions. The following statements is measured in the scale of environmental uncertainty variable. Environmental dynamism dimension is about rapid change of the actions of rival companies and the market, radical technological changes, the change of demand and consumer preferences. Environmental munificence dimension is about increasing demand, availability of investment and marketing opportunities, abundant (scarce) resources, continuing growth, and increasing investments. Environmental complexity dimension is about diversity of the number of competitors, the number of customers, supplies, equipment.

Strategic posture scale (α) .86 developed by Venkatraman (1989) consists of aggressive (4 items), defense (5 items), future (5 items), analysis (5 items), riskiness (4 items) and proactive (5 items) dimensions. The following statements is measured in the scale of strategic posture variable. Offensive strategy dimension is about firms sacrificing profitability, regulating the competitive price, and making price reductions. The defense strategy dimension is about improving the quality of existing services. The future strategy dimension is about being future-oriented rather than today and providing information about future customer needs. Analysis strategy dimension contains information focused on making innovations and making innovation decisions to be successful. The risk strategy dimension is about acting with caution and supporting only service activities that are considered to be successful. The proactive strategy dimension consists of questions that aim to be a pioneer in developing new services and to measure the focus on continuous opportunity research.

Organization performance scale (α) .87 developed by Ellinger and Ellinger (2002) consists of (12 items). In the organization performance scale, statements include questions to measure situations such as return on investments, customer satisfaction level, market share increase, net prof-

itability, net income, expenditures on technology and information processing, the average productivity per employee, number of qualified workforces.

Operational performance scale (α) .80 developed by Hayes and Wheelwright (1984) and later contributed by González-Benito and González-Benito (2005) consists of (6 items). Statements included in the operational performance scale; it consists of questions about adopting low price practice to attract new customers, acting with a high service quality understanding, developing new services, and providing timely deliveries and measuring reliability.

Logistics performance scale (α) .76 developed by Stank et al. (1999) and later contributed by Ellinger et al. (2000) consists of (5 items). Statements included in the logistic performance scale; it consists of questions about adopting reliability of delivery dates and product quantities, information transfer to the customer about delivery time, maintaining speed and order flexibility.

4. ANALYSIS AND RESULTS

4.1. Descriptive Statistics

We briefly present descriptive information of our data related to the companies and their managers. According to the results of the analysis, it was seen that the majority of companies operating in the TLS and participating in the research were in the Marmara region (70%) and the remaining ones (30%) were in other regions. According to these results, it was observed that the establishment of logistics companies participating in the research gained speed especially after the 1980s (39.8%) and continued at the same rate after 2000 (39.6%). The findings showed that about half (48.2%) of the logistics firms were large-scale firms. The people working as managers in these firms gave importance to specialization by training in logistics

(44.6%) and business (23.8%). The majority of the departments for which the managers were responsible were transportation, storage, shipping, delivery (49%), and the departments were operations, order processing, packaging, and customs clearance (41 %). The working managers were between 26-35 years old (48.2%) and 36-45 years old (34.9%). Majority of the managers working in these companies were male (84%). When the positions of the managers participating in the study were examined, it was seen that the managers were middle-level (45.3%) and high-level (33.5%) employees.

4.2. Validity, Reliability and Correlation Analysis Results Regarding Research Variables

Primarily, while starting the research, scales with high validity and reliability were preferred. Before proceeding to reliability analysis, explanatory factor analysis was applied to all scales by performing validity and dimensionality, sampling adequacy, and the correlation between variables. As a result of the explanatory factor analysis, the factorization matrices of all scales within the scope of the study were formed, and it was determined that they overlapped with the theory. Coefficient of reliability analysis, Cronbach's alpha results for SP, EC and FP are also presented in Table 1 as they help to determine the internal consistency of the constructs (Hair et al., 2014).

In order to determine the reliability of the main structures and dimensions Cronbach's Alpha (α), Average Variance Extracted (AVE) and Composite Reliability (CR) values, which values help determine the internal consistency of structures were calculated (Hair et al., 2014). The results of the reliability analysis of all scales are provided in Table 1, and it is seen from the table that the (α) values of the scales vary between 0.72 and 0.89. The obtained values are above the accepted limit (α = 0.70 - 0.80 and above) within the scope of Nunnally's (1978) rules and recommendations. According to Hair et al. (2014) AVE value; it is a summary measure of convergence between a set of items representing a hidden structure and the AVE value should not be less than 0.50. The obtained (AVE) values of the scales are between 0.55 and 0.73, and the fact that the results are 0.50 and above reveals that the scales have convergent and divergent validity. According to Hair et al., CR coefficient is the sum of the reliability of all measured variables. CR values of the scales range from 0.82 to 0.92, and the composite reliability coefficient value of 0.70 and above indicates that the structural validity and reliability of the related factor is provided (Fornell & Larker, 1981). CRs are higher than 0.8, and AVE is close to or higher than 0.6, suggesting a good internal consistency of measurement scales. In order to determine the structural validity, correlation analysis was performed by taking the mean of each variable among the items of the scale by using the available sample data. Correlation in Table 1 shows that all variables are positively and significantly related.

4.3. Confirmatory Factor Analysis (CFA) Results for Variables

Confirmatory factor analysis (CFA) was performed on all scales and the validity of the scales was tested. CFA was applied to the data obtained from the sample and the scale belonging to each variable. CFA analysis results for all scales are shown in Table 2. As shown in Table 2, the CFA compliance index values of all scales show the compatibility of the model and the data. CFA results show that the factors involved in each scale are suitable for structural equation modelling.

4.4. Test of the Research Model

The Structural Equation Modeling (SEM) enables the modeling of the relationships between a large number of dependent and independent variables. This method is entirely based on theory and acknowledges the existence of a causality structure among the set of implicit variables (Hair et al., 2014). IBM AMOS software was used to analyze the variables. In order to test hypotheses indicating relationships between variables, SEM models constitute. We created four models for testing the model (Fig. 2 and Table 3).

The models that are found to be appropriate in the results of CFA applied to scales were gradually added to the measurement model using the SEM method. The reason that the created models are gradually placed in the measurement model is to see the presence or absence of the indirect relationship, especially among variables. Using the SEM method, the hypotheses showing the relationships among variables were tested with the analyses made gradually. In this way, the research model fit was investigated. The path diagram in Figure 2 shows the SEM model which shows the mediating role of SP in the impact of EC on FP.

The fit indices of the structural model were tested, and the results (Table 3) provide support for the validity of the structural model. AMOS software was used to test the pathway analysis (Figure 2). χ2 (Chi-square), df (Degrees of Freedom), χ2/df (Chi-square/Degrees of Freedom), CFI (Comparative Fit Index), NFI (The Normed Fit Index), GFI (Goodness of Fit Index), RMR (Root Mean Square Residual), RMSEA (Root Mean Square Error of Approximation), AIC (Akaike Information Criterion) tests were used to find the pathway results. The χ2 goodness-of-fit statistic assesses the "magnitude of discrepancy between the sample and fitted covariance matrices, and it is the product of the sample size minus one and the minimum fitting function" (Hu and Bentler, 1999). Therefore, the results of χ2 = 2659.192, df = 1679, χ2/df = 1.584, CFI = 0.866, NFI = 0.707, GFI = 0.761, AGFI = 0.740, RMR = 0.043, RMSEA = 0.047, AIC: Suitable show that there is a relatively good fit between the hypothesized model and the observed data.

The SEM analysis results are seen in the research model in Figure 3, which gives the relationship between the variables. According to this results, in SEM Model 1, the direct effect of the independent variable of EC on the dependent

Table 2. Confirmatory Factor Analysis Results for All Scales

The Model Fit Criterion	Good Fit (GF)	Acceptable Compliance (AF)	EC Scale CFA		SP Scale CFA		FP Scale CFA — Operational Performance		FP Scale CFA — Logistics Performance		FP Scale CFA — Financial and Market Performance	
			MV	F	MV	F	MV	F	MV	F	MV	F
χ^2	$0\leq\chi^2\leq 2df$	$2df<\chi^2\leq3df$	126.84	GF	537.24	GF	7.19	GF	3.44	GF	119.31	GF
CMIN/DF	$0\leq$CMIN/DF≤2	$2<$CMIN/DF≤ 5	1.81	GF	1.91	GF	1.19	GF	1.14	GF	2.71	GF
CFI	$0.97\leq$CFI≤1.00	$0.95\leq$CFI<0.97	0.96	AF	0.95	AF	0.99	GF	0.99	GF	0.96	AF
NFI	$0.97\leq$NFI≤1.00	$0.95\leq$NFI<0.97	0.92	AF	0.90	AF	0.99	GF	0.99	GF	0.94	AF
GFI	$0.95\leq$GFI≤1.00	$0.90\leq$GFI<0.95	0.96	GF	0.92	AF	0.99	GF	0.99	GF	0.96	GF
AGFI	$0.90\leq$AGFI≤1.00	$0.85\leq$AGFI<0.90	0.94	GF	0.90	GF	0.98	GF	0.99	GF	0.92	GF
RMR	$0\leq$RMR≤0.05	$0.05<$SRMR≤0.10	0.03	GF	0.03	GF	0.01	GF	0.00	GF	0.02	GF
RMSEA	$0\leq$RMSEA≤0.05	$0.05<$RMSEA≤0.08	0.04	GF	0.04	GF	0.02	GF	0.01	GF	0.05	GF

variable of FP was examined. Analysis results show that EC significantly affect FP (β: 0.831, P <0.001). In SEM Model 2, the effect of the independent variable of EC on the mediating variable of SP was examined. Analysis results show that EC significantly affect the SP (β: 0.821, P <0.001). In SEM Model 3, the effect of the mediating variable of SP on the dependent variable of FP was examined. Analysis results show that SP significantly affects FP (β: 0.946, P <0.001).

In SEM Model-4, the effects and interactions of the inclusion of the mediator variable of SP on the impact of the EC formed by the H4 hypothesis on FP were investigated. The analysis results regarding direct effects showed that the EC significantly affect the mediating variable of SP (β: 0.811, P <0.001), and that the intermediary variable of SP significantly affects FP (β: 0.888, P 0.001). Among the analysis results of SEM Model 4, analysis results regarding indirect effects showed that the impact of EC on firm (β; 0.064, P>0.05) was eliminated as a result of the inclusion of the mediating variable of the SP in the model. Analysis findings show that the value of β decreased from 0.831 to 0.064 and that the P value changed from significant to insignificant in the relationship between the EC and FP.

To summarize, while the results of the SEM Model 1 analysis showed that EC has a significant effect on FP, this effect disappears by including the mediating variable of the SP in SEM Model 4. The disappearance of the effect and the presence of an indirect effect show that the SP has a full mediating effect on the effect of the EC on FP. Hypothesis test results are shown in Table 3.

According to Table 3 which shows the indirect analysis results, environmental circumstances have an impact on FP of environmental circumstances on FP through the mediation of the SP (β: 0.720, P <0.01). Thus, by confirming the existence of the full mediating effect of the SP variable, the H4 hypothesis "SP has a mediating effect in the relationship within EC on FP" was supported. It was determined that the impact of EC on FP is not direct but through the mediation of the SP. Given the impact of the mediating variable of SP, it was concluded that the direct impact of EC on firm performance is eliminated due to the indirect impact of SP (full mediation), and that the SP has a strong impact on FP. The findings show that companies in the TLS do not evaluate their environmental circumstances separately, successfully transfer the environmental impacts to their strategies, and have a meaningful impact on performance by adopting a SP that adapts to the environmental impacts.

Some of the leading researchers such as Andersen (2000, 2004), Bryson (2011), Hofer and Schendel (1978), Grant (2003), Eisenhardt and Sull (2001), Schendel and Hofer (1979), Wolf and Floyed (2017) stated in their studies they conducted on strategic planning processes that environmental analysis is a part of strategic planning. As stated by the researchers, it was seen that companies that operate in the TLS evaluate the circumstances of their en-
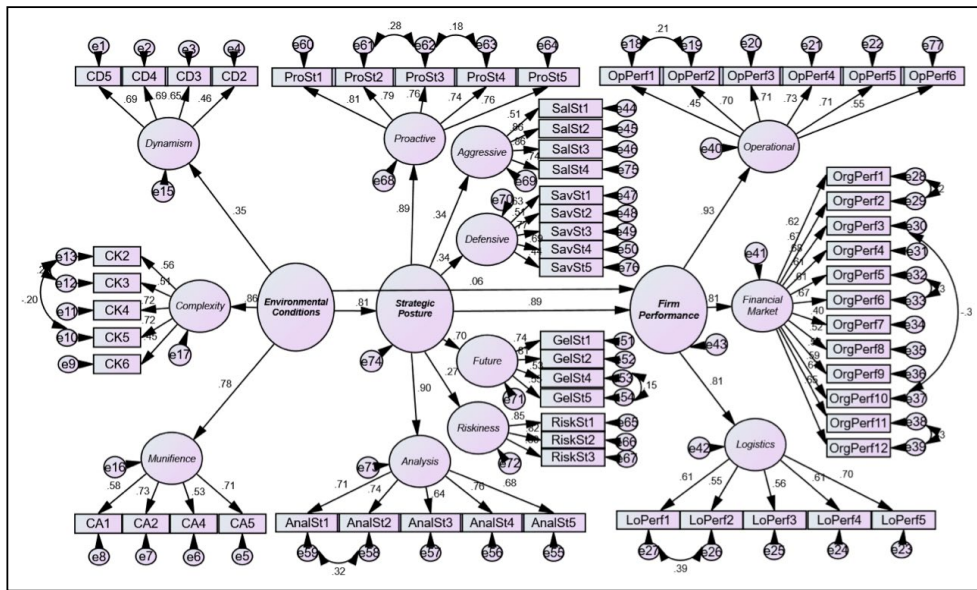
Figure 2. The Mediating Role of SP in the Relationship between the EC and FP SEM Model.
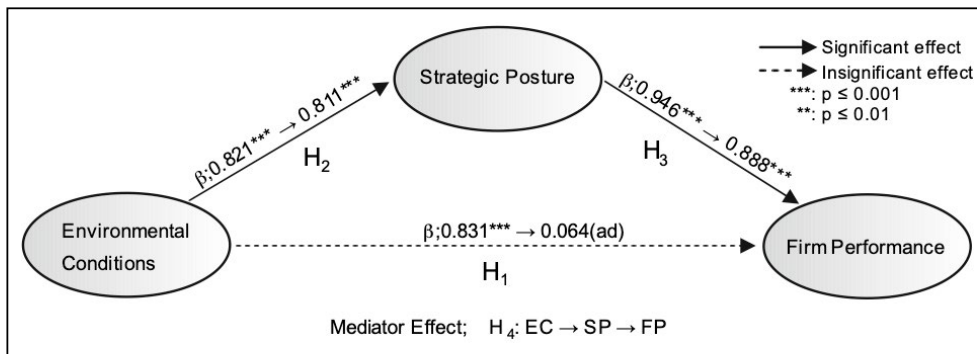

Figure 3. Research Model Results.

vironments very well in the strategic planning process and make appropriate environmentally sensitive strategic preferences by transferring their environmental impact to strategy selection and reflecting this situation on performance. The findings of the study showed that EC is not excluded by ignoring them, but that EC is an important part of strategic planning. It was determined that companies within the scope of the research included the EC in the strategic planning process in a way that adapted their companies.

5. CONCLUSION AND RECOMMENDATIONS

In the literature, there are limited number of empirical studies that examine the relationship between a company's EC, SP and performance. Previous studies have different results in different countries and regions, particularly in the manufacturing and production sectors. This situation has led to ongoing discussions. The results of studies conducted by researchers such as Desarbo et al. (2005), McArthur and Nystrom (1991), Morgan and Strong (2003) show that

there is a meaningful relationship between EC-SP-FP variables. Studies conducted by researchers such as Chi (2015), Dollinger and Golden (1992), Yu et al. (2016) used the same variables, and the results of those studies showed that strategic responses given according to the environmental impacts of companies differ according to high or low performance.

This study was carried out by expanding the research we previously conducted in the Marmara region and using the same variables in order to research their impacts on the whole logistics sector in Turkey. Thus, it is thought that the study carried out is considered evidence in terms of clarifying the interaction of the relations between the sectors and the structures. The study was carried out by increasing the number of samples within the scope of the TLS by collecting new data on the data previously obtained from the Marmara Region.

In conclusion; in our research, the answer to the question, "Is environmental uncertainty interacting with strategies as common determinants of FP?" or "Are EC and stra-

Table 3. The Results of the Hypothesis Test

Hypothesis	Independent Variable	Dependent Variable	Model 1	Model 2	Model 3	Model 4	Supported/ Unsupported
	Relationships		**Path Value** Standardized ß				**Conclusion**
H_1	EC	FP	0.831***				Supported
	EC	Financial and Market	0.700**				
		Operational	0.711**				
		Logistics	0.655**				
H_{1a}	Munificence	Financial and Market	-0.264**				Supported
		Operational	-0.697***				
		Logistics	-0.865***				
H_{1b}	Dynamism	Financial and Market	-0.111(ad)				Partially
		Operational	-0.124(ad)				Supported
		Logistics	-0.223**				
H_{1c}	Complexity	Financial and Market	1.060***				Supported
		Operational	1.439***				
		Logistics	1.464***				
H_2	EC	SP		0.821***			Supported
	EC	Proactive		0.719**			
		Aggressive		0.258**			
		Defensive		0.282*			
		Future		0.574**			
		Risk		0.203**			
		Analysis		0.727**			
H_{2a}	Munificence	Proactive		-1.260***			Partially
		Aggressive		-0.344(ad)			Supported
		Defensive		-0.637**			
		Future		-1.063***			
		Risk		-0.091(ad)			
		Analysis		-1.194***			
H_{2b}	Dynamism	Proactive		-0.318**			Partially
		Aggressive		0.321***			Supported
		Defensive		-0.198**			
		Future		-0.195(ad)			
		Risk		0.426***			
		Analysis		-0.269**			
H_{2c}	Complexity	Proactive		2.059***			Partially
		Aggressive		0.497**			Supported
		Defensive		0.948***			
		Future		1.664***			
		Risk		0.182(ad)			
		Analysis		1.986***			
H_3	SP	FP			0.946***		Supported
	SP	Financial and Market			0.752**		Supported
		Operational			0.887**		
		Logistics			0.688**		
H_{3a}	Proactive	Financial and Market			0.249**		Partially
		Operational			0.375***		Supported
		Logistics			-0.031(ad)		

Table 3. CONT.

	Relationships		Path Value Standardized ß				Conclusion
Hypothesis	**Independent Variable**	**Dependent Variable**	**Model 1**	**Model 2**	**Model 3**	**Model 4**	**Supported/ Unsupported**
H_{3b}	Aggressive	Financial and Market			0.132**		Supported
		Operational			0.108*		
		Logistics			-0.111**		
H_{3c}	Defensive	Financial and Market			0.003(ad)		Not supported
		Operational			0.042(ad)		
		Logistics			0.045(ad)		
H_{3d}	Future	Financial and Market			0.072(ad)		Partially
		Operational			0.171**		Supported
		Logistics			0.368***		
H_{3e}	Risk	Financial and Market			0.055(ad)		Partially
		Operational			0.131**		Supported
		Logistics			0.076(ad)		
H_{3f}	Analysis	Financial and Market			0.387***		Supported
		Operational			0.309***		
		Logistics			0.434***		
H_4 Direct Effects							
H_4	EC	FP				0.064(ad)	The coefficient decreased and became insignificant.
	EC	SP				0.811***	Significant
	EC	Proactive				0.723**	
		Aggressive				0.274*	
		Defensive				0.273*	
		Future				0.567*	
		Risk				0.223(ad)	
		Analysis				0.728**	
	SP	FP				0.888***	Significant
	SP	Financial and Market				0.720**	
		Operational				0.826**	
		Logistics				0.722**	

H_4 Indirect Effects

Hypothesis	**Independent Variable**	**Mediator Variable**	**Dependent Variable**	**Model 1-2-3**	**Model 4**	**Supported/ Unsupported**
H_4	EC	SP	FP		0.720**	Supported- Full Mediator
H_{4a}	Munificence	SP Dimensions	Financial and Market		0.974**	Supported-
			Operational		1.088**	Full Mediator
			Logistics		0.880**	
H_{4b}	Dynamism	SP Dimensions	Financial and Market		-0.109(ad)	Not Supported-
			Operational		-0.104(ad)	No Mediation
			Logistics		-0.094(ad)	
H_{4c}	Complexity	SP Dimensions	Financial and Market		-0.327*	Supported-
			Operational		-0.379*	Full Mediator
			Logistics		-0.331*	

$\chi2$ = 2659.192, df = 1679 $\chi2$/df = 1.584, CFI = 0.866, NFI = 0.707, GFI = 0.761, AGFI = 0.740, RMR = 0.043, RMSEA = 0.047, AIC = Suitable, R2 = 0.851. Path coefficients are standardized. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, ad; $p > 0.05$.

tegic selection assessments carried out separately without the interaction of the common determinants of FP?" was sought for. The results show that EC has an impact on FP through the mediation of a SP. It was determined that the impact of EC on FP is not direct but through the full mediation of the SP variable. This shows that companies do not evaluate their EC separately, they evaluate the effects of the external environment very well during the strategic planning process, and they are able to reflect the effects of the environment on the strategy. In this way, the results show that companies have a significant impact on performance by adopting a SP that fits environmental impacts. The results also show that companies can achieve higher performance indicators by choosing "analysis, proactive, aggressive and future-oriented" strategies that match their environmental impact. It was found that this research differs from the research we did for the Marmara region before; in addition to adopting analysis, proactive and aggressive strategies, companies have also tended to adopt a future strategy and to be future-oriented.

The research supports the work that shows the EC, SP and impacts on FP of logistics companies registered in the International Transport and Logistics Service Producers Association and the International Transporters Association, which have been operating in the Marmara region of Turkey. The research results show that SP plays a full mediating role in the impact of environmental uncertainty of the TLS on FP. Thus, the findings obtained from the analysis are considered evidence. The findings in the literature obtained by Bae (2017), Bedi and Puri (2019), Cannella et al. (2008), Chi (2015), Covin and Healey (2000), Desarbo et al. (2005), Dollinger and Golden (1992), Eker and Eker (2019), Goll and Rasheed (2004), Guo et al. (2020), Hsiao and Wu (2020), McArthur and Nystrom (1991), Jacobsen and Johnsen (2020), Rajagopalan et al. (1993), Sarkar et al. (2016), Sabherwal et al. (2019), Snow and Hrebiniak (1980), Tan (2002), Talke (2007), Yu et al. (2016), Zajac et al. (2000), Zimmermann et al. (2020) support our findings.

To summarize, the research model was empirically confirmed for the second time. Apart from the hypothesis that belongs to environmental dynamism and shows the indirect relationship, all other hypotheses were partially or fully supported. Among environmental circumstances, environmental munificence and environmental complexity have a statistically significant effect on SP and FP. Although it was seen that environmental dynamism significantly affects SP, it was concluded that it had no significant effect on the indirect relationship. The literature shows that environmental dynamism circumstances mostly have a positive effect on production and the performance of small-scale companies. Another important finding among the results of the literature is that the effects of environmental dynamism on performance in environments with intense strategic diversity are reduced. As a result, it is seen that a SP creates positive effects on performance, and it is considered as a significant determinant of performance and an important complement of performance.

Our advice to managers is that in order to evaluate the external validity of the findings obtained as a result of this research, it is recommended that they apply them in their companies. In addition, it is recommended to ensure the participation of experienced senior managers, strategists or consultants who can understand the current situation and predict the future situation in terms of the strategic planning phase, and are engaged in strategy formulation, and evaluate internal EC as well as external EC in line with their opinions and suggestions. In this way, it is thought that it will be beneficial to create effective strategic business planning by making strategic choices that match the environmental impacts. We would like to emphasize that, in uncertain situations, we propose that by developing contingency theories, it will be beneficial to be cautious despite the dominance of the effects of complexity and dynamism as well as environmental munificence and to prepare alternative scenarios in order to make strategic choices that fit these effects. To express this more clearly, managers should understand the environment of their companies and be sensitive to it. However, many factors such as rapid technological development, the globalization of products and competition and the unlimited changes in the demands of consumers create conditions of increasing dynamism and complexity. In order to achieve success and achieve higher performance under these challenging conditions, it is recommended that managers change their strategies completely and take steps accordingly, instead of only making minor changes and adjustments. Obviously, managers are recommended to consider the effects of three EC and make strategic choices appropriate to these effects.

Our recommendations to academicians and researchers are to add not only the environmental munificence conditions but also the complexity and dynamism conditions to their current studies and future projects by considering the results of this research into account. Instead of establishing a model or research that includes absolute truths, studies should consider these new views based on the findings that many variables such as shortening of time, uncertainties and unexpected situations and product life cycles can affect the performance of the company.

Finally, our recommendation for the sector is that the exchange of information and ideas between managers and academics will accelerate sectoral development, and an effort should be made to ensure this. It is also recommended that the logistics sector should be careful when connecting with other service sectors and not only in the logistics industry but also in different industries through outsourcing, as well as arrangements to ensure organizational compliance that leads to performance improvement.

5.1. Discussion

The research sought the answers to the question of how the TLS interacts with the environmental circumstances, SP and performance. According to the results obtained, we can see the change in especially EC of logistics companies operating in the service sector through β values. It was found that the EC of the TLS had a similar ranking as in our previous study and that there was a change in β values. The EC of the TLS primarily shows environmental munificence, which expresses the abundance of resources, and the environmental complexity which expresses the number and variety of components in the environment. This change in the values of β indicates that the environmental munificence, which expresses environmental abundance, is directed towards a scarcity in which resources are not abundant enough, and that the number of the components in the environmental complexity, which expresses the number of components in the environment, tends to increase. Our previous study showed that the environmental dynamism circumstances, which express the instability in the environment, were not statistically significant in determining the EC of the TLS. The level of dynamism circumstances of the environmental uncertainties of the TLS can be further detailed in future researches and thus its effects can be studied. In this way, statistical results can be obtained more clearly.

The current business environment of companies is much more variable and dynamic than in the past. The most important reasons for this are (1) the destructive violence of competition and (2) the fact that firms are now turning to an international economic perspective rather than a national economy. Undoubtedly, it should not be forgotten that the trigger factor of this situation has a strong relationship with performance enhancement and expanding the marketplace. It is obvious that companies and managers struggle to be the side that stands strong in destructive competitive conditions. Managers are a guide for companies to succeed in the competition; however, they should have directional and educational aspects in showing the right direction and offering alternatives.

5.2. Limitations and Future Lines of Research

Although the hypotheses of the study are supported, this study has some limitations. It is thought that by removing the limitations of the study, it will contribute more to the literature, management practices and practitioners. First, our data is derived from a specific industry, which limits statistical power. Second, this study used cross-sectional data. As a result, we are unable to confirm causality, although the findings may reflect relationships that would be observed under causal conditions. In order to verify causality, data must be collected over a longer period, in other words, the sector must be monitored longitudinally.

For the future research, the following questions are suggested: (1) How successful are companies in transferring the effects of the external environment to the internal envi-ronment and can they reflect this situation to their strategic planning processes? (2) Do companies use their resources and capabilities effectively to perceive environmental conditions correctly and make appropriate strategic choices? (3) Do managers get enough support from their employees to achieve this? (4) Is this a team work or should the managers perform the whole process alone?

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