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Empirical Paper

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Identification of factors affecting competitive tension in the domestic air transport market in Turkey[1]

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Abstract: Competitive tension refers to pressure that is considered to exist among firms operating in a competitive market and that forces them to take competitive action against each other. An imaginary upper limit of competitive tension symbolizes the difference between whether to take competitive action or not. The antecedents of competitive tension are examined in this study. Within this scope, market commonality and resource similarity are the variables studied as components of competitor analysis; market concentration that provides clues for the competitive structure of competed markets; and finally, competitive asymmetry, presuming that the competition among the companies is not equal and rivals do not consider each other at the same level as competing firms, were taken as primary variables of competitive tension. In order to test whether these variables have an effect on competitive tension among airlines, airlines operating in the domestic air transport market in Turkey were examined in this study. The perceived competitive tension that was detected as a result of regression analyses was studied on three different dimensions, namely, internal tension, external tension, and total tension, and each dimension was analyzed as a different model. The findings of the study revealed that market commonality and market concentration have a significant effect on competitive tension. These effects were found to be positive for market commonality and negative for market concentration. Resource similarity and competitive asymmetry were found to have no significant effect.

Keywords: strategic management, competition, competitive dynamics, perceived competitive tension, rival analysis
JEL Classification: L13, L25, L93

1 Introduction

Rivals and competition are the focus of strategic management [Weigl, 2008, p. 19; Chen and Miller, 2012, p. 4]. Therefore, the analysis of both rivals and competitive behavior among rivals has an important role in the success of strategic management [Porter, 1996, p. 64]. Besides knowing them independently, being aware of how they interact together, simultaneously, is of great importance for successful strategic management. Understanding competitive behavior is dependent on effective analysis of rivals [Bergen and Peteraf, 2002, p. 157]. The hypothesis suggested by Chen [1996], stating that, "each firm has a market profile and resource

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structure peculiar to its dynamics", brought the approach of examining competition in the real market and in the context of rival dyads to the agenda. However, looking at competition in industry through Porter's Five Forces model [Porter, 1980] makes it difficult to truly understand and describe competition among rival dyads in the real market. On the other hand, within the scope of the classical strategic management literature, it is not true to suppose that there is equality in the competition among rival firms [Chen and Miller, 2012, p. 8]. Since market commonality and resource similarities of rival dyads might appear at different points, there exists competitive asymmetry [Chen, 1996, p. 116; Más-Ruiz et al., 2005, p. 717; DeSarbo et al., 2006, p. 103]. Competitive dynamics has not considered competition from an overall perspective at the industry level. Instead, it has brought a different perspective to the classical understanding of competition peculiar to rival dyads based on competition in real markets.

As Chen [1996] pointed out, competitor analysis can be carried out with objective criteria, such as market commonality and resource similarity, as well as with subjective tools that involve the perceptions of managers and industry stakeholders. In this context, there is also competitive tension between firms, seen as a result of the overlapping between markets and resources, which leads to competitive actions between firms. Competitive tension can be defined as a tension-based situation that may result from the attacks of a target firm against its rival in their mutual competition [Gündüz, 2013, p. 554].

The airline industry is an industry that has severe competition both in domestic routes and on the global scale [Cento, 2009, p. 13]. In addition to this, the airline market is known to have an oligopolistic structure [Hanlon, 2007, p. 67]. An approach that can reveal the competitive dynamics of a few airlines that compete in real city pair markets will contribute to the Positioning School and the Resource-based Approach. Moreover, being able to make such rival and competitive analyses will doubtlessly affect the success of airlines. Therefore, the airline industry has been a research area for competitive dynamics involving competition through moves and retaliation on the basis of rival dyads in genuine markets.

The domestic air transport market was totally liberalized in 2003 in Turkey [Orhan and Gerede, 2013, p. 45]. As a result, the number of companies operating domestic routes increased, and this caused competition to increase [Dursun et al., 2014, p. 108; Gerede and Orhan, 2015, p. 189]. However, the number of scientific studies on competition in the Turkish domestic air transport market remains limited [Yaşar and Gerede, 2018, p. 172]. Within this framework, whether the hypotheses suggested by the literature on competition dynamics are valid for the Turkish domestic air transport market, and the effect of common markets and resources on the perception of competition, is relatively unknown. Moreover, there is not enough empirical evidence on the extent to which different market structures affect competitive tension. Another point that is worth studying is whether competitive asymmetry influences perceived tension among airlines.

Within this framework, competitive tension and the components that are seen as its antecedents are examined through a model developed in the context of the Turkish domestic air transport market. Focusing on the antecedents of competitive tension, this study analyzes the relationship between market commonality, resource similarity, market concentration, and competitive asymmetry variables, as well as competitive perceptions of internal and external stakeholders on the basis of rival dyads. Market structures and competitive asymmetry are also included in the model in the study, unlike previous studies. Market structures are examined on a market basis, whereas competitive asymmetry is examined on an airline duo basis.

2 Theory and literature review

2.1 Competitive dynamics theory

Several major approaches have emerged and become effective in the field of strategic management since the early 1980s. Among these are the resource-based view [Barney, 1991], the dynamic capabilities perspective [Teece et al., 1997], industrial structure [Porter, 1980], strategic groups and configurations [Cool and Schendel, 1987; Miller, 1996], game theory [Osborne and Rubinstein, 1994], network theory [Tsai, 2002], and population ecology [Freeman et al., 1983]. Unlike the above-mentioned approaches, studies regarding

competitive dynamics that appeared during these years are provided [MacMillan et al., 1985; Bettis and Weeks, 1987; Smith et al., 1989; Chen and MacMillan, 1992; Baum and Korn, 1996; Chen and Miller, 2012, p. 3]:

- An approach on understanding the actions of firms when they encounter a rival.
- The examination of measurable actions in the context of real markets.
- An examination of interactions among the rivals, focusing not only on moves but also on responses to those moves.

Because of the above-listed characteristics of competitive dynamics, the abstractness that was observed in the area of strategic management has disappeared. Moreover, Porter, who is one of the founders of the Positioning School, proposed the Five Forces model, which is still used today. In contrast, competitive dynamics has the following features:

- Competitive dynamics considers the competition as a dynamic and interactive process.
- While analyzing, competitive dynamics reaches real markets and analyzes competitive action (at the action level) of (micro)firms.

As in other strategic management areas, competitive dynamics studies also seek answers to some basic questions. Some of these are listed below [Chen and Miller, 2012, p. 4]:

- Why do the firms try to compete in particular ways?
- How do the firms interact while they are competing?
- How does the competitive behavior of firms influence organizational performance?

Studies regarding competitive dynamics differ from traditional approaches in one particular aspect, and this aspect makes competitive dynamics almost unique in this respect. Studies of competitive dynamics examine the actions that help firms gain a competitive advantage in real markets and the reaction to these actions.

Furthermore, a competitive dynamics approach suggests that, unlike the Five Forces Model, the interaction between firms is asymmetric. In other words, two firms consider each other from different perspectives in terms of competition. Competitive strategies are identified by the action and reaction repertoires of firms rather than Porter's generic strategies [Chen and Miller, 2012, p. 69]. While the Positioning School describes strategy as the positions taken in the market [Porter, 1980; 1985], competitive dynamics deals with what the firm does in the position it takes in the market.

Research on competitive dynamics tries to build a bridge among the disciplines. However, claiming that this has not happened yet, this study proposes a new model that shapes the framework for this bridge [Chen and Miller, 2012, p. 4]. This competitive interaction model, called Awareness–Motivation–Capability (AMC), is shown in Figure 1.

According to the model demonstrated in Figure 1, the firms (attacker or responder) conducting rival analyses are expected to be aware of the actions and reactions of their rivals in the competitive market before they take action (awareness); to have motivation to take action (motivation); and to have the capability to succeed in this. The firm is likely to encounter certain handicaps without awareness. The firm might either miss an opportunity that could provide it with a competitive advantage or it will be unprepared for possible action. In addition, the firm also needs to be motivated to take action. Motivation includes the subjective encouragement the firm perceives (gains it will have in the market) prior to its actions or reactions to a move [Albers and Heuermann, 2012, p. 9]. In order to be in competitive interactions, the firm is supposed to have suitable resources and basic capabilities for indulging in this. In the AMC model, a firm that is aware of the situation is motivated to take action and, if capable of doing this, will either take action to receive the above-average profit it notices in the market and take advantage of being the first in the market [Gal-Or, 1985; Lieberman and Montgomery, 1988] or it will respond to a competitive move made by another firm in order not to lose its own market share or even its position.

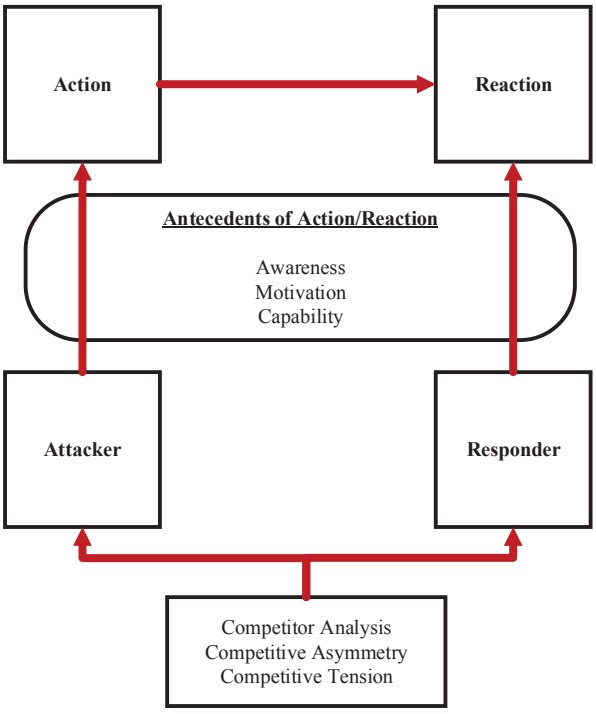

Figure 1. Competitive interaction model.
Source: Chen and Miller, 2012, p. 71.

2.2 Interfirm rivalry and competitor analysis

Unlike the AMC model, as seen in Figure 2, firms in the marketplace primarily undertake rival analysis and, as a result of this analysis, their awareness is shaped in the Interfirm Rivalry Model. The model variables that are indicative of the firm taking action are the advantages that the firm has for being the aggressor or the effect of factors such as the size of the firm (from an aggressor's position). As for the responder's position, the type of move that it is exposed to and the responder's dependence on the market – in other words, whether its loss of market will cause a deformation or not – are effective [Smith et al., 2001, p. 29]. As a follow-up model of the AMC Model, the model can be used to guess rivals' moves and to reduce uncertainty by firms. Being able to guess the moves of rivals will contribute positively to achieving an advantageous market position and to reaching a profitable financial performance, which are the outcomes of the model.

As the strategy part starts dealing with firm-specific factors that contribute to the competitive advantage more gradually, the target firm feels the need to analyze its rivals and to predict the competition and interaction between rival dyads [Chang and Xu, 2008, p. 497]. A contribution that meets those needs is the study by Chen [1996], called Competitor Analysis and Interfirm Rivalry. In this study, Chen [1996] uses market commonality and resource similarity in competitor analyses and provides theoretical integration. As a result, he has developed a model to help firms identify their most serious rivals and to guess their moves.

Competitor analysis is the first step in analyzing competition at a rival-dyad level [Ireland et al., 2011, p. 121]. In this way, it is possible to identify a rival or rivals that the firm competes against, and a firm's awareness and motivation either increases or decreases after this analysis [Chen, 1996, p. 114; Markman et al., 2009, p. 433; Chen and Miller, 2012, p. 177]. Increased or decreased awareness and motivation play a decisive role in the actions and reactions of firms [Chen et al., 2007, p. 104]. Competitor analysis, which helps to identify rivals, is conducted in two dimensions. The first one is market commonality, which measures the degree of similarity of the common markets that the firms compete in; and the other one is resource similarity, which reveals the degree of similarity of resources that the firms have [Chen, 1996, p. 105; Pei et al., 2015, p. 86].

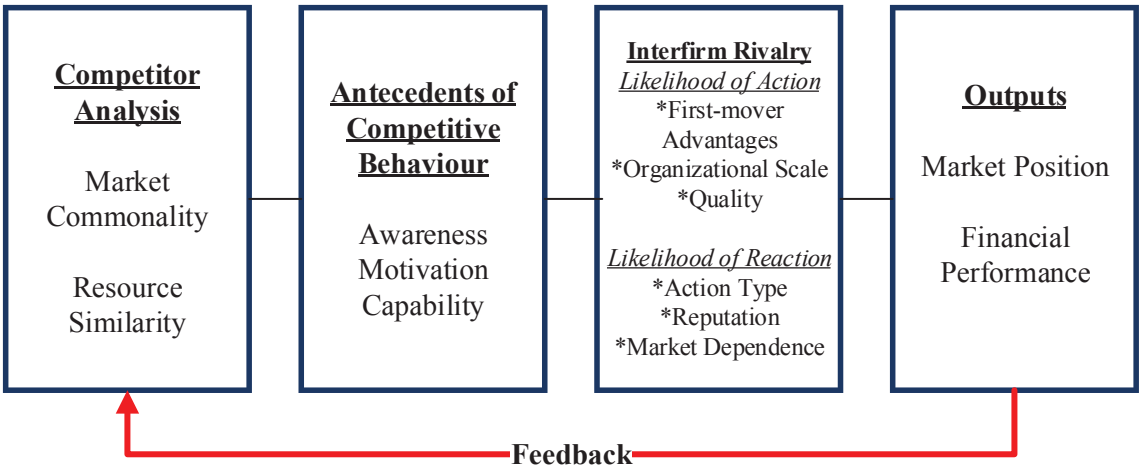

Figure 2. Interfirm rivalry model.
Source: Chen, 1996, p. 111.

Each firm is unique in terms of its own resource structure and customers, the value it holds for its customers and business, the characteristics of customers and target audience, and existing and potential rivals (market profile). For this reason, analyzing the firms in the market in terms of resources and market profiles will help in predicting possible attacks and counterattacks in the market, in addition to helping us to understand where those possible attacks might come from. Considering these benefits, conducting an efficient competitor analysis is of utmost important for the success of a firm [Chen, 1996, p. 106].

Market commonality is a concept regarded at a firm pair level within the perspective of each firm [Chen, 1996, p. 101]. An increase in market commonality among the firms increases competitive tension as well. This is because encountering rivals in critically important market and/or markets [even if they do not tend to attack] will increase the tension on executives and stakeholders, and perceived tension will increase in this respect [Chen et al., 2007, p. 109].

Resource similarity stands for the degree of similarity between the resources of two firms operating in the competitive market in terms of the type and amount of abstract and concrete resources. Firms having the same type and amount of resources are likely to have similar strengths and weaknesses, and they use similar strategies [Chen, 1996, p. 107; Ireland et al., 2011, p. 122]. As for companies that have dissimilar resources, they will have distinctive competitive repertoires due to the differences in strategic resources [Chen, 1996, p. 107]. It is important to understand the concept of resource similarity in gaining competitive advantage as resources provide a firm with a basic orientation in terms of shaping its long-term strategies; moreover, it appears to be a significant component in making profit [Grant, 1991, p. 116]. If the firm does not have enough resources to gain competitive advantage in the market, it will not be able to attack, or its attacks will remain weak [Teece et al., 1997, p. 514]. The most important resource that airline companies have is, undoubtedly, airplanes. Considering the issue from the aspect of a rival pair, when an airline enters a new market or when it increases the frequency of an existing route, the reaction of a rival airline to this attack depends on its being convenient in terms of type (plane type) and amount (number of planes) of the resources that it has (planes).

2.3 Competitive asymmetry and competitive tension

Asymmetric competition, which can also be defined as a one-way competition [Weiner 1990], refers to the circumstance of rival companies not approaching each other with an equal perception of competition [Tversky, 1977, p. 327; Chen, 1996, p. 116]. Chen [1996] conducted rival analysis in his study and found that the target firm considered the rival that had the highest market commonality as its primary competitor. He conducted analyses for each rival dyad and found that competition between rival dyads was asymmetric.

In other words, while Airline A has the highest market commonality with Airline B, and while Airline B is the primary competitor for Airline A, the primary competitor for Airline B appears to be Airline C, which has the highest market commonality with Airline B.

The importance of competition asymmetry appears in estimation of the competitive actions and reactions of airlines. While conducting its action, Airline A may consider Airline B and perhaps it will not make any move. On the contrary, Airline B may make its competitive moves considering another airline more. Even Airline B is likely to ignore an attack that comes from Airline A.

Competitive tension is a hidden tension that gets rivals into trouble and leads to the creation of a breaking point. In other words, tension is an energy accumulation that will force firms into hostile behavior and start a competition war. Competitive tension can be defined as a tension situation that may result from the attacks of a target firm against its rival in the competition between these firms [Gündüz, 2013, p. 554]. Tension that gradually increases between competing firms prior to their competitive action will finally force them into competition wars. The breaking point functions as a milestone of this war. Tension defines the conditions in which static relations among the firms evolve into dynamic behavioral changes (actions and reactions) [Gündüz, 2012, pp. 72–73]. Static relations refer to the potential of tension turning into action.

Perceived competitive tension, as one of the two aspects of competitive tension, deals with the topic of which firm considers which firm as its rival from the perspective of executives and external stakeholders among certain identified rivals. Objective structural tension deals with the market conditions (market commonality and multiple market relations) of rivals. Perceived competitive tension is an important factor in the decisions made by external stakeholders, including executives, consultants, and financial analysts, based on their perceptions of competitive tension in terms of whether to compete against a rival or not [Chen et al., 2007, p. 103]. This is because it is important to understand the perceptions of a rival and/or rivals toward a firm and to know what the possible threats and opportunities are. This will help the firm initiate the necessary attacks to reach a superior position against its rivals [Gündüz, 2013, p. 554].

If the tension that a firm feels against its rival is high, the firm will either try to gain competitive advantage or will start a move against its rival to regain an advantage it has lost against it. In this way, it will try to decrease the tension created by the rival. Conversely, if the tension is low, the possibility of the firm starting the attack will be relatively less. Such a situation also forces firms into ongoing competition [Gündüz and Semerciöz, 2012, p. 31]. Within this framework, the existence of competitive tension in interfirm competition becomes important as tension implies the last moments of a static situation that exists prior to competitive action.

2.4 Previous studies

Examining the studies conducted on the airline industry in the literature of competitive dynamics, it can be seen that early studies focus on the moves and countermoves of airlines [Smith et al., 1991; Chen and MacMillan, 1992; Chen et al., 1992, Chen and Miller, 1994; Miller and Chen, 1994; Chen and Hambrick, 1995; Miller and Chen, 1996]. The following studies focus on multiple market relations that include confrontation in more than one market simultaneously [Evans and Kessides, 1994; Baum and Korn, 1996, 1999; Gimeno and Woo, 1996; Young et al., 2000]. These studies examine the connection between multiple market relations and certain components, including strategic and tactical moves, ticket pricing, and market entry and exit.

The above-mentioned studies are seen to only use secondary data sources. For this reason, not having the opinions of executives who make decisions regarding the commencement of moves under competitive conditions has caused the studies focusing on competitive dynamics to be restricted by a limited framework. Regarding this lack, Chen et al. [2007, p. 101] state that researchers conduct their studies based only on observable market data or certain structural variables and that the perceptual dimension of competition among firms has been ignored. Within this context, these researchers find that there are a number of antecedents forcing airlines to make certain moves and countermoves, bringing the subject of competitive

tension, which is the tension that firms feel against rivals and which forces them to take competitive action, into the literature of competitive dynamics. In this way, the human factor has been included in competitive dynamics studies. Chen et al. [2007] have studied the relationship between the three primary antecedents, viz., relative scale, attack volume of rivals, and the capability to compete, of rivals. These are thought to affect competitive tension and the severity of action performed against a rival as a result of competitive tension. On the other hand, Gündüz and Semerciöz [2012] examine the antecedents and results of perceived competitive tension on a model in Turkey and focus on the relationship between competitive tension and strategic innovation. In another study, focusing on the results of competitive tension, Gündüz [2013] evaluates the moderate effect of competitive tension in the context of the Turkish domestic air transport market.

The limited number of studies conducted on competitive tension shows that a number of cognitive processes take place before airlines commence competitive action in the market place. The subject of competitive tension focuses on the human component of the process and provides us with the antecedents and results of the perceived tension.

Unlike the studies by Chen [2007], Gündüz and Semercioz [2012] and Gündüz [2013], market concentration and competitive asymmetry components were added to the dimensions of competitive tension, which are considered to be determinant in this study. In addition, the data collection tool used in previous research has been modified in order to make the measurement more reliable during the process of obtaining data on competitive tension. The differences are as follows: (1) the utilization of scoring instead of ranking scale; (2) the same score can be awarded to more than one competitor, considering the probability that two companies will be seen as competitors to the same extent; and (3) the companies that are not considered competitors are also subjected to an evaluation.

3 Methodology

3.1 Research setting

The aim of this study is to identify the interaction among various variables to find out the competitive tension indicators in the context of Turkey and, a relational screening model has been used to achieve this. There are a number of objective antecedents to detect competitive tension. As can be seen in Figure 3, a research model has been developed to find whether there is any significant relationship between four variables that are thought to provide convenience to firms, in terms of estimating perceived tension between them and perceived competitive tension.

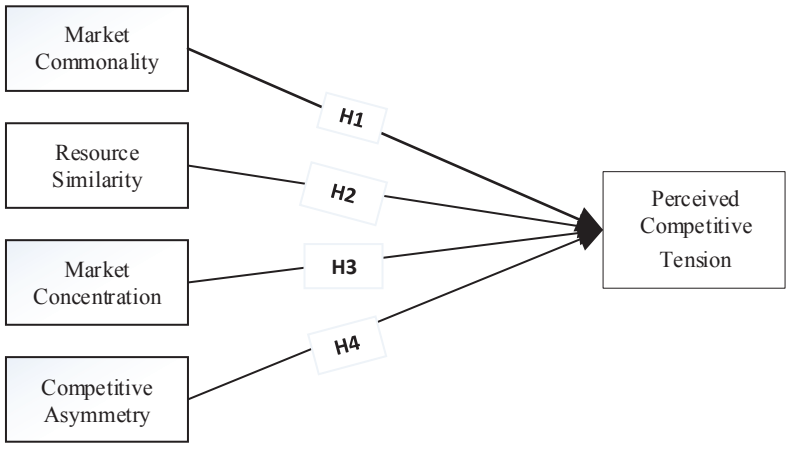

Figure 3. Research model.

3.2 Hypotheses

Four hypotheses have been identified within the light of the relevant literature in order to achieve the aims of the study.

Market commonality indicates the overlapping degree of the target firm and its rival in the market within which they operate simultaneously [Chen, 1996; Chen et al., 2007; Upson et al., 2011; Chen and Miller, 2012, p. 22]. The increase in market commonality with rivals affects the awareness and motivation level of firms. Awareness and motivation appear as components that affect the perspectives of firms toward each other in terms of both competition and considering each other as rivals [Chen and Miller, 2012, p. 23] since awareness comprises perception and motivation is directed by perceptions. If executives are unaware of the advantage or threat in the marketplace, they will not be in competitive action even if they are talented enough to take action [Chen and Miller, 2012, p. 27]. Market commonality indicates the degree of existence of firms, which confront in one or more than one market, in each other's markets. Since operating in the same market will force firms to take a greater share from the same cake, they will occasionally confront and be in hot contact, and the degree of feeling the existence of a rival in the market will affect the tension between the firms. Such a situation will also increase the competitive tension between the firms. Deriving from the above-mentioned information, the first hypothesis of this study aims to question the existence of the relationship between the market commonality of firms and competitive tension.

H1: The increase in market commonality between rival dyads increases the perceived competitive tension between them.

Resources are important identifying factors in terms of the competitive talents of firms. A firm that plans to attack or counterattack will make its moves considering its resources and talents. Firms having similar resources are less motivated in terms of conducting competitive moves against each other. Each firm has its own market profile and strategic resources [Chen, 1996]. Chen and Miller [2012, p. 22] state that comparing firms in terms of rival dyads regarding the market and resources would help to identify tension between dyads and to estimate their behavior in the marketplace. A degree of similarity of resources affects the competitive tension between two rivals in a competitive marketplace as rivals with similar resources are likely (i) to apply similar strategies and competitive moves, and (ii) to have similar competitive repertoire of actions [Miller and Chen, 1996, p. 420; Ferrier and Lyon, 2004, p. 320; Chen et al., 2007, pp.105–106]. When one of the two firms with similar resources starts an action, it will not take long for the other one to react [Chen, 1996, p. 115]. Therefore, the perceived tension between rivals with similar resources and talents will be high before a possible competitive war. Resource similarity becomes effective in the competitive perception of firms as well as due to the reasons explained earlier in this context. The second hypothesis of the study concerns the existence of a relationship between resource similarity and the perceived competitive tension that the firms have.

H2: The increase in degree of similarity of resources between rival dyads also increases perceived competitive tension between the dyads.

Market concentration is an economic term used to express the phenomenon whereby a limited number of firms dominate the majority of the market. An increase in the market concentration means that a few firms dominate the whole market [Shim, 2017, p. 569]. As a result, there is an inverse relationship between market concentration and competition. In markets with high concentration, firms tend to start competitive moves less as they dominate the majority of the market [Doukas and Switzer, 1992, pp. 96–97]. Deriving from the idea of each market [airport pairs] being unique with its own characteristics, it is possible to see different concentration levels at various airport pair markets. Market concentration will lead firms to have different competition perceptions in different markets. The third hypothesis of the study concerns identification of whether market concentration has an effect on competitive tension.

H3: An increase in market concentration between rival dyads decreases perceived competitive tension.

Competitive asymmetry is an approach that claims that firms do not consider each other as equal rivals. If firms consider each other as being different in terms of competition, this will affect their perception and opinions toward each other. For this reason, the tension that Airline A feels against Airline B and the one that Airline B feels against Airline A are expected to be different. The fourth hypothesis of the study concerns the effect of competitive asymmetry on perceived competitive tension.

H4: Competitive asymmetry has a significant effect on perceived competitive tension.

3.3 Sample and data

Sectoral characteristics, including the existence of multiple market relations, similarity of possessed resources, intensive observation of mutual interactions, and high competition, make the airline industry one of the most suitable areas for research [Gimeno and Woo, 1996, p. 327]. As for the Turkish context, the liberalization of the domestic market in 2003 led many different airlines to enter the market besides the Turkish Airlines, and the increase in competition in this area in the following years makes this context a suitable field for research. For this reason, the Turkish domestic air transport market was selected as the scope of this study.

The study is conducted on the basis of firm dyads. In this respect, the universe of the study is rival dyads created by airline firms, and the sample is rival dyads in airlines operating scheduled flights in the Turkish domestic air transport market. For this reason, 42 rival dyads formed from seven different airline firms (7*6) comprise the sample of the study.

In order to test the hypotheses, secondary data are used for independent variables and primary data for dependent variables. Reports of the General Directorate of State Airports Authority (GDSAA) and the Directorate General of Civil Aviation (DGCA), as well as activity reports gathered from the websites of airlines that are included in the study, have been used as secondary data. In order to identify the extent of the competition in domestic routes, the above-mentioned documents were scanned, and 402 domestic airport pair markets for 2012, 520 for 2013, and 530 for 2014 were detected.

In order to measure resource similarity, the annual activity reports of the period 2012–2017, which were designed for each year independently, were taken from the DGCA's official website, and the information about the airlines fleets was obtained from these reports.

In order to measure market commonality, information regarding the routes and the number of passengers carried by each airline between 2012 and 2017 was needed. First, the active routes were identified, and then the routes that had been used in the past were identified through a backtracking search from the official DGCA website, official announcements, and declarations of airlines, as well as resources that reported aviation news. The numbers of passengers from the identified routes were taken from the GDSAA.

In order to collect primary data, a questionnaire aimed at airline managers and external stakeholders was developed. The first part of the questionnaire included questions regarding demographic data and, in the second part, there were questions aimed at measuring tension. The questionnaire was applied to midlevel and senior airline managers. A different questionnaire was used to perform external evaluation, and participants were asked to make separate evaluations from the perspective of each airline firm. This questionnaire was administered to the employees of International Air Transport Association (IATA) member travel agencies; executives and employees working for the GDSAA and other airport service providers, as they might potentially know about competition in domestic routes; and to the employees of airlines that were out of the scope. The data that would help to measure competitive tension was gathered from the answers given to the last question in the questionnaire. A sample from the questionnaire is shown in Table 1.

Accordingly, 85 out of the 132 questionnaire forms that were sent for internal evaluation were returned completed, and 81 of these were regarded as valid for the study.

Furthermore, 536 questionnaire forms were sent to participants. These were the senior executives of IATA-certified travel agencies, agency owners, experts working in ticketing departments, and midlevel senior managers of airlines that were left out of the scope. Thus, 62 of these forms were returned completed, and 57 of them were regarded as valid for the study.

Table 1. Perceived competitive tension scale

Please tick the other airlines that you consider as rivals, *according to the degree of rivalry*, from the highest [5] to the lowest [1]. For airlines you do not consider as a rival, tick [0]						
Airlines	**I do not see as a rival [0]**	**I consider it as the least important rival [1]**	**I consider it as a less important rival [2]**	**I consider it as a moderately important rival [3]**	**I consider it as an important rival [4]**	**I consider it as the most important rival [5]**
A						
B						
C						

Table 2. Variables of the study with their types and abbreviations

Variables	**Type of variable**	**Abbreviation**
Perceived competitive tension	Dependent	PCT
Market commonality	Independent	MC
Resource similarity	Independent	RS
Market concentration	Independent	MCT
Competitive asymmetry	Independent	CA

3.4 Research model

The dependent and independent variables of the study are shown in Table 2, with their names, types, and abbreviations.

The regression model developed for determining the factors that identify competitive tension among airlines and the formula of the model are as follows:

$$\mathrm{PCT}_{ij} = \beta_0 + \beta_1 \mathrm{MC}_{ij} + \beta_2 \mathrm{RS}_{ij} + \beta_3 \mathrm{MCT}_{ij} + \beta_4 \mathrm{CA}_{ij} + \varepsilon_{ij}. \quad (1)$$

Perceived competitive tension is studied in three different dimensions in this model. These are internal tension ($\mathrm{PCT}_{\mathrm{in}}$), external tension ($\mathrm{PCT}_{\mathrm{out}}$), and total tension ($\mathrm{PCT}_{\mathrm{total}}$).

Explanations regarding the variables used in the model are as follows:

Market commonality: This is a continuous variable representing the degree of overlap of the market in which the target company competes. Market commonality value is calculated using the formula shown below [Chen, 1996, p. 118]:

$$\mathrm{MC}_{ij} : \sum_{k:1}^{n} \left[\left[\frac{P_{ik}}{P_i} \right] \left[\frac{P_{jk}}{P_k} \right] \right]. \quad (2)$$

MC_{ij} is the market commonality between airlines i and j [market commonality]. P_{ik} is the number of passengers that Airline i carried on route k. P_i is the total number of passengers carried by Airline i on all routes. P_{jk} is the number of passengers carried by Airline j on route k. P_k is the number of passengers carried by all firms on route k.

Market commonality is calculated independently for all rivals with this formula on the basis of rival dyads. For the seven airlines that participated in the study, $7 \times 6 = 42$ rival dyads were created, and the calculations were made by including values into the formula given above.

By identifying the number of passengers of the two firms (e.g., firms i and j) through the formula, the amount of their market overlap is calculated from the number of passengers. In the first step, an evaluation

is made from the perspective of the target airline (Firm *i*), and the significance of route *k* for the firm is found by dividing the number of passengers that the airline carried on route *k* by the total number of passengers that the airline carried. Next, the number of passengers carried by the rival Airline *j* on route *k* is found, and the results are multiplied. This process is continued for each common route by making calculations for each route independently and, finally, the total value is found. The result gives the market commonality between airlines *i* and *j*.

Resource similarity: Resource similarity is a continuous variable that gives the amount of similarity of resources between the target firm and the rival firm. It indicates the amount of resources of the target firm which the rival firm has. Airplanes, which are the most important properties and the sole indicators in the competitive talent of firms, were accepted as the resources of the airlines. The resource similarity between airlines was calculated using the following formula:

$$\mathrm{RS}_{ij} : \sum_{m:1}^{n} \left[\left[\frac{A_{im}}{A_i} \right] \left[\frac{A_{jm}}{A_m} \right] \right]. \tag{3}$$

RS_{ij} is the degree of resource similarity between the airlines *i* and *j*.

A_{im} is the number of *m*-type planes that Airline *i* owns.

A_i is the total number of planes that Airline *i* has. A_{jm} is the number of *m*-type planes that Airline *j* owns. A_m is the total number of m-type planes all airlines have.

The resource similarity calculations conducted for the common airplanes that the airlines *i* and *j* had was carried out from the perspective of the target firm *i*. For each airplane of the same type, the percentage of the relevant airplane (e.g., B737-800) in the fleet of the target firm *i* was calculated separately. Next, the percentage of the same airplane in the country was calculated by taking into account the number of the same airplane type that the rival airline *j* operates. These two percentage values were multiplied, and this operation was carried out for each airplane of the same type separately. The values obtained as a result of each operation were added, and the resource similarity between firms *i* and *j* was obtained.

Market concentration: Market concentration is a variable found through the Herfindahl–Hirschmann Index (HHI) to determine the structures of markets within the scope of the study. Unlike previous approaches, competitive dynamics claims that each firm is unique in terms of the markets it operates in and the resources that it has [Chen, 1996; Chen et al., 2007; Chen and Miller, 2012]. Similarly, each market is also unique with its own characteristics. Deriving from these assumptions, it was considered necessary to determine the market structures for each airport pair markets included in the research. After obtaining the HHI values for each market pair, the values were put into the formula used for identifying market commonality and resource similarity, and the overlap of market structures was found with the help of the HHI values. The formula given below was used for calculating the degree of overlap in market structures:

$$\mathrm{MCT}_{ij} : \sum_{h:1}^{n} \left[\left[\frac{H_{ir}}{H_i} \right] \left[\frac{H_{jr}}{H_r} \right] \right]. \tag{4}$$

MCT_{ij} is the concentration similarity between the firms *i* and *j*. H_{ir} is the HHI index value of firm *i* on route *r*. H_i is the HHI index value of firm *i* on all routes. H_{jr} is the HHI index value of firm *j* on route *r*. H_r is the total HHI value of all firms on route *r*.

Competitive asymmetry: Competitive asymmetry is the state in which firms do not consider each other as equal rivals [Chen, 1996, p. 116]. Competitive asymmetry was examined under two dimensions in this study. Market asymmetry was constituted from the data of market commonality and the resource similarity of airlines. Perceived asymmetry was studied under another dimension, and perceived asymmetry data was gathered from the questionnaire. For market asymmetry, the firm having the highest market commonality among the rivals the target firm competed against was expressed with a value of "1" to indicate that it was

the biggest rival, and the others were given the value "0". As for perceived asymmetry, the rival that had the highest tension among the others was assigned the value "1", and the others were given "0". The simulation created for competitive asymmetry is shown in Table 3 below.

Perceived competitive tension: The dependent variable in the model developed was competitive tension. Competitive tension observed among the firms was measured from the primary data gathered through the questionnaire. Participants gave five points to the most important rival and one point to the least important for each competitor separately and independent from each other. Moreover, one more column was added to the five-point evaluation table considering that firms might not see each other as rivals. Participants were asked to mark "0" in this column provided that they did not see each other as rivals. The mean score of the responses of the participants for each airline rival dyad on the basis of airline was taken, and values related to competitive tension were calculated. This variable was examined under three different dimensions, viz., insider, outsider, and total, and the dependent variable was predicted under these dimensions. Among them, insider tension was formed from the responses of airline employees, outsider tension was from another airline's employees, and total tension was formed from the cumulative responses of all participants.

3.5 Analysis

Since the data occupied a lot of space in memory, in order to reduce errors that might occur in calculations, a Visual Basic program was used in the data analysis. An SPSS 22 Package was used in the analysis of primary data. On the other hand, multiple linear regression analysis was used to determine the effect of each independent variable on perceived competitive tension and to form models.

4 Findings and discussion

4.1 Descriptive statistics

In order to ensure the confidentiality of airlines, the codes given by the researchers were used instead of the real names of the firms. Codes given to airline firms are shown in Table 4.

Table 3. Simulation of competitive asymmetry

Firms		Most important rival?		
Focal	**Rival**	**Yes**	**No**	**Value**
Firm A	Firm B	✓		1
Firm A	Firm C		×	0
Firm B	Firm A		×	0
Firm B	Firm C	✓		1
Firm C	Firm A	✓		1
Firm C	Firm B		×	0

Table 4. Codes given to airline firms

Codes used in descriptive statistics	
AL1	Airline 1
AL2	Airline 2
AL3	Airline 3
AL4	Airline 4
AL5	Airline 5
AL6	Airline 6
AL7	Airline 7

4.1.1 Secondary data statistics

Table 5 shows the numbers of both passengers carried and airplanes belonging to the different airlines. The information given in the table belongs to the scheduled airlines; three airlines that had nonscheduled flights and whose passenger numbers occupied <1% of the total figures are not included in the table.

As can be seen in Table 5, there was an increase of >44 million (100.35%) in the total number of passengers carried from the end of 2012 until the end of 2017. As for the total number of airplanes, there was an increase of 133 airplanes (39.46%) at the end of 2017 compared to 2012. Total figures reveal that there was a continual increase in the number of passengers carried. As for the number of airplanes, although there was a decrease in the period 2016–2017, there was a continual increase in other years.

4.1.2 Primary data statistics

Table 6 shows the distribution of participants in terms of the airlines they work for, the department they work at, and the business types of the external evaluators.

As can be seen in Table 6, AL6 and AL5 had the least participation with four participants for the former and five for the latter. On the other hand, AL7 had the highest participation with 24 participants. A total of 81 participants were included in the study on behalf of the airlines. Fearing that firms might be biased in identifying competitive tension, the external evaluators are also included in the study as they are thought to make unbiased evaluations. Travel agencies constituted the majority of external evaluators. IATA member travel agencies are known to have close relations with commercial air transportation due to the agreements they have made with airlines, their ability to see the number of tickets sold through the reservation systems on an airline basis, and their being aware of customer demands coming to them. In this context, travel agencies are important contributors in the identification of competitive tension.

Table 5. Number of domestic passengers carried and airplanes of airlines

	Number of domestic passengers [number of airplanes]					
	2012	**2013**	**2014**	**2015**	**2016**	**2017**
AL1	671,861 [6]	460,730 [6]	655,625 [8]	828,892 [8]	841,486 [14]	Ceased*** [4]
AL2	3,691,150 [15]	4,729,292 [16]	4,723,709 [18]	3,888,392 [20]	3,435,230 [25]	3,645,466 [24]
AL3	5,282,311 [32]	6,272,085 [23]	6,098,701 [21]	6,265,720 [28]	6,138,954 [25]	4,817,484 [24]
AL4	10,229,798 [40]	20,447,828 [49]	23,938,738 [55]	27,628,898 [65]	30,578,318 [78]	33,778,276 [73]
AL5	4,739,717 [22]	4,162,862 [19]	4,395,227 [23]	5,178,940 [54]	5,077,130 [49]	5,391,148 [52]
AL6	9,086,577 [18]	15,223,427 [27]	17,206,697 [26]	21,322,344 [30]	22,951,372 [29]	27,396,372 [33]
AL7	21,228,489 [184]	24,837,184 [200]	28,315,313 [225]	26,300,437 [258]	27,287,325 [271]	29,874,443 [260]
Total**	54,949,103 [337]	76,146,913 [361]	85,416,166 [401]	97,041,210 [463]	102,499,358 [491]	109,511,390 [470]

Notes: ** There are three more airlines that had nonscheduled flights. *** AL1 interrupted its flights in April 2017.

Source: GDSAA Statistical Annuals and DGCA Activity Reports (2012–2017).

Table 6. Demographic information about the participants

Insider				Outsider	
Airline firms		Airline employees		Departments	Number of participants
Code	Number of participants	Departments	Number of participants		
AL1	9	Cost control	24	Travel agency	45
AL2	15	Sales–marketing	8		
AL3	13	Tariff planning	3		
AL4	11	Revenue management	4	Airport	2
AL5	5	Station management	6		
		Ground operation	19	Other airlines	8
AL6	4	Operation control	4		
		Agreements management	1	News, Websites	2
AL7	24	Trade	3		
		Ticket sales	9		

Table 7. Mean values, standard deviations, and correlations

Variables	Mean	Standard deviations	1	2	3	4	5	6	7
[1] MC	0.078	0.132	1	0.781**	0.878**	0.798**	0.722**	0.629**	0.705**
[2] RS	0.099	0.161	0.781**	1	0.788**	0.515**	0.494**	0.487**	0.548**
[3] MCT	0.028	0.083	0.878**	0.788**	1	0.586**	0.568**	0.403**	0.469**
[4] CA	0.170	0.377	0.798**	0.515**	0.586**	1	0.616**	0.557**	0.596**
[5] PCT_{in}	2.147	1.193	0.722**	0.494**	0.568**	0.616**	1	0.821**	0.846**
[6] PCT_{out}	2.998	0.873	0.629**	0.487**	0.403**	0.557**	0.821**	1	0.969**
[7] PCT_{total}	2.856	0.878	0.705**	0.548**	0.469**	0.596**	0.846**	0.969**	1

Notes: **Correlation is significant at the 0.01 level (two-tailed).

MC, market commonality; RS, resource similarity; MCT, concentration ratio index; CA, competitive asymmetry; PCT_{in}, internal competitive tension; PCT_{out}, external competitive tension; PCT_{total}, total competitive tension.

4.2 Investigation of relationships

4.2.1 Correlation results

The relationship between market commonality and perceived competitive tension was analyzed using a Pearson correlation coefficient test, and the results are shown in Table 7. According to this, there is a significant relationship between internal tension and market commonality ($r = 0.722$; $p < 0.001$). For this reason, it is possible to talk about a strong relationship between market commonality and internal tension [Field, 2009, p. 173]. There is a relationship between external tension and market commonality ($r = 0.629$; $p < 0.001$) as well. There is also a moderate relationship with market commonality in external tension, as in internal tension. The relationship between total tension and market commonality is seen in the following values: $r = 0.705$; $p < 0.001$. Considering the results, overall, it can be seen that statistically significant, moderate and strong relationships are found for each component of perceived competitive tension.

There is a weak positive relationship between resource similarity and internal tension ($r = 0.494$; $p < 0.001$). There is a positive and weak relationship between external tension, which is another component of perceived competitive tension, and resource similarity ($r = 0.487$; $p < 0.001$). Finally, there is a moderate relationship between resource similarity and total tension ($r = 0.548$; $p < 0.001$).

There is a statistically significant relationship between market concentration and competitive tension for all three components (internal tension, external tension, and total tension). The relationship between internal tension and market concentration is at a moderate level, with $r = 0.568$; $p < 0.001$. There is a weak relationship between external tension and market concentration ($r = 0.403$; $p < 0.001$). As to the total tension, this revealed by a weak relationship [$r = 0.469$; $p < 0.001$].

It is possible to mention a statistically significant relationship between competitive asymmetry and perceived competitive tension. There is a moderate relationship between competitive asymmetry and internal tension ($r = 0.616$; $p < 0.001$); a moderate relationship between competitive asymmetry and external tension ($r = 0.557$; $p < 0.001$); and again, a moderate relationship with total tension ($r = 0.596$; $p < 0.001$).

4.2.2 Results for impact on perceived competitive tension

Models belonging to perceived competitive tension were examined in three different dimensions, viz., internal, external, and total tension. Independent variables thought to affect perceived competitive tension were modeled by regression analysis, and three different models were obtained independently for each dimension of perceived competitive tension. The regression results are shown in Table 8.

Examining the model related to internal tension, the value of R^2 shows that the relationship makes a prediction of 54% on the result variable ($R^2 = 0.546$). Seen as the adjusted R^2 value in the table, the adjusted R^2 indicates how generalizable the model is (adjusted $R^2 = 0.497$). Analyzing the coefficients in this model, it can be seen that market commonality and market concentration variables have a significant effect on perceived competitive tension. As for the competitive asymmetry and resource similarity variables in the model, no significant effect was observed.

In the model related to external tension, the value of R^2 shows that the relationship makes a prediction of 50% on the result variable ($R^2 = 0.506$). Seen as the adjusted R^2 value in the table, the adjusted R^2 indicates how generalizable the model is (adjusted $R^2 = 0.453$). Analyzing the coefficients in this model, it can be seen that market commonality and market concentration variables have a significant effect on perceived

Table 8. Results of regression analysis on determinants of competitive tension

	Models		
Variables	**1**	**2**	**3**
MC	9.211**	7.758**	8.923***
RS	−0.872	0.963	0.932
MCT	−3.377	−7.839**	−8.248**
CA	0.004	−0.075	−0.242
Observations	42	42	42
R^2	0.54	0.50	0.61
Adjusted R^2	0.49	0.45	0.56
Durbin–Watson	2.024	2.208	1.710
Cronbach's alpha		0.831	

Notes: *Significant at the 0.05 level; **significant at the 0.01 level; ***significant at the 0.001 level.

Figures in the table show the unstandardized coefficients.

MC, market commonality; RS, resource similarity; MCT, concentration ratio index; CA, competitive asymmetry.

Dependent variable in Model 1: Internal Tension; Dependent variable in Model 2: External Tension; and Dependent variable in Model 3: Total Tension.

competitive tension. As in the previous model, resource similarity and competitive asymmetry variables have no significant effect.

The R^2 value shows a prediction of 68% on the result variable of the correlation for the total tension in the model ($R^2 = 0.611$). Seen as the adjusted R^2 value in the table, the adjusted R^2 indicates how generalizable the model is at the 56% level (adjusted $R^2 = 0.569$). It can be seen that market commonality and market concentration values have a significant effect on perceived competitive tension when the coefficients in this model are analyzed. It is also seen that resource similarity and competitive asymmetry variables have no significant effect on perceived competitive tension in this model.

As can be seen in Table 8, the alpha value that determines the internal consistency coefficient of the seven items measured in the study is 0.831 (Cronbach's $\alpha = 0.831$). This value shows that the measurement has a high level of reliability.

The findings of the study show that market commonality and market concentration variables have an effect on competition tension. Therefore, it is inevitable that market commonality will affect tension between competitors as the tension the airline feels against its rival in constant contact is high. Operating in more markets at the same time requires more competition. Namely, a competitive action conducted by an airline will affect to a greater extent a rival having much more market commonality with the airline, and the perceived tension will differ in this context. Hypothesis H1 was created and verified considering this situation in the study.

Knowing whether market commonality is high or low for two airlines competing under real market conditions will guide decision-makers who want to initiate the necessary move before possible moves are likely to occur. The impact of market commonality on competitive tension affects the position of airlines competing continuously in more than one route in the marketplace and the competitive actions they will initiate. On the other hand, airlines are likely to encounter unexpected reactions following competitive action taken by them if they ignore the effects of market commonality on competitive tension and, therefore, the impact on a tendency to initiate attacks. When one of the two airlines whose competitive markets largely overlap threatens the markets of the other, it will receive quite a rapid and harsh reaction provided that its resources are sufficient. For these reasons, it is important for the decision-makers not to ignore the impact of the research findings. Evaluating the current study from the perspective of the interaction between market commonality and competition tension in the relevant literature, it can be seen that the findings are no different from those of previous studies. However, adaptation of the relevant studies into the context of Turkey, and research findings being consistent with studies conducted in other regions, is thought to make the current study worthwhile.

It was also found that market concentration, another independent variable used in the study, has an effect on competition tension. The level of concentration is expected to be inversely proportional to the degree of competition in the market. Analyzing the regression coefficients, it can be seen that the effect of market concentration on competitive tension is negative. H3 was created within the light of this information and verified in the study. In a market with a high market density, an airline is expected to face two different situations. The first of these is that the airline stands alone in the market, i.e., the market becomes a monopoly. In the second case, there is more than one airline in the market, but one of these has such a high market share that the presence of other airlines in the relevant market is almost ignored. When both situations are evaluated together in the context of competitive tension, it is normal that the tension between airlines is very low. As there is only one airline in the first case described above, there is no mention of any situation that will pave the way for competitive tension. In the second case, one of the airlines having a high market share, in other words, its high market dominance, will cause the tension it feels against its rivals to be relatively less. Since the low degree of concentration allows competition to increase, the opposite of the previously described situation will be expected. This study is significant in terms of focusing on the relationship between market structure and competitive tension. As will be recalled, research on competitive dynamics does not approve the general view of the Porterian approach toward the industry and indicates that each market should be handled separately. Chen [1996] has stated that each market is unique. In this sense, examining concentration on airport pairs forms the basis for objections made against the generalist

approach. The study is thought to contribute to this reference point. Undoubtedly, even if it is difficult to measure, if the relationship between tension and concentration can be handled separately for each market, the competitive dynamics literature will be enriched in terms of the relationship between strategy and economy.

On the other hand, resource similarity and competitive asymmetry variables were found not to have any significant effect on competitive tension. Resource similarity was measured using different airplane types found in the fleets of airlines. For example, between the two airplanes most airlines own in their fleets, the Airbus A320 has an average capacity of 165 passengers and a flight range of 6500 km, and the Boeing 737-800 has a capacity of 162 passengers and a range close to that of the A320. Although they are quite similar, these two airplanes are considered different airplanes in the study since they are from different manufacturers and of different types. For this reason, the resource similarities of two airlines with only these airplane types in their fleet (AL1: Airbus 320; AL2: Boeing 737) are zero. When the airplane types in the fleets of the airlines, which are included in the research, are considered, it is known that there are rival dyads (such as Atlas Global–Pegasus or Anadolu Jet–Onur Air) similar to the situation described above. Therefore, unlike previous studies in the field, the finding in this study that resource similarities do not have a significant effect on competitive tension (H2: Rejected) is thought to stem from this situation. In previous research where resource similarity was discussed and found to be effective on competitive actions, 26 different classifications were obtained using parameters, such as airplanes owned by airlines, engine characteristics, flight distance, and number of passengers. Even if such a classification is made, it is not possible to make such a distinction in this research. This is because airlines in Turkey usually do not prefer airplanes other than the Airbus 320 family and the Boeing 737. These factors raise the question as to whether other resources should be considered for measuring the degree of resource similarity. Therefore, the fact that the findings of previous studies do not overlap with those of the current study, in the context of resource similarity, paves the way for a number of positive developments. It is proposed in this context that in order to measure resource similarity among airlines, certain new components should be taken into consideration.

Competitive asymmetry, in brief, is the expression of the condition in which two airlines do not accept each other equally in terms of competition and rivalry. Considering the characteristics of the seven airlines that participated in the study, the bigger picture is as follows; Anadolu Jet (AJA) is a subsidiary of Turkish Airlines (THY), Sun Express (SXS) is a joint venture of the German origin Lufthansa and Turkish Airlines. In this context, although THY, SXS, and AJA are considered three different airlines, in fact, they are branches of a single airline that adopts different business models. Borajet (BRJ) was an airline that only operated in regional markets (when it was active). Pegasus (PGT) is an airline using a cost leadership strategy and competes against different rivals at different bases: Sabiha Gökçen, AJA, Izmir and Antalya; SXS, Istanbul Ataturk Airport–Izmir flights only; and THY. As to Atlas Global (KKK) and Onur Air (OHY), they were using Atatürk Airport in Istanbul and compete with THY to a large extent. This complex situation that occurs in domestic lines raises many different situations in terms of competitive asymmetry. For example, while THY, OHY, and KKK were rivals of each other at Atatürk Airport, PGT, AJA, SXS, and THY compete with each other at Sabiha Gökçen Airport. Four airlines seem to be competing at Sabiha Gökçen Airport, but in fact, the situation is only THY–PGT competition. When the other airports used as bases are examined, it can be seen that while competition between SXS and PGT takes place in Izmir, in Antalya, all airlines except BRJ, are in severe competition, especially for Istanbul–Antalya flights. Factors such as different hubs used, partnerships between airlines (THY–SXS–AJA), competition taking place at different levels in city pair market levels, and different business models complicate the question of who is in competition with whom. Considering the competitive asymmetry together with the contextual characteristics of airlines and the industry is thought to provide different results for future studies.

Table 9 shows the validation status of the hypotheses established in the study. Accordingly, while the H1 and H3 variables established with independent variables thought to affect perceived competitive tension are verified, H2 and H4 hypotheses are rejected.

Table 9. Verification status of the hypotheses

Independent variable	Dependent variable	Hypotheses	Accepted	Rejected
Market commonality	Perceived competitive tension	Hypothesis 1 [H1]	✓	
Resource similarity	Perceived competitive tension	Hypothesis 2 [H2]		✓
Market concentration	Perceived competitive tension	Hypothesis 3 [H3]	✓	
Competitive asymmetry	Perceived competitive tension	Hypothesis 4 [H4]		✓

5 Conclusions, limitations, and future directions

In this study, the explanatory power of the competitive tension of four different variables (market commonality, resource similarity, market concentration, and competitive asymmetry) that are considered to determine competitive tension among airlines competing in the Turkish domestic airline market was tested. Four different hypotheses were developed to investigate the effect of each variable on perceived competitive tension. As a result of the analyses, two of the hypotheses were accepted and two were rejected. The relationship between perceived competitive tension and market commonality and resource similarity has been tested for airlines with different characteristics in different contexts in previous studies, and significant relationships were found in these studies. For this reason, what makes this study different from previous studies, in terms of market commonality and resource similarity, is the evaluation of earlier assumptions in the context of Turkey. However, unlike previous studies, resource similarity was found to have no significant effect on competitive asymmetry. This is thought to be due to the fact that only airplane types were used in the measurement of resource similarity.

One aim of the study was to test the functionality of the assumptions of competitive dynamics in the context of Turkey. In this respect, the study has achieved this aim. On the other hand, a study testing significant relationships between perceived competitive tension and market concentration and competitive asymmetry was not encountered in national and international review of the relevant literature. One important assumption of competitive dynamics is that each market is unique with its unique characteristics. This assumption implies that the concept of market concentration should be one of the main research topics for further studies. In this respect, this research differs from previous studies and tests the relationship between market concentration and perceived competitive tension. Significant statistical relationships are achieved in the study. Moreover, analyzing the regression coefficients, it can be seen that market concentration has an adverse effect on competitive tension. This is due to the fact that markets with high concentration point to monopoly markets, and it is difficult to consider competition in monopoly markets. Only the existence of the variable of competitive asymmetry has been tried to be proven in previous studies, and no systematic analysis had been performed on it. In this study, beyond the determination of whether competitive asymmetry exists in the context of Turkey, the phenomenon has been studied through systematic analysis. The existence of a significant relationship with perceived competitive tension has been determined by analyses. In consequence, the correlation of competitive asymmetry with perceived competitive tension is supported by the findings. However, its effect on competitive asymmetry is not significant. The organizational effects of competitive asymmetry on the firm, the effects of the senior management team on decisions that will produce competitive actions, and the effects of possible situations in the attacks or counterattacks of the target firms to the competitors may be researched within the framework of the literature of competitive dynamics in future studies.

Competition tension is discussed in three different dimensions, viz., internal tension, external tension, and total tension. Models were formed by estimating these variables under each dimension in this study. Three different models with different determinants and different explanatory powers were obtained from the different dimensions under tension.

The research has some limitations on dimensions such as the context and time period chosen. First of all, this research was tested and evaluated in the context of the Turkish domestic air transport market. There are a number of reasons why the scope of work should be restricted to domestic air transport. The first of these is the liberalization of domestic air transport in 2003. With the liberalization, the restrictive practices against the entry of private airlines into the market were abolished and the number of airline companies operating in the market increased. Thus, between 2004 and 2015 (based on years after liberalization), an increase in the number of passengers was observed each year compared to the previous year. When we examined the reasons behind the increase in the number of passengers, the decrease of airline ticket prices was the result of the incentives provided by the state in the period after liberalization. Thus, the current environment has become more competitive than that prevailing before the 2003 liberalization program.

Another reason why the research is limited to domestic air transport is the difficulties that would be encountered in the process of obtaining data of international (foreign) airlines operating on international routes. Since the market commonality data used in the research is determined by taking into account the total number of passengers carried on the routes (lines) in which the airline operates, the inclusion of international (foreign) airlines in the research may result in the failure of the other party (foreign airlines) to share the data. As a matter of fact, even though Turkish domestic airlines were included in the research data collection, because of the idea that the data collection process would be easier, the data were obtained from the airport statistics rather than from the airline companies themselves.

Another limitation encountered in the study is related to the time period of the study. The research in its ultimate form covers the period from 2012 to 2017 (6 years). Airport statistics used in the study started to be recorded from 2012 and, therefore, it was not possible to retrieve the data before 2012. Another limitation of this research is that data on perceived competitive tension are limited by the experts' own personal perceptions.

Since air transportation is a highly competitive industry, it is suitable for research on competition dynamics. In studies conducted to date on competition dynamics, a strong relationship has been observed between strategic management and microeconomics. Of course, the role of competition dynamics as a subdiscipline in strategic management research is decisive in advancing research on the basis of these two issues. For this reason, research is examined in the context of position school and resource-based approach and handled through economic models. In recent years, it has been observed that although the field of competition dynamics is not completely detached from the field of strategic management, it has turned its direction toward organizational behavior issues. The cultural characteristics and demographics of the senior management team were discussed and the impact of these elements on competitive actions was investigated. Of course, the aforementioned research has been conducted outside the country (especially, in the USA) and shows the characteristics of a situation that has only recently developed in our country. However, when we look at the literature review on the subject, it is seen that research on competition dynamics remains far from the marketing field, whereas marketing research is the gate to allow airline companies to make themselves accepted among and gain advantages over other airlines. In addition, the most important area where competitive actions both to the industry and to other companies are reflected is also through marketing activities. Therefore, in future research, the field of competition dynamics can be linked to marketing both in international literature and in our country, giving a new perspective to this particular discipline.

It is appropriate to say that research on competition dynamics should continue in line with predictions about global investments and growth in international flights, as the rapid development seen after domestic liberalization has not yet reached saturation point. In this context, with research including a longer time period, the differences in the competitive actions of airlines against each other can be analyzed within a time series and the future predictions can be supported with stronger findings.

Competitive dynamic research is a study that includes economic models and shows intense quantitative characteristics. Research with this degree of quantitative content brings to mind the problem of stationarity,

which is seen in Game Theory approaches. In other words, getting inductive results through some numerical analyses will bring the possibility of avoiding the other elements of the industry (in the case of airline companies: government policies or slot allocations). For this reason, research should not be limited to a number of numerical findings, and the findings should include primary data and/or qualitative elements that reflect the views of stakeholders within the industry.

This research has various academic and administrative applications. First, the use of firm pairs in competition research, in contrast to the use of industry- and group-level evaluations in previous studies, is important because there are significant differences even between companies that are directly attributed as competitors. Each firm has different levels of tension with its competitor, and from the firm's point of view, each competitor is unique with its own unique characteristics. The tension between firms can also provoke a desire to attack the competing firm or it can provoke the competing firm to counterattack. In addition to this situation, the focus may be the basis for decisions to avoid the opposing firm or to compare itself with the rival firm depending on the size of the firm and some of its characteristics. In this context, out research is going to help to develop research based on competition in multiple markets, aggressive attitudes of firms, and relationships between firm pairs.

This study considers the conditions under which competitive tension occurs among firms. For this reason, to what extent the factors thought to determine competitive tension explain the tension is the central focus of the study. Therefore, a further study of how successful competitive tension is in explaining attacks and counterattacks among firms will contribute to the literature.

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