



# Balanced scorecard based performance measurement of European airlines using a hybrid multicriteria decision making approach under the fuzzy environment



Hasan Dinçer\*, Ümit Hacıoğlu, Serhat Yüksel

Istanbul Medipol University, School of Business and Management, Beykoz, 34810, Istanbul, Turkey

## ARTICLE INFO

### Article history:

Received 11 January 2017

Received in revised form

17 May 2017

Accepted 19 May 2017

### Keywords:

European airline industry  
Multicriteria decision-making  
Balanced scorecard  
Fuzzy DEMATEL  
Fuzzy ANP  
MOORA

## ABSTRACT

The purpose of this study is to evaluate the performance of the European airlines, using a balanced scorecard perspective. Within this scope, a hybrid multi-criteria approach was used by combining the Fuzzy DEMATEL, Fuzzy ANP, and MOORA methods. The results demonstrate that customer dimensions and profit per customer are the most significant key factors in the balanced scorecard perspective. Additionally, the airline companies with the largest profit (per employee) and highest number of passengers and flights (per employee) had the best scores in the multidimensional performance results. Furthermore, the airline companies with the highest profitability and efficiency are more successful than other companies. Therefore, we recommend European airlines to focus on these aspects in order to improve their performance. This study makes an important contribution to literature by helping to solve a significant problem in the market with the proposed methodology.

© 2017 Elsevier Ltd. All rights reserved.

## 1. Introduction

With the impact of globalization on the international airline sector, the air transportation industry has become essential for international trade. Naturally, as international business and trade have increased, the demand for growth within the air sector has risen as well. Similarly, the tourism market has also been impacted on a global scale, resulting in tourism soaring across the globe and the demand for more competition and options within the airline transportation sector (Debbage, 1994).

European airline companies, in particular, are important in the sector because Europe is a logistically significant destination. According to a 2015 European Commission report, it has more than 400 airports and employs more than 5.1 million people. Furthermore, the biggest airlines of the world, such as Air France and Lufthansa, are in Europe. In addition, according to the October 2016 IATA report, Europe has 26.7% of the air passenger market. Similarly with respect to the international air passenger market, Europe has a 23.8% share, which is the highest ratio in the market and an

international revenue passengers kilometers growth of 5.7% during this same period.

However, according to the 2013 European Commission report, high competition in the airline transportation sector began to negatively affect the European airline market. As a result, the European Union developed an aviation strategy in 2015 in order to increase the competitive advantage of European airline companies, and their future market shares, thereby boosting economic growth and employment rates (Alam et al., 2016).

Because of the contributions of airline sector to the economy, measuring financial performance of the airlines sector is critical for the competitive market. For this purpose, financial analysis must be performed in order to understand whether these companies are successful or not. However, the data taken from financial reports gives only limited information about the companies and non-financial performance measurement determinants should also be taken into consideration while analyzing the performance of the airline (Perera et al., 1997).

The performance of European airline companies has attracted the attention of many researchers, most of which tried to evaluate performance by using methods such as regression, Granger causality analysis, and vector error correction methods. Generally, though, analysis has focused around the financial data of these

\* Corresponding author.

E-mail addresses: [hdincer@medipol.edu.tr](mailto:hdincer@medipol.edu.tr) (H. Dinçer), [uhacioglu@medipol.edu.tr](mailto:uhacioglu@medipol.edu.tr) (Ü. Hacıoğlu), [serhat.yuksel@gmail.com](mailto:serhat.yuksel@gmail.com) (S. Yüksel).

companies. Clearly, a study in which an original method is used and non-financial performance in addition to the financial data is should be examined.

This study aims to analyze the performance of 9 European airline companies using multidimensional factors based on balanced scorecard variables. Balanced scorecard has become a very popular approach with respect to performance measurement, especially after the rise of globalization. It considers four different perspectives: finance, customer, internal process and learning and growth. In other words, the financial and non-financial variables should be used to provide more meaningful results than a conventional performance perspective. Another important point of this study is to use the hybrid multi-criteria decision-making approach by using three different methods (Fuzzy DEMATEL, Fuzzy ANP, and MOORA). This situation increases the originality of this study with respect to the methodology.

The paper is organized as follows: after introduction part, we give information about global competition in European airline industry. In the third part, we explain similar studies in the literature. Furthermore, the fourth part provides multidimensional approach to performance measurement in airline industry. In the fifth part, we give information about the models used in the analysis. Moreover, sixth part explains the analysis for European airline industry. Finally, the results of the analysis are given at conclusion.

**2. Global competition in the European airline industry**

Globalization is a process of transnational and transcultural integration of human and non-human activities (Al-Rodhan and Stoudmann, 2006) where the economic impacts of globalization has included the removal of trade barriers between countries. As a result, countries have taken great pains to access new markets, causing international trade in the world to dramatically increase during the twenty-first century. According to World Bank statistics, the amount of merchandise exports reached 16,576 trillion USD in 2015, compared to only 124,449 billion USD in 1960.

Primarily, globalization has affected the transportation sector in two different aspects. The popularity of the transportation market has played a key role in international trade (Woodburn et al., 2008) and the resulting demand for a greater number of transportation companies. Also, a significant effect of globalization has been the removal of all barriers between countries resulting in people visiting multiple other countries (Koch-Baumgarten, 1998) and

incrementally increasing the business volume of airline companies.

Subsequently, competition in the transportation sector and a higher demand for service has also led to higher profit margins (Borenstein and Rose, 1991). Airlines started to take actions to be more competitive in the market, otherwise, making it impossible for these firms to survive. As a result, decreasing costs for these companies started to play a more substantial role in maintaining profitability.

Europe's location makes it a key competitor in the airline sector and plays a significant role in international trade and touristic travels. According to World Bank statistics, in 2015 alone, 653,368,581 passengers used airlines in Europe, surging from just 63,336,700 in 1970. Fig. 1 shows the growth in scheduled airline seats from Europe to other regions, especially over the last 2 years.

In 2015, as a result of the negative effects of high competition in the airline sector, the European Union developed a new aviation strategy (Moore, 2015). The main purpose of this strategy was to increase the competitive advantage of European airline companies in this sector by providing airline companies access to all world destinations. This strategy is expected to contribute to increased economic growth and a decrease in the unemployment rate, resulting in a 5% growth in the European airline industry by 2030.

European airline companies should increase their investment opportunities in order to have a competitive advantage, and in particular, must focus on the two areas of debt or equity. With respect to acquiring debt, the cost to these companies will be the interest rate paid to the banks. As for equity, the cost will be lower, but the companies must be successful in order to attract the attention of the investors. Accordingly, financial analysis has a significant role in order to understand whether these companies' investments are successful (Helfert, 2001).

In addition to financial analysis, non-financial conditions of the companies are also important since financial data provides limited information to the investors. For instance, communication levels within companies give significant information related to the companies, but are impossible to achieve using only financial reports (Chatterji and Levine, 2006). Investors need to give importance to both financial and non-financial data in making investment decisions.

**3. Literature review of airline industry**

There are multiple studies in the literature related to the airline industry focused on different aspects as detailed on Table 1.

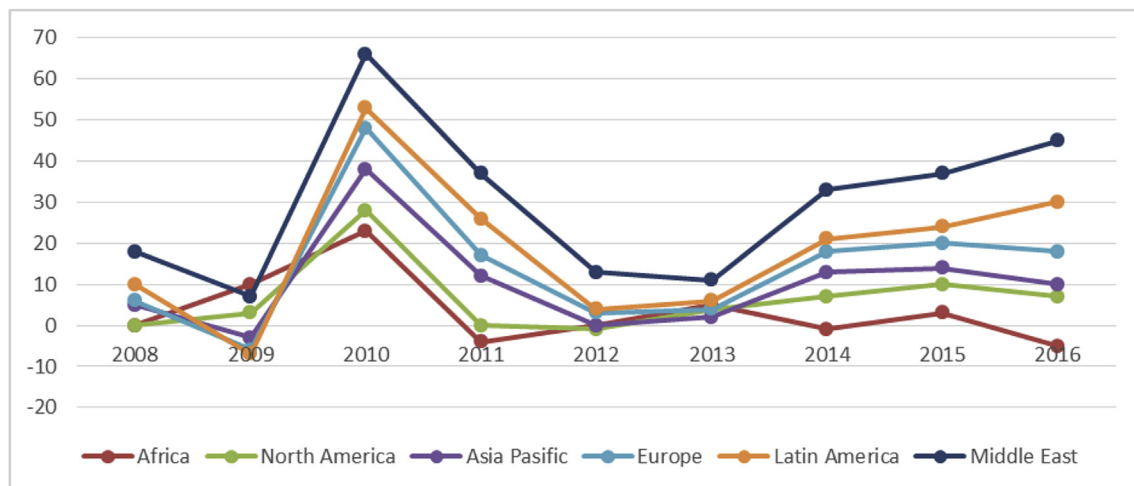


Fig. 1. Growth in scheduled airline seats from Europe to other regions (%). Source: CAPA

Download English Version:

<https://daneshyari.com/en/article/5111528>

Download Persian Version:

<https://daneshyari.com/article/5111528>

[Daneshyari.com](https://daneshyari.com)