Journal of Air Transport Management 67 (2018) 134–145

Contents lists available at ScienceDirect

Journal of Air Transport Management

journal homepage: www.elsevier.com/locate/jairtraman

The virtualization of the airline industry: A strategic process

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ARTICLE INFO

Keywords:
Airline alliance
Alliance portfolio
Constellations
Codeshare agreements
Virtualization
Strategic behavior

ABSTRACT

This paper analyses the virtualization of the airline industry as a strategic response to competitive pressures. Increased competition has driven the associative behavior of airlines, fostered the development of global alliances and the use of codeshare agreements, substantially modifying the structure of the industry. These changes have resulted in greater efficiency and division of labor in the industry, and have caused airlines to significantly modify their operational strategies. The analysis of the evolution of operational and associative strategies in the airline industry during the past decade (2005–2015) shows the growing virtualization of the sector, derived from the use of codeshare agreements and other alliances between companies. The results show that the associative behavior allows airlines to specialize their operational strategy and to focus their resources and capabilities on a certain type of routes or origin-destination (OD) markets, with a wide variety of strategic behaviors in the industry.

1. Introduction

Over the past few decades, the airline industry has undergone a profound transformation that has recently rapidly accelerated (Pels, 2008). The origin of this process of change lies in the deregulation of this industry, which began in the late 1970s in the United States and led to the entry of new actors and a subsequent increase in competition (Min and Joo, 2016). Among these new actors, low-cost (Pels, 2008) and Gulf-based airlines (Anwar, 2015) are notable because of their novel and aggressive business models. Because of these changes in the industry, numerous traditional companies have suffered from dramatic crises, which led to the closure of certain iconic airlines and numerous mergers and acquisitions, substantially modifying the structure of the industry (Fan et al., 2001).

Increased competition within the sector and certain exogenous factors, such as political decisions, have prompted companies to adopt different behaviors, evident in their internationalization strategies (Albers et al., 2010), in their growth process (Anwar, 2015) through mergers and acquisitions (Fan et al., 2001), strategic alliances (de Man et al., 2010), and the subcontracting of domestic and secondary routes (Gillen et al., 2015). In addition, a significant trend has emerged regarding the formation of global airlines alliances[1] (Gaggero and Bartolini, 2012). This trend has led to changes in the competition and structure of the industry and these are examined in numerous studies (Alderighi and Gaggero, 2014; Corbo and Shi, 2015; Evans, 2001; Wang, 2014).

Although certain studies have investigated the business strategies of this sector (Anwar, 2015; Gillen et al., 2015), little or no research has analyzed the evolution of these strategies, the role of alliances in the deep-seated transformations within the industry, or the relationship between these two themes. Therefore, insight into the industry's structural changes and companies' strategic behavior and a better understanding of the factors that determine these changes will provide better contextualization for the numerous studies regarding this essential industry within the broader economic system.

Consequently, the primary objective of this study is to illustrate and analyze the evolution of the airline industry over the past decade (2005–2015), based on changes in companies' strategic behavior because prior studies have demonstrated that major changes have occurred in the industry during this period of time (Min and Joo, 2016). This evolution has generally been analyzed by considering two types of company strategies: operational strategies based on airlines' resources and associative strategies carried out through cooperative agreements with other airlines. We used the theoretical approach of strategic groups to analyze operational strategies (Porter, 1980) and the relational approach to analyze associative strategies (Das and Teng, 2002). To complete our analysis we have also taken elements from the resource dependence theory (Pfeffer and Salancik, 1978) and the institutionalization theory (Barley and Tolbert, 1997).

The analysis and results of this study are based on a sample of 28

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[1] The term "global alliances", refers to multilateral agreements with a governing superstructure, such as Oneworld, SkyTeam, etc.

https://doi.org/10.1016/j.jairtraman.2017.12.001
Received 14 July 2017; Received in revised form 1 December 2017; Accepted 2 December 2017
0969-6997/

airlines, each having different characteristics, to ensure that they reflect, as much as possible, the diversity of companies and strategies within the industry. The results refer to airlines' operational strategies and associative behavior and expound on the relationship between these two strategies.

The study demonstrates that the airline industry has adopted three primary operational strategies: national, global, and regional. Furthermore, the results indicate that while only a few airlines have changed their strategies over time, some of these changes are significant. Additionally, this study highlights the considerable and growing development of associative phenomena within the airline industry, although differences exist between companies. These two areas of company activity should be jointly analyzed because associative behavior is a natural complement to the operational strategies developed by the airlines. The focal airline's network of routes and destinations is complemented by mobilizing the routes and destinations of its partners through codeshare agreements (Casanueva et al., 2014). This process reduces the number and percentage of routes directly operated by an airline and increases the number of routes operated by third parties, which increases the virtualization of the focal airline. The results systematize and document the primary trends observed in the sector, which are evidenced by company strategies but not previously analyzed in a systematic or comprehensive manner. An important contribution of this study derives from its longitudinal character, which allows us to understand the evolution of these strategies.

The results of this study should be of interest to scholars who focus on the airline industry, managers, and public authorities. From an academic perspective, this study is relevant to the airline industry literature in three ways. First, the results present a consistent and systematic overview of the various operational strategies used in the airline industry, which is useful for individuals who need to improve their understanding of company behavior. Second, this study introduces the topic of airline virtualization, a phenomenon that has not yet received much attention in studies regarding the airline industry, but will surely mark the competitive future of this sector. Finally, the results are obtained by adopting two theoretical perspectives not previously combined in prior studies: the relational-social perspective (Das and Teng, 2002) and the strategic groups perspective (Porter, 1980).

From a business practice and public policy perspective, identifying the strategies developed in the industry and their evolution provides information that may be of interest to professionals who make decisions regarding the future of their companies. This study highlights the various operational strategies used in the industry, which evolved individually. In addition, this study emphasizes the importance of the role of codeshare agreements and global alliances in the expansion of an airline's network of routes and destinations. The increase in the number of codeshare agreements and partners also implies challenges for managers because they must manage a broad portfolio of alliances and determine strategies that can take advantage of potential synergies (de Man et al., 2010; Hoffmann, 2005). Finally, the results demonstrate that some of the fastest-growing airlines in recent years are located in different areas, have been supported by their respective governments, and are likely to become the leading companies in the industry.

The paper is structured as follows: The next section provides an overview of prior studies regarding alliances, global alliances, and strategic groups in the airline industry. Section 3 describes the methodology used in this study. Section 4 analyzes the primary operational and associative strategies used in the industry and their evolution and demonstrates how they have led to increased virtualization in the industry. Section 5 presents the conclusions, implications for practitioners and researchers, and limitations of this study and suggestions for future studies.

2. Theoretical background

2.1. Airline alliances and global alliances

The airline industry is a mature industry with a high degree of rivalry and a wide range of competitive practices. Recently, airlines have engaged in intense collaborative activity through strategic alliances. The formation of these alliances has increased considerably because of their many advantages for the airlines. Most importantly, alliances allow airlines to access new routes and destinations and avoid legal or regulatory barriers (Wan et al., 2009). Second, alliances allow airlines to obtain cooperation benefits, due to economies of scale and scope (Weber and Dinwoodie, 2000), as in the cases of sharing sales offices, operational facilities, maintenance costs, and frequent flier plans (Wang, 2014; Wu and Lee, 2014). Third, alliances can induce an increase in the traffic of the airlines, which in turn results, under equal conditions, to an increase in the load factor and operational efficiency of the airlines (Alderighi and Gaggero, 2014; Barros et al., 2013). Finally, alliances involve a number of benefits for the travelers, such as flexible schedules, increased flight frequencies, improved luggage handling services, and shared frequent-flyer programs (Wang, 2014), which result in passenger loyalty for the airlines (Wan et al., 2009). Although many types of strategic alliances exist, such as co-location agreements at airports (Wu and Lee, 2014), frequent-flyer programs (Wang, 2014), and codeshare agreements (Evans, 2001), code-sharing is the most common type of alliance in the industry (Alderighi et al., 2015; Min and Joo, 2016) and largely determines the airlines' cooperative behavior. A codeshare is a commercial agreement between two airlines that allows passengers to use a ticket from one airline to travel on another airline. This type of agreement has increased considerably because it allows an airline to increase its market share while reducing operational costs by benefiting from economies of scale, scope, and density (Adler and Hanany, 2016).

In this industry, destinations are a key resource, whether these are perceived as an element in a network structure or as a market. Wassmer and Dussauge (2012, p. 874) note that "for an airline, one of the critical resources through which to achieve competitive advantage is its route network, that is, access to a wide range of city-pair markets." The mobilization of these partner destinations has led to a broad spectrum of collaborative arrangements, particularly codeshares (Casanueva et al., 2014). However, in addition to these advantages, the growth of this type of alliance raises important strategic questions for the companies, regarding the issue of whether there are some "core resources" that an airline should protect, in the sense of keeping those routes/markets within its own portfolio (Kleymann, 2005).

As a result of the increase in the number of cooperation agreements, many airlines have created a governance structure to manage their alliance portfolio (de Man et al., 2010). This portfolio refers to "a firm's collection of direct alliances with partners" (Lavie, 2007, p. 1188) and managing these portfolios has become a critical activity because it directly affects a firm's competitiveness and financial performance (Hoffmann, 2005).

The creation of alliance portfolios and the subsequent need for portfolio management have also resulted from the formation of global alliances in the late 1980s (Fan et al., 2001). These new organizational forms were initially created because of the increasing importance of global scale (Gomes-Casseres, 1994). A global alliance refers to "a set of firms, linked through alliances that compete in a specific business domain." (Gomes-Casseres, 2003, p. 1) Unlike global alliances formed in other industries, which are temporary and linked to a specific project, global alliances in the airline industry are permanent and general in character (Gudmundsson et al., 2012).

The primary objective of airline global alliances is to contribute to the profitability and development of airlines in the long term, far beyond what any airline could achieve individually or bilaterally (Corbo and Shi, 2015). This objective is achieved through measures that