IBN HALDUN UNIVERSITY
SCHOOL OF GRADUATE STUDIES
DEPARTMENT OF AIR TRANSPORT MANAGEMENT

MASTER THESIS

THE EFFECT OF AIRLINE ALLIANCES ON THE PERFORMANCE OF AIRLINE COMPANIES: THE CASE OF STAR ALLIANCE

MELTEM ASUMAN HAKBİLEN

THESIS SUPERVISOR

ASST. PROF. NİHAT GÜMÜŞ

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by

MELTEM ASUMAN HAKBİLEN

A thesis submitted to the School of Graduate Studies in partial fulfillment of the requirements for the degree of Master of Science in Air Transport Management

THESIS SUPERVISOR

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APPROVAL PAGE

This is to certify that we have read this thesis and that in our opinion it is fully adequate, in scope and quality, as a thesis for the degree of Master of Science in Air Transport Management.

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This is to confirm that this thesis complies with all the standards set by the School of Graduate Studies of Ibn Haldun University.

Date of Submission Seal/Signature

ACADEMIC HONESTY ATTESTATION

I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

Name Surname:

Signature

ÖZ

HAVAYOLU İTTİFAKLARININ HAVAYOLU FİRMALARININ PERFORMANSINA ETKİSİ: YILDIZ İTTİFAK DURUMU

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Tez Danışmanı: Dr. Öğr. Üyesi Nihat Gümüş
Ocak 2022, 52 sayfa

Küreselleşmenin etkisiyle artan rekabet oranları, deregülasyonlar, serbestleşmeler birçok sektörde olduğu gibi havacılıkta da birçok değişikliğe yol açmıştır. Havayolları bu değişen ve artan rekabet ortamına yanıt olarak çeşitli dönüşümlerle karşı karşıya kalmıştır. Dünyadaki çoğu havayolu şirketi piyasada ayakta kalabilmek ve bu değişimlerin olumsuz etkilerinden kendilerini koruyabilmek için yeni stratejiler arayışına girmiş ve bir durumun sonucu olarak uluslararası havayolu ittifakları ortaya çıkmıştır. Bu çalışma günümüzde dünyanın en büyük uluslararası havayolu ittifakı olan Star İttifakı üzerine bir çalışmadır. Star İttifakı'nın havayolu firmalarının performansına etkileri incelenmiştir. Havacılık ağırlık merkezinin batıdan doğuya kayması ve bölgesel çeşitlilik oluşturmak adına Air China, Türk Hava Yolları ve Etiyopya Havayolları Star İttifakı'na üye havayolları arasından örneklem grubu olarak seçilmiştir. Finansal ve operasyonel bakış açısıyla çeşitli parametrelerde havayollarının Star İttifakı'na dahil olmadan önceki ve ittifaka dahil olduktan sonraki üç yıl temel alınarak değerlendirmeler yapılmıştır. Araştırma sonucunda operasyonel veriler Star İttifakı'nın ilgili havayollarının performansında olumlu etkileri gözlemlenirken finansal verilerde olumlu sonuçlar gözlemlenmemiştir.

Anahtar Kelimeler: Havayolu İttifakları, Star İttifakı, Air China, Türk Hava Yolları, Etiyopya Havayolları

ABSTRACT

THE EFFECT OF AIRLINE ALLIANCES ON THE PERFORMANCE OF AIRLINE COMPANIES: THE CASE OF STAR ALLIANCE

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Increasing competition rates, deregulations, and liberalizations with the effect of globalization have led to numerous changes in aviation as well as in many sectors. Aircraft have faced various changes in reaction to this changing and increasingly competitive environment. Most airline companies within the world have sought new strategies to survive within the market and to protect themselves from the negative effects of these changes, and international airline alliances have emerged as a result of this situation. This study is a case of the Star Alliance, which is the world's biggest international airline alliance nowadays. The effect of Star Alliance on the performance of airline companies was examined. In order to shift the center of gravity of aviation from west to east and to make territorial differences, Air China, Turkish Airlines, and Ethiopian Airlines were selected as the sample group among the member airlines of the Star Alliance. From a financial and operational point of view, assessments were made on various parameters based on the three years before and after the airlines joined the Star Alliance. As a result of the research, while the positive effects of Star Alliance on the performance of the pertinent airlines were observed in operational data, positive results were not observed in financial information.

Keywords: Airline Alliances, Star Alliance, Air China, Turkish Airlines, Ethiopian Airlines

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Meltem Asuman HAKBİLEN

ISTANBUL, 2022

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CHAPTER I

INTRODUCTION

Increasing competition rates with the effect of globalization, deregulations, liberalizations, and open skies policies have led to many changes in aviation as well as in many sectors, and the economic growth in the air transport industry has expanded air traffic. Airlines have confronted several transformations in response to this changing and increasingly competitive environment. Most airlines around the world have sought new strategies in order to survive in the market and protect themselves from the negative impacts of these changes, and as a result of this situation, international airline alliances emerged in the 1990s.

Within the second half of the 1990s and the early years of the twenty-first century, a period of alliance frenzy began among airlines within the international airline industry (Doganis, 2006). Alliances took many shapes over time, but for many, the main focus was the need to generate more income.

The type of Alliance chosen by the airline companies that make cooperation agreements for various reasons differs greatly according to the partner they cooperate with. While there is no clear distinction when diversifying alliances, they can generally be divided into tactical or strategic alliances. Although tactical alliances are common in the aviation industry, many airlines providing international services are increasingly inclined to join one of the three major global strategic alliance groups Star Alliance, Oneworld and SkyTeam (DOT, 2010). Strategic airline alliances are alliances that require serious resource investments, entering and exiting the Alliance is more difficult than tactical alliances. In this study, Star Alliance is evaluated as a strategic alliance group.

Although the development of airline alliances and the tendency of collaborative behavior among airlines have continued for many years, the growth in alliances

continues steadily. For airline companies, forming an alliance or joining an alliance can be beneficial for achieving objectives such as benefiting from economies of scope and density, having an expanded and uninterrupted flight network, forming joint ventures by avoiding the strict rules of countries, and minimizing the costs arising from all these (Gaggero & Bartolini, 2012). These benefits provided to airline companies by alliances may not be continuous. In addition, the alliances' forcing airlines to implement alliance service and system procedures, changes in aircraft design, and the unequal balance of power among alliance members will both cause additional costs to the airline and create situations that may damage the airline's brand image. In this study, these positive and negative effects are evaluated by focusing on the Star Alliance. The effect of the Star Alliance on the performance of member airlines has been wondered and this question has been tried to be answered. While examining the effect of alliance membership on airline performance, two main dimensions are considered, operational and financial. While determining the sample airlines, regional diversity was taken into account while current and expected aviation trends were not ignored.

This study investigates the contribution of Star Alliance membership to airlines based on the changes in the three-year financial and operational data for before and after alliance membership of Air China, Turkish Airlines and Ethiopian Airlines. When the operational parameters are examined, the positive effect of Star Alliance on the performance of the airline company is noticed. However, when the financial data is evaluated, it has not been observed that the Star alliance has made a significant contribution to the airline companies. It is assumed that this is due to the additional costs of alliance membership. Despite the fact that the Star alliance brings additional costs to the airline companies, the number of members is increasing every year and the airline companies do not give up their alliance memberships. One reason for this can be assumed to be regulatory restrictions that make airlines' traffic rights dependent on the nationality of the owner (Iatrou, 2006). It is recommended that airlines evaluate alliance groups that do not require significant resource involvement or research activities to reduce alliance costs. In cases where this is not preferred, it is recommended to investigate activities that reduce alliance participation costs.

CHAPTER II

HOW DO AIRLINE ALLIANCES WORK?

2.1. Definition of Airline Alliances

The definition of airline alliances includes many kinds of agreements. In order to understand these agreements between airline companies, it is necessary to emphasize the definition of strategic alliances. Goetz & Hale (2012) defines strategic alliances as organizations in which companies combine their endeavors and assets while keeping up their partitioned existence in order to pursue commerce with a purpose.

In general, strategic alliances are a form of cooperation between two or more commercial organizations that are getting to be increasingly popular and widespread. Although the industry with the most alliances is the airline industry, the existence of strategic alliances is additionally common in industries where the operation network is critical, such as telecommunications, shipping, and logistics (Zhang, 2005).

Pablo E. Fernandez dela Torre (1999) specified that there are uncertainties within the definition of airline alliances. Distinctive definitions of strategic alliances, which are more particular concepts and common airline alliances are kept partitioned from each other. Airline alliances are defined as any kind of common assertion between two distinctive airline carriers in order to take advantage of the organization of activities performed whereas performing air transport services. Strategic alliances, on the other hand, are agreements that have risen at the senior management level that require a high degree of commitment within the coordination of activities carried out by two or more service supplier airlines to achieve foreordained common objectives and also require conscious strategic consideration.

In the airline industry, airline alliances encompass a wide variety of commercial or operational collaborations between two or more airlines. According to IATA (2010),

alliances are defined as joint ventures or business relationships in which three or more airlines market a joint and widely identifiable product under the same trademark name.

2.2. History of Airline Alliances

The air transport industry has witnessed numerous changes in its history, beginning with the deregulation of the U.S. industry in the 1980s and the European industry in the 1990s. The formation of strategic alliances between international air carriers, which will evolve over time, represents an imperative innovation. In the 1980s, while there was no global alliance between airlines, agreements were made between airline companies, ordinarily within the shape of code sharing.

In 1985, it was seen that nearly all of the enormous 50 airline companies of that period built up a code-sharing organization with a major airline company (Oster & Pickrell, 1986). In these alliances, which started as code sharing, the airlines participating within the alliances appeared to have positive improvements in terms of competition compared to the airlines that did not join the alliances.

According to Incorporated Gra (1994), the first international code-sharing agreement emerged between American Airlines and Qantas in 1985. Oum & Yu (1998) states that in aviation, the first international alliance was between Air Florida and British Island in 1986.

By the early 1990s, the number of wide-ranging strategic alliances expanded, with the primary major worldwide alliances being shaped between Northwest and KLM. Currently, nearly every major airline is a portion of a major international alliance such as Oneworld, Star Alliance, and SkyTeam (Flores-Fillol & Moner-Colonques, 2007). By the 1990s, these alliances formed global airline alliances, getting to be bigger organizations to incorporate code-sharing.

The airline alliance frenzy period among airlines has led to the emergence of three major global airline alliances (Sky Team, Oneworld, and Star Alliance) that still exist nowadays (Doganis, 2006).

2.3. Why Do Airlines Join Alliances?

Increasing competition rates with the effect of globalization have led to many changes in aviation as well as in many industries. These globalization and deregulation factors have pushed airlines to create more alliances (Iatrou & Alamdari, 2005). The participation of airlines in alliances makes it easier for them to adapt to the conditions foreseen by this competition on a global scale. In the early 1990s, the aim of reducing rising costs (labor and fuel) necessitated the establishment of alliances between airline companies (Doganis, 2006). There is also proof that the number of global alliances contains a positive effect on flight supply (Alderighi & Gaggero, 2014).

Gudmundsson & Rhoades (2001) focused on four strategic variables that supported airlines' participation in alliances. The most prevalent driving force is that international markets that airlines cannot reach through bilateral agreements are accessible through alliances without the requirement for bilateral agreements. The second drive pushing airlines to join alliances is their willingness to maintain their global flight networks uninterrupted. Research results have appeared that an airline that shortens travel times, features a high number of online connections, and incorporates a visit flyer program is more alluring from a consumer point of view than a competitor that does not have these features (Tretheway & Oum, 1992). Within the third factor, it is pointed to minimize costs by carrying out joint activities with other alliance member carriers or by economies of scale impact. The fourth factor is the airline's willingness to operate in a market where the rate of profit, traffic pattern, and/or development required for its own survival isn't sufficient.

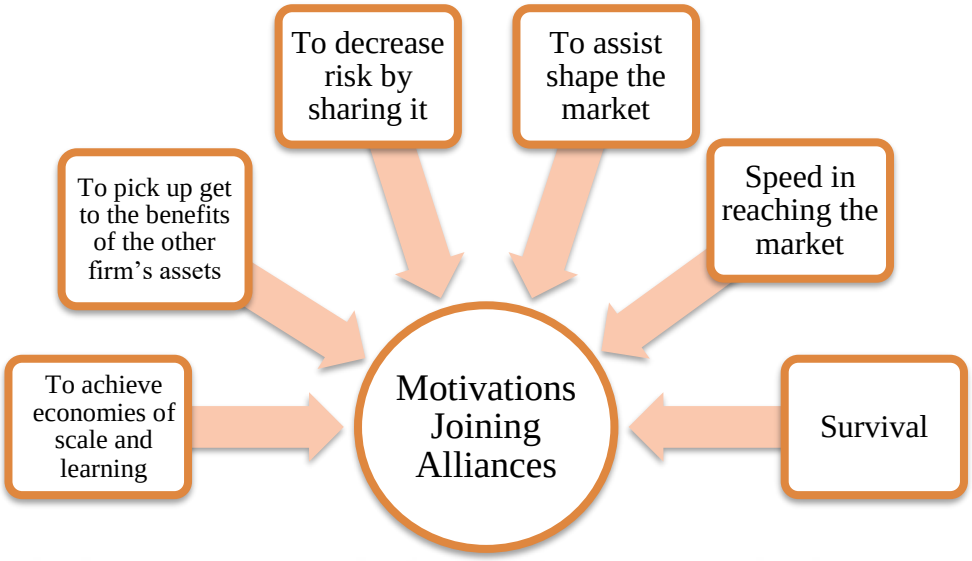

Figure 2.1. Airlines' Intent to Join Alliances (Bennett, 1997)

Source: Bennett, 1997

Within the study of Oum & Park (1997), the reasons behind joining alliance participation are listed as follows:

- Airlines want to be a part of the alliance to have more than their own service network by adding the networks of other airline alliance member airlines to their own service network, to make a "seamless" service network, and as a result to attract more travelers.
- The seamless network effectively built up between alliance member airlines feeds each other's traffic and offers its travelers the option of nonstop flights.
- The alliance partners feeding each other's traffic and making a seamless network will cause a decrease in the unit costs of the airlines. In expansion, the use of facilities at the airports, advertising and promotion services, and the joint execution of operational activities will provide cost efficiency and economies of scale.
- Airline company that has extended their flight network and offered more frequent flight connections to their travelers through alliances will have significantly moved forward their service quality by expanding the rate of online connections.

- An alliance member airline, with its extended flight network and flight connection frequency, can offer its travelers much more route alternatives than a comparable size airline that's not a member of the alliances.
- When code-sharing flights are made between alliance member airlines, the code-sharing flight ensures that they are listed more than once within the computer reservation system, and the flights of other airlines are displayed on the following page. Listing the code-sharing flight more than once on the computer reservation system screen allows it to be listed as leading to the interline flights.

2.4. Diversification of Airline Alliances

The fact that there are many reasons that push airlines to make alliances has moreover driven the diversification of alliances between carriers in this diversity of alliances, able to see alliance agreements that are kept up bilaterally for a single purpose, as well as alliance groups shaped by more than one airline to serve multiple purposes. Whereas there are no detailed categories, alliances can be broadly classified as either a "tactical" or a "strategic" alliance (DOT, 2010).

Tactical alliances can appear in various sources as informal, marketing, or commercial alliances. Tactical alliances are a shape of cooperation between two airlines on a restricted number of routes to solve a specific issue within the airline's flight network (ICAO, 2015). They are generally made for the purpose of picking up marketing benefits and do not involve high risk as they do not require huge resource engagements (Bennett, 1997). Interline/pro-rate, mutual ground handling, frequent-flyer programs, code-share, block space, ticketing outlets, and joint engineering/flights are tactical alliance agreements.

Strategic alliances are not just bilateral agreements like tactical alliances, they are agreements in which two or more carriers participate in an arrangement to achieve common goals. In strategic alliances, a carrier that is an official member of the alliances cannot formally join another strategic alliance at the same time on the other hand, all member carriers may enter into strategic cooperation agreements with any or more carriers from the same alliance group or from a different alliance group (Fan et

al., 2001). Strategic alliances incorporate agreements included in tactical alliances as well as numerous agreements such as comprehensive code sharing, frequent flyer program reciprocity, joint ventures, franchising, joint cargo, and passenger services ventures. Three major strategic alliances between airlines (Star Alliance, Oneworld, and Sky Team) built up within the last ten years account for approximately 70% of passengers and income in the international market (Holtbrügge et al., 2006).

Whereas tactical alliances do not have a statistically significant impact on the efficiency, pricing, or profitability of member carriers, strategic alliances empower alliance member carriers to increase their efficiency by an average of 5% and increase their profitability by an average of 1.4%, and it also reduced consumer prices by an average of 5.5% (Oum & Zhang, 2001).

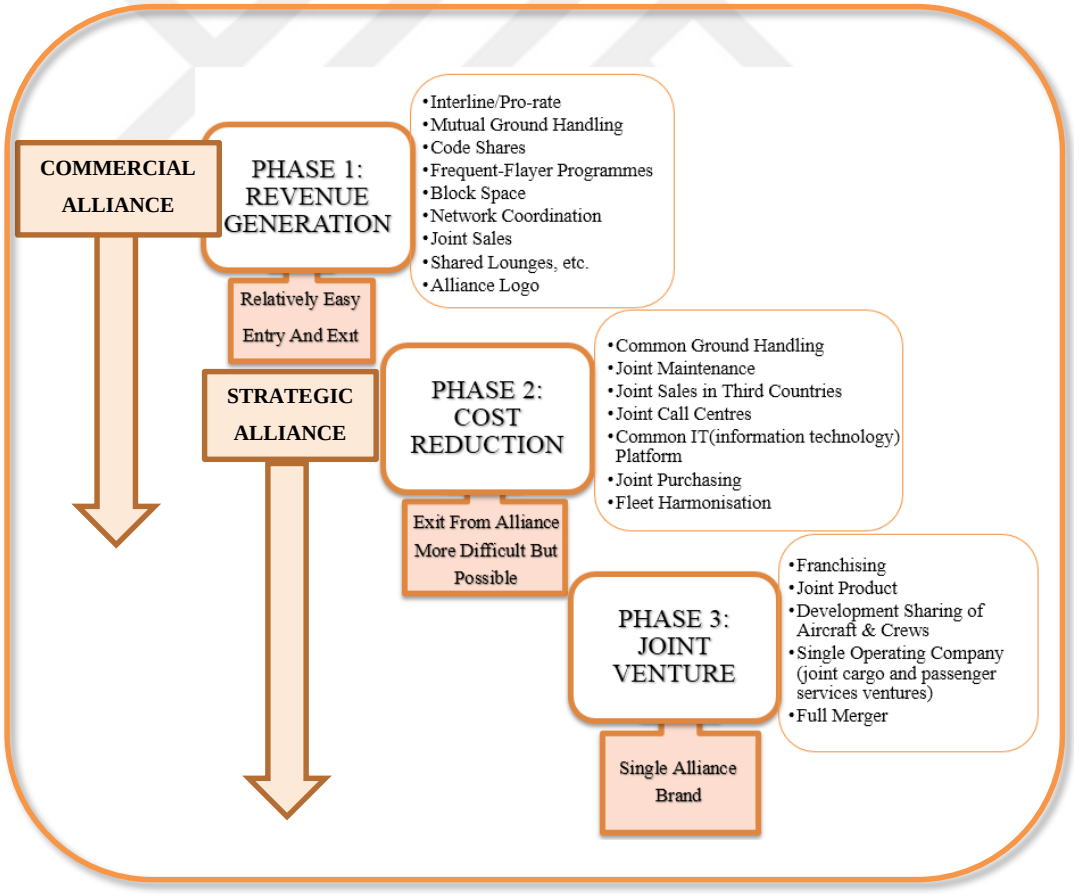

Figure 2.2. Diversity and Phases in Airline Alliances (Doganis, 2006)

Source: Doganis, 2006

Pablo E. Fernandez dela Torre (1999), adopting a different view, stated that alliances diversify according to the characteristics of alliances, the rate of alliance members being included in the alliances and the nature of the markets in which they apply the agreements. Three alternatives are identified, the first of which is based on the scope of the alliances and the remaining two on the administrative aspects of the agreement.

2.4.1. Types of Alliances by Scope

Alliances, whether commercial or strategic, can be categorized according to their geographic spread. Alliances are grouped under four fundamental headings according to their scope.

In **global alliances**, which can also be called strategic alliances, the partners are from different countries and often the flag carrier airline or the airline with significant worldwide scope. When evaluated in terms of scope, the most important alliances are global alliances due to network expansion. The main purpose of airlines joining global alliances is to associate the systems of two or more major carriers operating in geographically different markets and different continents and to obtain all the marketing benefits and cost economies through the expanding network (Doganis, 2006). Airlines join global strategic alliances with an ever-increasing trend for reasons, such as following fast-changing innovations, accessing certain foreign markets and distribution channels, alleviating over-productive capacity problems around the world and making new products (Parkhe, 1991). Global alliance groups collectively have a share of 63.6% in world passenger traffic (RPK), 55.8% in passenger numbers, and 58.4% in group revenues (Oum et al., 2000).

Domestic alliances attempt to attain the same goal at the local level as global alliances. Airlines aim to increase their domestic presence by combining their flight networks with a partner airline network. Bamberger et al. (2001) examined the impacts of two local airline alliances and observed a decrease in average fares and an increase in total traffic after domestic alliance arrangement within the determined flight networks. It was also revealed that airline alliances benefit their consumers.

Regional alliances are commercial agreements between carriers flying to a specific geographic range or over several routes from a particular range, often including code sharing, marketing agreements, capacity coordination, and utilization of each other's business lounges.

Point-specific alliances are the most common agreements within the industry, executed on a route or in a restricted number of city pairs. Most airlines included in global strategic alliances moreover constantly partner in such small alliances. Almost all major airlines form point-specific alliance partnerships with other carriers in an attempt to increase their efficiency and further penetrate the market.

2.4.2. Stability and Structural Complexity

Rhoades & Lush (1997), while revealing the nature and characteristics of alliances in arrange to foresee the stability and duration of alliance agreements, classified alliances as follows within the framework of the commitment of resources and the complexity of arrangement:

Type I- Codesharing: Interline partnerships where the marketing carrier (the airline that offers the seat) offers tickets by placing its own carrier flight code on the flights of the operating carrier (the airline that provides the flight) are called code sharing (Klophaus & Lordan, 2018). Moreover, code-sharing agreements can be executed by joint pricing of capacity or by permitting one carrier to purchase and resell a portion of the capacity of another carrier (Pels, 2001). Code-sharing agreements do not require a high level of commitment, so they can be between airlines that are members of the same alliances or between airlines that are members of different alliances. Airlines around the world have been increasingly embracing code sharing and global alliances in recent years (Zou & Chen, 2017). Seredyński et al. (2017) have revealed that codesharing connections cover approximately a quarter of the overall number of international connections made by alliance member carriers. 73% of these codesharing associations occur between carriers that are members of the same alliance, 6% between other alliance part carriers, and the remaining between other carriers that are not members of the alliance.

Type II-Blocked space agreements, revenue sharing, wet-lease, and franchising: It is a blocked space agreement where an airline allocates a seat from another airline's flight and sells it to the passenger through its own distribution system. It is wet leasing when the airline leases the aircraft of another airline with its personnel, while the airline only takes the brand value and supplies the aircraft and its personnel by itself. This is considered as franchising agreement. In Type II a franchising, the amount of interaction is low while the resource requirement is moderate.

Type III-Computer reservation systems (CRS): The airline's purchase of computer reservation systems has benefits. The resource commitment is high due to reasons such as the purchase of the system, the transition process to the purchased system, and the training requirement for effective use. Having this system implemented makes the level of interaction unimportant.

Type IV-Insurance and parts pooling: These are alliances in which carriers regularly share facilities, have analogous route structures, or have small fleets. Alliance partners jointly purchase parts or insurance to reduce high costs or to allow for more prominent availability of parts.

Type V-Joint service: This covers the coordination of the flights of the airlines with the partner airline and the joint use of at least one aircraft. The commitment of resources and the complexity of arrangement in these alliances are moderate.

Type VI-Management contract: Both alliance partner carriers or only one carrier is responsible for a part of the alliance. The resource commitment is high as the alliance member carriers will provide employees to the alliance.

Type VII-Baggage handling, ground maintenance, and facility sharing: In such alliances, alliance member airlines aim to run their operations smoothly and reduce costs.

Type VIII-Joint marketing. Airlines reduce the marketing cost generated by running a joint service to promote the vast flight networks that are generated by the flight networks of both themselves and their partners. Resource commitment is moderate due

to marketing costs, and interaction level is high because it requires trust among competitors.

Type IX-Equity/governance: Airline alliances can conclude equity sharing or swapping agreements. The airline's level of interaction is high, as the purchase or exchange of shares requires a significant financial commitment.

2.4.3. The Three-Stage Evolution

Freidheim (1998) considers that international strategic alliances develop in three stages. **Single-purpose alliances (stage 1)** are when companies connect more with other companies at the stage where they cannot continue alone. In the **network of partners (stage 2)**, the partnership forges deeper alliances with airlines as airlines enter new markets. At this stage, there is a common goal, strategy, value, and at the same time trust. Many carriers nowadays join alliances such as the Star Alliance or Oneworld Alliance at this evolutionary stage. **Multiple partners acting in concert (Stage 3),** partners are aware of their potential strength and begin to act together as one company. There is no existing airline alliance at this stage.

2.5. Impacts of Joining Airlines Alliance

The lack of clarity of industry boundaries, rapid changes in technology, and global integration have driven airlines to join a strategic global airline alliance to increase their competitiveness and customer satisfaction (Liou et al., 2011). Airline alliances offer a vast extent of advantages to alliance partner airlines and their travelers, they moreover have negative impacts.

While strategic alliances provide positive effects related to basic economies in industry performance among airlines within the shape of network density, vertical integration, and economies of scale, they can moreover lead to negative effects related to reduced competition, such as higher fares and lower service levels (Youssef & Mark, 1993).

2.5.1. Positive Perspectives of Airline Alliances

Airline alliances provide benefits to both alliance member airlines and travelers. When viewed from an airline perspective, the benefits of alliances are (Oum & Park, 1997; Rhoades & Lush, 1997; Weber & Dinwoodie, 2000) :

- Being a part of the alliances provides easy access to global markets where entry is made difficult by the government.
- Alliance member carriers performing connected operations permit the same amount of flights to be kept up at less cost and provide economies of scale.
- Alliance member airlines can accomplish higher traffic levels by creating coordinated programs on the same flight network.
- Airlines have the opportunity to shape the industry whereas removing boundaries for those who want to be included within the industry.

From an airline's viewpoint, Kleymann & Seristö (2004) described the benefits of being part of the alliance as potential economies of scale over numerous functions, economies of density in flight networks, the advantage of a significant market presence and being part of a bigger operation geographically. From the passenger viewpoint, they emphasized that the main reason for the airlines participating in an alliance is to extend the value of the service offered in the eyes of the customer.

Goh & Uncles (2003) clarified the benefits of alliances for consumers as follows:

- Greater network access: Airlines can offer their passengers more network options by using the flight networks of other airlines that are members of the alliance. In addition, this extended flight network leads to a decrease in the travel time of the travelers.
- Seamless travel: Airlines that have a wider flight network than the flight networks of alliance member airlines, can offer their travelers an uninterrupted travel experience for connecting flights.
- Transferable priority status: The expansion of privileges such as priority check-in, baggage procedures, reservation waitlist, airport standby, etc., offered to its passengers by the airline to cover all partner airlines with alliance membership,

provides passengers with greater access to priority advantages in partner airlines.

- Extended lounge access: With the alliance partnership, the consumer can access the lounges created by the airlines for their priority passengers, not only by the airline they fly to but also by many other member airline lounges.
- An enhanced frequent-flyer program (FFP): Before the alliance membership, an airline's frequent flyer points and any other perks could only be used at the relevant airline. The FFP allows points collected to be combined in all alliance member airlines, making it easier for passengers to transition to priority status.

2.5.2. Negative Perspectives of Airline Alliances

Alliances can provide many benefits for airlines, such as cost reduction, increase in passenger traffic, economies of scale, expansion of flight networks, etc. However, this is not always the case. Although alliances reduce the costs of partner airlines, they can force airlines to make significant efforts to support alliance formation and incur additional costs, ranging from financial costs to cultural costs (Pablo E. Fernandez dela Torre, 1999). These costs are transaction costs arising from the interaction between partner airlines (Youssef, 1992). Another factor that increases the cost is the necessity of the alliance member airlines to reconsider their service and system procedures in order to meet the standards of the alliances.

Iatrou (2004) emphasized that the establishment of cooperation between rival airlines presents more difficult conditions than expected. Being in an alliance and forming that partnership is difficult for airlines, and the benefits of being a member of the alliances are limited and often not tangible and measurable. The negative effects of being an alliance member are explained as follows:

- Alliance member airlines' have to be compelled to make concessions in situations contrary to their own strategies, and efforts to align their procedures with the alliances may cause the airline to lose its independence and character.
- In spite of the fact that network optimization appears to be useful for the alliances, this advantage may not apply to all members. The member airline may have to be part of the market rather than owning it all.

- A customer experience in issues such as security and service resulting from the unequal balance of power between an alliance member airline will adversely affect both the brand image and independence of a strong alliance member airline.
- Requesting the establishment of a single supplier for all alliance members instead of the suppliers with which the alliance members have long-term relations will lead to conflicting agreements. This can result in airlines having to invest time and cash in getting to know new providers and their systems.
- Alliance participation will impose additional costs on airlines at many stages, such as significant investment to meet commitments, change in airplane design, alliance membership charge, and redesign of existing systems in utilization.
- The desire of airlines to join alliances for distinctive reasons causes a conflict of expectations and coordination issues among alliance member airlines.

CHAPTER III

THE THREE GLOBAL AIRLINE ALLIANCES

Increasingly difficult to operate has pushed airlines to join one of three existing global strategic alliance networks; Star Alliance, Oneworld, and SkyTeam. Airlines registered to the three global airline alliances established during 1997-2000 cover half of the world's seat capacity and approximately 80% of intercontinental traffic between Asia, Europe, and the Americas in more than a decade (Tugores-garcía, 2012).

Examining the past 10-15 years of airline alliances, a significant increase is observed in the size and depth of international air transport. In terms of size, when looking at the years 1997-2000, the relevant alliances were established by a total of 14 airlines. The number of member airlines to these alliances increased to 52 in 2010 (27 in Star, 13 in SkyTeam and 12 in Oneworld), which means that individual airline companies tend to be more included in Star Alliance, SkyTeam or Oneworld. In terms of depth, members of all three global alliances get progressively more freedom in planning different perspectives of joint operations, including planning and pricing decisions and establishing revenue-sharing joint ventures in worldwide markets (Bilotkach & Hüschelrath, 2012). The three major airline alliances expanded their airline membership from 34 in 2004 to 54 in 2012, resulting in an increase of 58% (Zou & Chen, 2017). The share of the three alliance networks in available seat kilometers (ASK) was approximately 77% in 2013 (Wang, 2014).

Nowadays, the number of members of the alliances, the number of destinations, annual passengers, fleet size, etc., appear in table 3.1.

Table 3.1. General Information About the Three Major Airline Alliances

	STAR ALLIANCE	ONEWORLD	SKYTEAM
Incorporation date	14 May 1997	1 Feb 1999	22 June 2000
Full members	26	14	19
Destination airports	1294	1012	1150
Destination countries	195	170	175
Annual passengers (M*)	762	490	630
Fleet size	5013	3296	3054
Headquarters	Frankfurt am Main, Hesse, Germany	New York, USA	Amsterdam Airport Schiphol Haarlemmermeer, Netherlands
Management	Jeffrey Goh (CEO) Scott Kirby (Chairman)	Rob Gurney (CEO) Akbar Al Baker (Chairman)	Kristin Colvile (CEO) Walter Cho (Chairman)
Alliance slogan	The Way the Earth Connects	Travel Bright	Caring More About You
Web Site	staralliance.com	oneworld.com	www.skyteam.com

*Million (1,000,000 times)

Source: Own representation by investigating websites of airline alliances (https://www.staralliance.com/, https://www.oneworld.com/, https://www.skyteam.com/en)

3.1. Star Alliance

Star Alliance is the world's first and largest global airline network. It was founded on May 14, 1997 by Air Canada, Lufthansa, Scandinavian Airlines System, Thai Airways International, and United Airlines. Since then, Star Alliance has expanded to 26 member airlines that together offer an extensive network in 195 countries around the world. Star Alliance associates provide flight services to 762 million passengers annually at 1,294 different airports with a fleet size of 5,013. The Alliance has a two-

tier rewards program: Silver and Gold. Like other airline alliances, Star Alliance airlines share airports known as co-locations, and many member airlines' aircraft are painted in the alliance's appearance.

Table 3.2. Star Alliance Member Airlines Information

STAR ALLIANCE MEMBERS	Date Joined	Destination Countries	Fleet Size	Destinatio nAirports	Daily Departures
Aegean Airlines	June 2010	44	49	134	139
Air Canada	May 1997	63	397	218	1,631
Air China	December 2007	42	397	189	1,300
Air India	July 2014	31	127	123	470
Air New Zealand	March 1999	17	113	51	500+
All Nippon Airways	October 1999	23	266	98	968
Asiana Airlines	March 2003	22	84	76	277
Austrian Airlines	March 2000	58	83	130	414
Avianca	June 2012	27	190	102	750
Brussels Airlines	December 2009	49	48	118	250
Copa Airlines	June 2012	33	104	81	340
Croatia Airlines	December 2004	24	12	39	93
Egyptair	July 2008	47	69	72	220
Ethiopian Airlines	December 2011	75	108	126	314
EVA Air	June 2013	18	79	58	162
LOT Polish Airlines	October 2003	50	75	90	380
Lufthansa	May 1997	75	351	214	1710
Scandinavian Airlines	May 1997	30+	156	126	817

Table 3.2. (cont.)

Shenzhen Airlines	November 2012	10	215	84	850
Singapore Airlines	April 2000	32	112	63	256
South African Airways	April 2006	22	46	32	101
Swiss International Air Lines	April 2006	44	90	100+	400
TAP Air Portugal	March 2005	36	99	93	395+
Thai Airways	May 1997	31	102	76	311
Turkish Airlines	April 2008	124	335	311	1,400
United Airlines	May 1997	58	1,329	353	4,800

Source: Own representation by investigating websites of Star Alliance, (2021) (https://www.staralliance.com/)

3.2. Oneworld

Oneworld is an airline alliance formed on February 1, 1999 and has 14 members. The objective of the alliance is to become the primary preferred airline alliance for the world's frequent worldwide travelers. The Alliance serves approximately 1,012 airports in 170 countries and carries more than 490 million travelers annually with a fleet size of 3,296 aircraft. It offers member airlines a range of global products, including closer connectivity to frequent flyer programs, mutual access to airport lounges, and smoother transfers between airlines, and Oneworld Explorer fares (Iatrou & Alamdari, 2005).

Table 3.3. Oneworld Member Airlines Information

ONEWORLD MEMBERS	Date Joined	Destination Countries	Fleet Size	Destination Airports	Daily Departures
American Airlines	February 1999	61	1,547	370	6,800
British Airways	February 1999	85	333	240	1,453
Cathay Pacific	February 1999	35	201	106	600
Finnair	September 1999	46	85	136	360
Iberia	September 1999	46	152	145	580
Japan Airlines	April 2007	21	216	84	875
Malaysia Airlines	February 2013	22	84	80	325
Qantas	February 1999	17	235	85	740
Qatar Airways	October 2013	79	223	165	500
Royal Air Maroc	April 2020	51	59	105	245
Royal Jordanian	April 2007	30	25	46	90
S7 Airlines	November 2010	34	99	148	335
SriLankan Airlines	May 2014	20	26	40	90
Fiji Airways	June 2018	14	11	36	25

Source: Own representation by investigating websites of Oneworld, (2021) (https://www.oneworld.com/)

3.3. SkyTeam

Established in June 2000 by Delta Air Lines, Aeroméxico, Air France, and Korean Air, SkyTeam is the last of the world's three major airline alliances. Along with ten airlines, all of which are SkyTeam individuals, it moreover operates a cargo alliance called SkyTeam Cargo. With 19 member airlines, SkyTeam flies to more than 1,150 destinations in more than 175 countries. The Alliance and its individuals have 750 lounges around the world. Check-in counters, shared services at the air terminal, self-

service kiosks, and baggage delivery regions to SkyTeam's first exclusive check-in range can be used by SkyTeam individuals.

Table 3.4. SkyTeam Member Airlines Information

SKYTEAM MEMBERS	Date Joined	Destination Countries	Fleet Size	Destination Airports	Daily Departures
Aeroflot	April 2006	56	250	163	760
Aerolíneas Argentinas	August 2012	13	82	57	372
Aeroméxico	June 2000	24	121	88	600
Air Europa	September 2007	24	59	59	267
Air France	June 2000	91	302	195	1,500
China Airlines	September 2011	29	88	160	116
China Eastern Airlines	June 2011	36	640	272	2,382
Czech Airlines	March 2001	21	14	31	87
Delta Air Lines	June 2000	52	800+	304	5,000
Garuda Indonesia	March 2014	12	142	70	433
ITA Airways	October 202	17	52	47	321
Kenya Airways	September 2007	44	41	56	158
KLM	September 2004	73	204	164	357
Korean Air	June 2000	44	169	125	423
Middle East Airlines	June 2012	23	18	32	72
Saudia	May 2012	39	170+	95	580+
TAROM	June 2010	25	25	38	57
Vietnam Airlines	June 2010	17	98	52	400
XiamenAir	November 2012	16	173	92	512

Source: Own representation by investigating websites of SkyTeam, (2021) (https://www.skyteam.com/en)

CHAPTER IV

LITERATURE REVIEW ON THE EFFECT OF AIRLINE ALLIANCES ON THE PERFORMANCE OF AIRLINES COMPANIES

Many researchers investigate the contribution of being a member of the alliance to the performance of the airlines. There are studies that examine certain parameters and compare the effects on the member airlines and alliance groups with each other. According to the purpose of the research, the methodology used to measure the effect of alliance membership on airlines differs. Difference-in-difference analysis, data envelopment analysis (DEA), the Malmquist productivity ındex, stochastic frontier analysis, panel data analysis, and questionnaire analysis are analysis methods in the literature used to measure the effect of airline alliances on the performance of airlines.

Oum and Park (1997) have studied in this article the current state of airline alliances, government policies regarding alliances, and the effects of intercontinental alliances. They also predicted the formation of future alliance networks. This article gives views on regions of participation and joint activities between alliance accomplices, based on a survey of forty-six alliances among 30 carriers. It has been demonstrated that alliances are permanent organizations, increasing the profit opportunities of carriers and providing benefits for customers. The article concludes that it is likely that carriers and their customers will benefit from alliance membership increasing the level of competition between low market share airlines and large market share airlines. In the future, it is predicted that the main global alliance networks will remain in limited numbers. However, they will hold a large part of the air transport traffic.

Kleymann & Seristö (2001) In this article, as they describe the risks and benefits emerging from the arrangement of alliances, the levels of alliance memberships are talked about. The article employs companies' own and third-party materials as a source of data and is based on an empirical analysis of detailed alliances within the carrier

industry. As a result, it is explained that the risky investments of alliances are actually a productivity producer role and a role that helps to build trust within the alliance. It has also been criticized that airlines consider alliances only as a wave of fashion, and the alliance's regulatory parties have not taken a globally viable and firm stance.

Agusdinata and De Klein (2002) aimed to define the driving force in the establishment of alliances in this work. It then examined the internal stability of alliances both inside and outside. They used the dynamic approach method while making these examinations. As a result, it has been revealed that understanding the dynamics of the alliance has two benefits. They first showed that this approach could be helpful for airlines wishing to join a suitable alliance group. On the other hand, it is argued that this understanding will be useful in order to improve the current performance of the alliance and to better manage the members of the alliance groups.

Morrish and Hamilton (2002) conducted a study to find out who benefits from global airline alliances. In spite of the fact that this examination could be a work of approximately 15 a long time, there's no conclusive proof that an alliance membership gives imposing business model benefits for airlines. They did not indicate in which way the relationship of airline alliances was inspected in these considerations, but they were inspected and referred to in ranges such as alliances outcomes, performance, traffic volume, load factors, fares, and profitability.

Iatrou and Ã (2005) examined the effects of four global airline alliances: Wings, Star Alliance, Oneworld, and SkyTeam, on the overall performance of alliance member airlines through questionnaire analysis. The common effect of alliances on carriers operation, evaluating the recognition of airlines concerning alliances participation and the effect of carriers' alliances on passenger traffic are detailed within the comes about of the survey in which the alliance management departments took part. The analysis results show that the type of cooperation between member airlines yields different results among alliances. While the biggest impact is experienced in passenger traffic, this traffic increase is found in the route type in the form of a hub-hub. In addition, the examination appears to show that there was a positive increment in both passenger traffic and load factors, and as a result, revenue is positively affected only in some cases.

Bilotkach & Hüschelrath (2012) This article examines selected antitrust effects of airline alliances. While discussing the effects of the classification of airline alliances on competition between airlines, the contribution of this rated competitive effect to the efficiency of airlines is detailed. While the article draws many conclusions, the general conclusion is that it is only possible to evaluate the economic effects of antitrust immunity together with the relevant incremental benefits if most types of efficiency can only be considered partially immune specific.

Lin' s (2013) study is on 20 international airlines from 1995-2005. These airlines are divided into two important groups. While determining the airlines, he chose some of them from among the airlines that are not members of the airline alliance, and some from among the airlines that are members of the three major strategic airline alliances: Star Alliance, One World, and Sky Team. He studied airlines in terms of technical efficiency, productivity, and profitability. While data envelopment analysis and Stochastic Frontier Analysis were used for airline technical efficiency, he preferred to use panel regression analysis to examine airline productivity and profitability. This study shows that joining an airline strategic alliance bunch, for the most part, will have positive impacts on its part airlines' technical efficiency, productivity and profitability. However, the study moreover found that positive effects cannot continuously be accomplished. It is also stated in the study that whether the airline is in the pre-maturity stage, the number and size of the alliance group and the minimum duration of membership in the alliance group negatively affect the said positive effect.

Kuzminykh and Zufan (2014) analyze the data of 65 carriers (14 of Star Alliance, SkyTeam and Oneworld member carriers) and examine the effects of alliance membership on indicators, such as turnover, total assets, and the number of employees of carriers using panel data methods. The data of the carriers were taken from the Amadeus database within the 10-year period between 2003-2012. The results of the analysis show that alliance participation includes an exceptionally strong impact on the turnover, total assets of the airlines and a strong effect on the number of employees of a specific allied company.

The article from Min and Joo (2016) evaluates the comparative productivity of strategic alliances of which worldwide carriers are individuals. The administrative effect on the comparative performance of airline alliances was examined. This effectiveness study was analyzed utilizing a data envelopment analysis strategy, counting 27 Star Alliances individuals, 9 Oneworld individuals, 8 Skyteam individuals, and 15 aircraft that are not individuals of any alliance between 2006-2010. Underutilization, operating costs are utilized as analysis inputs, while passengers, RPK, operating income and benefits rating are utilized as analysis outputs. Compared with a post-hoc investigation, no distinction was found between the effectiveness scores of alliance members and non-alliance carriers. They also state that alliance membership has no effect on the execution of airlines.

Douglas and Tan's (2017) This study uses the difference-in-difference regressions analysis method to reveal the formation of global airline alliances, the expansion of network access due to this formation, and whether the alliance provides profitability for its founding members. However, no evidence was found by the researcher that the formation of global alliances increased the profitability of founding member airlines or provided an economic advantage over non-founding airlines. As a result of the research, the researcher confirms these close relationships to regulators, advising that they should be less stressed as they provide excessive profit opportunities to large carriers.

Zou and Chen (2017) investigated the effect of code sharing and global alliances on the profitability of 81 airlines from 2007-2012 using the Panel Data method. Analyzing the profit margin effects of the relevant airline, the researcher emphasized the rate of the comprehensive codesharing accomplices. They also examined other controlling factors such as the number of accomplices shared code, load factor, passenger effectiveness, unit cost, operating scale (measured by ASK), and worldwide alliance participation. As a result of the study, it can be seen that there is a positive relationship between airline profitability and the number of partners the airline shares with. Moreover, if the rate of code sharing among airlines that are members of the same global alliance increases, the profitability of the airline from this share increases even more. Finally, when looking at the airlines that are members of the Star Alliance, Skyteam and Oneworld alliances, it is among the findings that the operating

profitability of Star Alliance and Skyteam member airlines is smaller than the Oneworld member airlines.

Kottas and Madas, (2018) chose 30 major airlines that were members of the airline alliance group between 2012-2016. They used the data envelopment analysis method to measure the contribution of being a member of the alliance to the efficiency of the respective airlines. While employees, aircraft, and operating costs are used as input in this analysis, the analysis outputs are determined as revenue, RPK, and RTK. Researchers have shown that being a member of the alliance group does not have a positive effect on the effort to increase airway efficiency.

In Table 4.1, various studies on the impact of airline alliances on airlines in the literature are summarized. When the results of the summary literature study are evaluated, although there are studies (Agusdinata & De Klein, 2002; Iatrou & Alamdari, 2005; Kuzminykh & Zufan, 2014; Oum & Park, 1997; Zou & Chen, 2017) that have positive effects of alliance membership on airlines' air traffic, performance, load factor, profitability, total assets, and turnover. However, there are studies (Bilotkach & Hüschelrath, 2012; Douglas & Tan, 2017; Kottas & Madas, 2018; Min & Joo, 2016; Morrish & Hamilton, 2002) that reveal the opposite. Although Kleymann & Seristö (2001) believes that alliances offer assistance in creating an environment of trust, alliance frenzy is depicted as a fashion wave. Lin (2013) explained that alliance membership of airlines has a positive effect on productivity, technical efficiency and profitability, but this efficiency will not be permanent.

Table 4.1. Summary of the Studies on the Airlines Alliance

AUTHOR(S), YEAR	TITLE	SAMPLE YEAR	METHOD	RESULTS
Oum & Park (1997)	Airline Alliances: Current Status, Policy İssues, And Future Directions	-	Survey	Alliance membership has been observed to increase the profit opportunity of airlines.
Kleymann & Seristö (2001)	Levels Of Airline Alliance Membership: Balancing Risks And Benefits	-	Organization Theory Research	Although alliances are interpreted as a fashion wave for airlines, it has been stated to assist build trust.
Agus Dinata & De Klein (2002)	The Dynamics Of Airline Alliances	-	System Dynamic Archetypes	The determination of the appropriate alliance group is beneficial for the airline, but the understanding that the alliance improves its current performance is at a debatable level.
Morrish & Hamilton (2002)	Airline Alliances—Who Benefits?	1986-2000	Conceptual/Theoretical Review	There is no conclusive proof that alliance membership provides airlines with a unique business model.

Table 4.1 (cont.)

AUTHOR(S), YEAR	TITLE	SAMPLE YEAR	METHOD	RESULTS
Iatrou & Alamdari (2005)	The Empirical Analysis Of The İmpact Of Alliances On Airline Operations	-	Questionnaire Analysis	The most significant impact of alliance membership was seen on passenger traffic and load factor, and a positive impact on revenue growth was observed only in some cases.
Bilotkach & Hüschelrath (2012)	Airline Alliances And Antitrust Policy: The Role Of Efficiencies	-	-	Alliances appear to have a restricted effect on competition among airlines.
Lin (2013)	The Effects of Joining A Strategic Alliance Group on Airline Efficiency, Productivity, and Profitability	1995-2005	Data Envelopment Analysis, The Malmquist Productivity Index, Stochastic Frontier Analysis, Panel Regression	Alliances have shown the airline a positive impact on data such as technical efficiency, profitability, and productivity, but this impact may not be sustained.
Kuzminykh & Zufan (2014)	Airline Alliances and Their Influence on Firm Performance	2003-2012	Panel Data Analysis	Alliance involvement has a strong impact on turnover, the number of employees, and total assets.

Table 4.1 (cont.)

AUTHOR(S), YEAR	TITLE	SAMPLE YEAR	METHOD	RESULTS
Min & Joo (2016)	A Comparative Performance Analysis Of Airline Strategic Alliances Using Data Envelopment Analysis	2006-2010	Data Envelopment Analysis Post-Hoc Analysis	No efficiency points difference could be detected between alliance members and non-alliance airlines.
Douglas & Tan (2017)	Global Airline Alliances And Profitability: A Difference-İn-Difference Analysis	1990-2008	Difference-İn-Difference Analysis (Pre- And Post-Alliance Periods)	No financial advantage was found with respect to the profitability of the alliances' founding or non-founding member airlines.
Zou & Chen (2017)	The Effect Of Code-Sharing Alliances On Airline Profitability	2007-2012	Panel Data	The increase in the rate of code sharing among airlines that are members of the same alliance increases the profitability of the airline.
Kottas & Madas (2018)	Comparative Efficiency Analysis Of Major İnternational Airlines Using Data Envelopment Analysis: Exploring Effects Of Alliance Membership And Other Operational Efficiency Determinants	2012-2016	Data Envelopment Analysis(DEA)	Alliance membership does not have a positive effect on airline efficiency.

CHAPTER V

ANALYSIS OF THE EFFECT OF AIRLINE ALLIANCES ON THE PERFORMANCE OF AIRLINE COMPANIES

5.1. Methodology of the Study

This study analyzes the effects of participation in airline alliances on the performance of airline companies. The descriptive assessment method was used. Descriptive studies are studies in which a situation or sample is inspected in a certain time period and the study proceeds without any change within the working environment or parameters.

While forming the sample of the research, Star Alliance member airlines were examined. While selecting the sample airlines of the alliance, IATA's (2018) predictions of a compound annual growth rate (CAGR) of 3.5% in passenger numbers over the next two decades and the tendency of the aviation center of gravity to shift to the east, which is the reason for this growth, were taken into consideration. In line with this information, in Figure 5.2 and Table 5.3, Ethiopian Airlines from Africa & Middle East region and Air China from Asia & Pacific region were preferred among Star Alliance members in order to increase regional diversity in the study and to interpret the effects of alliance membership in different regions. Turkish Airlines, which acts as a bridge connecting the west and east due to its geographical location, with the shift of the aviation center of gravity from west to east, was also included in the study. The annual reports on the corporate websites of the airlines included in the sample were analyzed with a descriptive survey model. Tables were created with three-year data before and after Star Alliance membership in various parameters and the percentage changes of these data compared to the previous year were interpreted.

Table 5.1. Description About of Selected Parameters

	Description
Number of Destinations	Number of the ultimate stopping place according to the contract of carriage.
Available Seat Kilometres (ASK)	A measure of an airline's carrying capacity to create a profit. It is obtained by multiplying the number of miles/kilometers flown and the number of seats available.
Revenue Passenger Kilometres (RPK)	The number of paid passengers carried on flights multiplied by the number of kilometers the seats are flown.
Load Factor	A measure for an airline's capacity, RPK devided by ASK.
Passengers	The number of travelers carried by an airline
Operating Profit	A company's profit after all expenses are taken out except for the cost of debt, taxes, and certain one-off items.
Net Profit	The profit remaining after all costs incurred in the period have been subtracted from revenue generated from sales.
Turnover	The amount of money taken by a business in a particular period.

In order to more effectively interpret the effects of alliance membership on airline performance, data on airlines are categorized as financial and operational. Explanations of operational and financial parameters can be seen in Table 5.1. The number of destinations, available seat kilometers, revenue passenger kilometers, load factor and passenger parameters is evaluated from an operational point of view. The operating profit, net profit and turnover are the parameters included in the study from a financial point of view.

5.2. Discussion of the Results of the Case Studies

The airline industry has continuously been included in competition and cooperation. Although the level of competition is increasing, it is inevitable to create economies of scale and density, create an extensive global flight network to meet the increasing passenger demands and create global alliances between airlines as an easier way to overcome the restrictions between countries. Although at the beginning most transcontinental alliances were formed between European and North American carriers, since approximately 1990 Asia Pacific carriers have also joined alliances, connecting Asia, North America, and Europe. More as of late, airline alliances have been assisting expanded to new regions, including Latin America, the Caribbean, and Africa (Oum & Zhang, 2001). Star Alliance was founded in 1997, Oneworld in 1999, and SkyTeam in 2000. In 2015, Star Alliance had the biggest share with 23% of the whole scheduled traffic, taken after by SkyTeam with 20.4% and Oneworld with 17.8%. When comparing passenger numbers in 2019, Star Alliance led the market with 762 million, followed by SkyTeam with 630 million and Oneworld with 535 million. According to Table 5.2 World Air Transport Statistics (WATS), Star Alliance had the biggest share with 18.7% of the whole revenue passenger kilometers, taken after by SkyTeam with 16.3% and Oneworld with 12.7%.

Table 5.2. Ranking by Scheduled Revenue Passenger– Kilometers (IATA, 2021)

		International				Domestic				Total	
		Millions	% share			Millions	% share			Millions	% share
1	Star Alliance	334,409	24.3	1	Sky Team	266,453	16.5	1	Star Alliance	559,489	18.7
2	Sky Team	220,429	16.0	2	Star Alliance	225,081	14.0	2	Sky Team	486,882	16.3
3	oneworld	210,986	15.4	3	oneworld	168,112	10.4	3	oneworld	379,098	12.7
	Total Alliances	765,823	55.7		Total Alliances	659,646	40.9		Total Alliances	1,425,469	47.7
	Total World	1,373,881			Total World	1,613,112			Total World	2,986,993	

Source: International Air Transport Association (IATA, 2021)

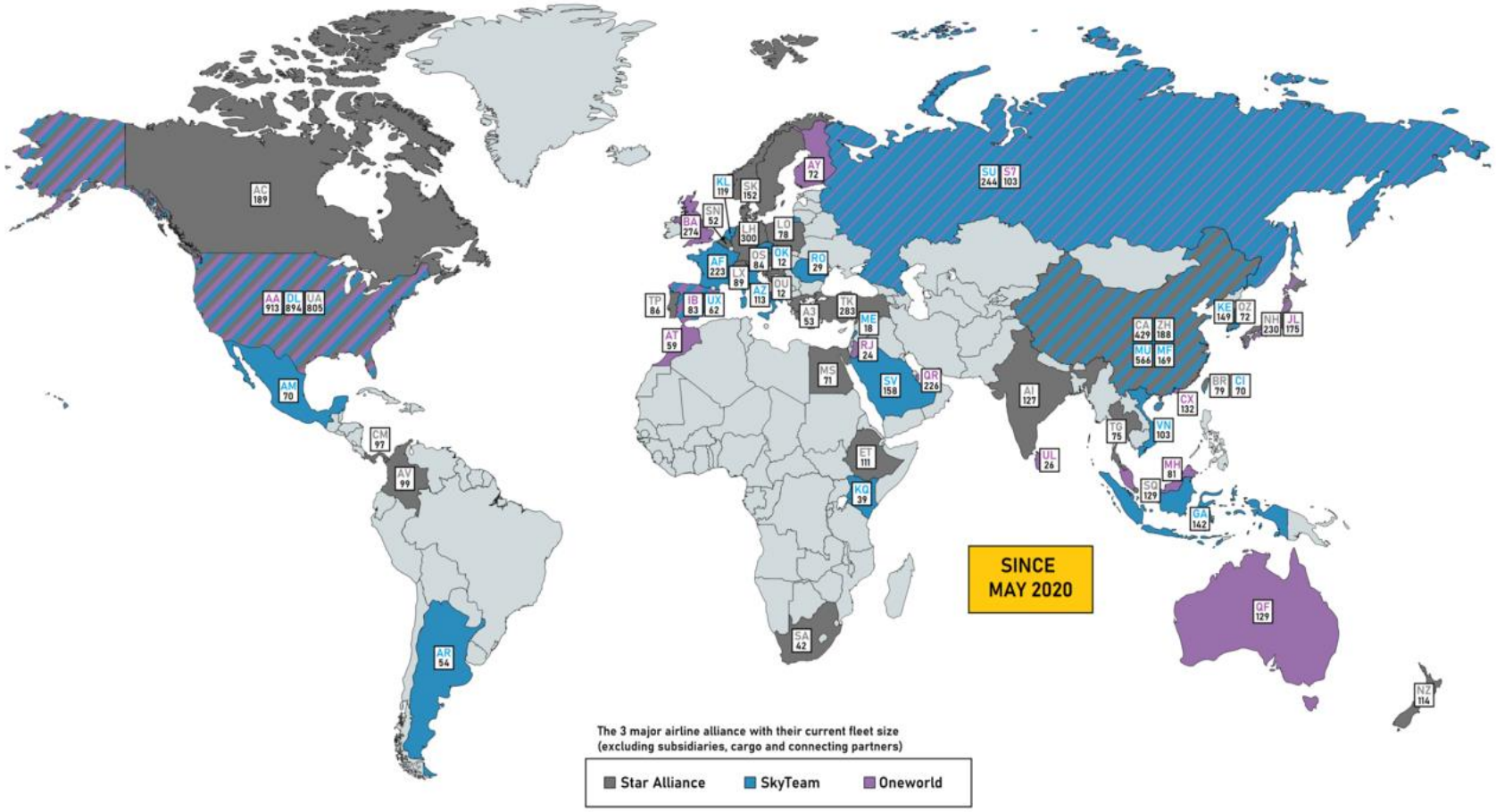

Figure 5.1. Map of Three Major Global Airline Alliance Member Airlines

Source: (Airline Alliance, n.d.)

Table 5.3. Information about Air China, Turkish Airlines, and Ethiopian Airlines

	AIR CHINA	TURKISH AIRLINES	ETHIOPIAN AIRLINES
International Civil Aviation Organization (ICAO) Code	CCA	THY	ETH
Airline Code	999	235	071
International Air Transport Association (IATA) Designator	CA	TK	ET
Region	China & North Asia	Europe	Africa & Middle East

Source: Own representation by investigating websites of IATA (2021)

The long-standing route between the USA and Europe within the last decade has tended to shift intensely towards the Middle East. The ICAO et al. (2019) estimates in figure 5.2 appear that the aviation center of gravity, which is the region with the most connections of carriers, is moving rapidly towards the east. IATA forecasts reveal that the increase in travel demand within the Asia-Pacific region within the following 20 years will bring in more than half of the total number of new travelers and that China will have the world's biggest aviation market in place of the USA. It is seen that the Middle East and Africa region also have a large share in these estimates.

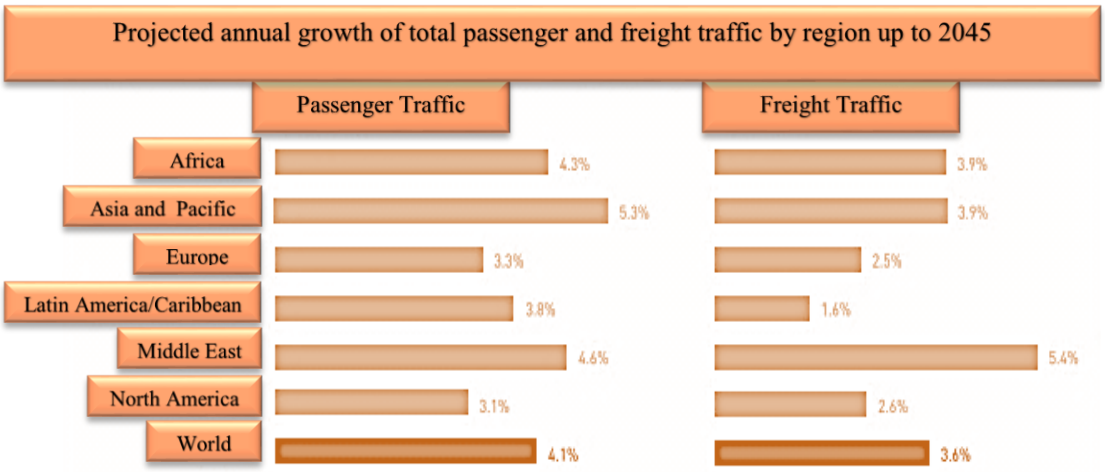

Figure 5.2. Estimated Annual Growth of Total Passenger and Freight Traffic by Region Until 2045

Source: International Civil Aviation Organization (ICAO) et al., (2019)

In this chapter, the percentage changes of the member airlines of the Star Alliance, which has the largest market share, in various parameters in the three years before and after the participation will be analyzed from the financial and operational points of view. While determining the airlines in the research, it was aimed to increase regional diversity, the shift of the aviation center of gravity from west to east and International Civil Aviation Organization (ICAO) et al. (2019) estimations were taken into consideration. Air China in the Asia and pacific region, which joined Star Alliance in 2007, Turkish Airlines in Europe, which joined in 2008, and Ethiopian airlines in the Africa/middle east region, which joined in 2011, were included in the study.

5.2.1. Air China

Dating back to 1988, Air China has renamed Air China International Corporation in October 2002 due to the merger of Air China International Corporation, China Aviation Corporation and China Southwest Airlines, in an industry reform plan created by the central government.

Air China, which became a member of the Star Alliance in December 2007, is China's only flag carrier airline. It has a network of world-class routes in 40 countries, with 8,500 flights each week and connecting to more than 180 destinations. With hubs at Beijing Capital International Airport and Chengdu Shuangliu International Airport, Air China's network has expanded mainly from Asia to the Middle East, Western Europe and North America. It moreover comes to a significant number of Asian, Australian, and European destinations from Shanghai. A few universal routes operate from Chengdu, Chongqing, Dalian, Hangzhou, Kunming, and Xiamen. It is one of the few world carriers that fly to all six livable continents.

From the Air China annual reports, the financial, and flight operation information data, based on the three years before and after 2007 (2004-2009) when the airline joined the alliance, were analyzed in order to evaluate the effects of the Star Alliance cooperation on Air China.

Table 5.4 shows the data of the flight operation, including the number of destinations, ASK, RPK, load factors and passengers, for the years 2004-2009 and the rate of change

of these data compared to the previous year. Considering the number of destinations, there was an increase of 170% in 2007, and this increase continued in the following years. It can be mentioned that the alliance membership has expanded Air China's flight network. Be that as it may, although there was an increase of 10% in RPK in 2007, there was a decrease in 2008. Likewise, although there was a 9% increase in load factor within the year of membership, there was a 3% decrease in 2009. Another important parameter in operational indicators is the number of passengers. While there is a nearly 10% increase in the number of passengers compared to the pre-alliance period, although there was a 3% loss in 2008, a significant increase of 14% was observed in 2009.

Table 5.4. Air China Operational Report

AIR CHINA Operational Report	Before Star Alliance			After Star Alliance		
	2004	2005	2006	2007	2008	2009
Number of Destinations	108	106	331	895	961	1,077
% Change in Number of Destinations		1.85	212.26	170.39	7.37	12.07
ASK (million)	64,894	70,661	83,492	89,233	91,809	98,624
% Change in ASK		8.88	18.15	6.87	2.88	7.42
RPK (million)	46,644	52,404	63,361	70,025	68,747	75,473
% Change in RPK		12.34	20.90	10.51	-1.82	9.78
Load Factor (%)	71.9	74.2	75.8	78.4	74.8	76.5
% Change in Load Factor		3.19	2.15	3.43	-4.59	2.27
Passengers (000)	24,500	27,694	33,971	37,256	36,136	41,278
% Change in Passengers		13.03	22.66	9.67	-3	14.22

Source: Adapted from Air China Annual Reports, 2004-2009

Table 5.5. Air China Financial Report

AIR CHINA Financial Report (RMB: Renminbi)	Before Star Alliance			After Star Alliance		
	2004	2005	2006	2007	2008	2009
Operating Profit (000)	4,485,251	3,895,477	2,630,929	3,912,123	9,806,971	5,500,956
% Change in Operating Profit		-13.14	-32.46	48.69	150.68	-43.92
Net Profit (000)	2,385,964	2,406,256	2,102,744	7,791,767	9,260,288	4,978,268
% Change in Net Profit		0.85	-12.61	270.55	18.84	-46.24
Turnover	33,520,757	38,290,966	44,936,606	51,081,667	52,908,161	51,393,191
% Change in Turnover		14.23	17.35	13.67	3.57	-2.86

Source: Adapted from Air China Annual Reports, 2004-2009

When analyzing the financial parameters, it should be noted that all data are within the official currency of China, the Renminbi (RMB). When Table 5.5 is examined, the first thing that draws attention is the negative situation in Air China's financial data change rates in the period before Star Alliance membership. While operating profit decreased by 13% in 2005 compared to the previous year, this decreasing trend continued and became 32% in 2006. With the Alliance membership, there is a significant increase of nearly fifty percent. Net profit showed a significant increase in 2007, in contrast to the decline in the pre-alliance period. However, the decrease in both operating profit, net profit, and turnover in 2009 is noticeable.

Along with the Star Alliance membership, a decrease was observed in 2008, with the opposite effect of the increase observed in all parameters. However, the reason for this decrease in both operational and financial parameters is explained in the annual report regardless of Star Alliance membership. Due to the impact of many negative factors, such as snowstorms in southern China and natural disasters such as the earthquake in Wenchuan, Sichuan, the safety measures taken during the Olympic Games, and the erupting global financial crisis, both air passenger and air cargo operations have suffered a major impact from the slowdown in the market, high jet fuel prices, and faced with pressure.

5.2.2. Turkish Airlines

Turkish Airlines was established on May 20, 1933 under the name of Turkish State Airlines. In 1956 by the Turkish government, Turkish Airlines A.O. was named and joined the International Air Transport Association (IATA) the same year. By the mid-1980s, it was serving around three million travelers every year to 16 domestic and 36 international destinations with a fleet of 30 aircraft. Turkish Airlines, Turkey's national flag carrier airline, joined Star Alliance as the seventh European airline on April 1, 2008, after an 18-month integration preparation that began in December 2006. At the end of 2013, it expanded its flights to 241 around the world and was awarded the title of the 4-star airline by Skytrax magazine. Turkish Airlines was named Europe's Best Airline 5 times in a row during the 2011-2016 period at the Skytrax Passenger Preference Awards. As of August 2019, it is the world's biggest mainline carrier in terms of passenger numbers, with scheduled flights to 315 destinations in Europe, Asia, Africa, and the Americas. In expansion, with its flight network to 126 countries, it serves more nonstop destinations than any other airline in the world.

Table 5.6 and Table 5.7, which are compiled from the annual reports of Turkish Airlines and created from a financial and operational point of view, include the rates of change in various parameters in the three-year period before and after the airline's participation in Star Alliance. When the number of destinations is inspected, it is seen that Turkish airlines appear in a continuous increment within the sample years with the effect of their geographical location. This increment is supported by more route options offered by Star Alliance member airlines after 2008. Alliance membership can offer Turkish Airlines passengers a more uninterrupted flight experience as well as the increasing number of destinations over the years. When the change rates of ASK over the years are examined, a persistent increase is observed, and these rates of increase are 11% in 2008, 22% in 2009, and 15% in 2010. RPK also appears to have a continuous increase as in other parameters. When the year 2009 is examined, which was 13% in 2008, this increase increased by 17% compared to the previous year, and this rate was approximately 20% in 2010. Although there was a decrease in the load factor in 2009, the increase of approximately 2% despite the economic crisis in 2008 is a success of the partnership of Turkish Airlines and Star Alliance.

Table 5.6. Turkish Airlines Operational Report

TURKISH AIRLINES Operational Report	Before Star Alliance			After Star Alliance		
	2005	2006	2007	2008	2009	2010
Number of Destinations	107	134	138	142	156	171
% Change Number of Destinations		19.97	10.72	12.09	13.00	14.61
ASK (million)	29,805	36,934	41,619	46,343	56,574	65,100
% Change in ASK		23.91	12.68	11.35	22.07	15.07
RPK (million)	21,317	25,383	30,251	34,265	40,130	47,950
% Change in RPK		19.07	19.17	13.26	17.11	19.48
Load Factor (%)	71.5	68.7	72.7	73.9	70.9	73.7
% Change in Load Factor		-3.91	5.82	1.65	-4.50	3.94
Passengers (000)	14,134	16,947	19,636	22,597	25,102	29,119
% Change in Passengers		19.90	15.68	15.07	9.34	16.00

Source: Adapted from Turkish Airlines Annual Reports, 2005-2010

When analyzing the financial data compiled from the annual reports of Turkish Airlines, it should be known that the currency is the Turkish Lira. Although Turkish Airlines' Star Alliance membership started in 2008, the year of the economic crisis, as seen in Table 5.7, Star Alliance membership has provided a great financial return for Turkish Airlines. Despite the 18% decrease in operating profit, an increase is observed in net profit and turnover in 2008. Although this decrease in operating profit was replaced by a 23% increase in 2009, it is observed that there was a 33% decrease again in 2010. While there is a decrease of almost 50% in net profit in 2009 and 2010, an increase is observed in turnover rates in the same years.

Table 5.7. Turkish Airlines Financial Report

TURKISH AIRLINES Financial Report (TL: Turkish Lira)	Before Star Alliance			After Star Alliance		
	2005	2006	2007	2008	2009	2010
Operating Profit	181,794	206,680	722,759	587,384	723,890	482,188
% Change in Operating Profit		13.68	249.69	-18.73	23.23	-33.38
Net Profit	138,227	178,782	265,469	1,134,226	559,076	286,443
% Change in Net Profit		29.33	48.48	327.25	-50.70	-48.76
Turnover	3,961	5,413	6,318	6,918	9,850	12,634
% Change in Turnover		36.65	16.71	9.49	42.38	28.26

Source: Adapted from Turkish Airlines Annual Reports, 2005-2010

5.2.3. Ethiopian Airlines

Ethiopian Airlines, the flag carrier airline of Ethiopia, was established on December 21, 1945, started operations on April 8, 1946 and began international flights in 1951. It became a share company in 1965, and its name was changed from Ethiopian Airlines to Ethiopian Airlines. It joined the International Air Transport Association (IATA) in 1959 and the African Airways Association (AFRAA) in 1968, and became a Star Alliance member airline in December 2011.

Ethiopian Airlines, which set out with the motto of 'The New Spirit of Africa', is the biggest airline in Africa in terms of travelers carried, destinations served, fleet size and income. Additionally, they are the 4th largest airline in the world in terms of the number of countries it serves.

Ethiopian Airlines signed a preliminary agreement to purchase Boeing 787 Dreamliners in February 2005, with five firm orders and five options, fulfilling the

first 787 order from the African carrier. Ethiopian is also the first African airline to order and operate the Boeing 777-200LR.

Ethiopian Airlines, the third African airline to join the alliance after EgyptAir and South African Airways, became the 28th member of Star Alliance on 13 December 2011. With the addition of Ethiopian Airlines, the Star network provides more than 21,000 daily service options to 1290 destinations in 189 countries, strengthening its presence in both Africa and the Middle East. Thanks to membership, Ethiopian Airlines passengers with ShebaMiles can now earn miles while traveling on any Star member airline Miles can be accepted to achieve ShebaMiles Silver Club or Gold Club status, and any accumulated miles can be redeemed for services operated by any Star member airline (CAPA, 2011).

The changes in the opera stone and financial parameters of Ethiopia, which joined the Star Alliance in 2011, before the alliance 2008, 2009, 2010, and in the years 2011, 2012, and 2013 after the alliance participation, compared to the previous year are presented in Tables 5.8 and 5.9 These data are compiled by the author's own work from the annual reports of Ethiopian Airlines and the currency is Ethiopian Birr.

Considering the number of destinations, an increase of nearly 5% was observed in 2011. Although an average increase of 20% was observed in available seat kilometers and revenue passenger kilometers in 2011 with the number of destinations, a decrease of close to 1% is observed in the load factor. The decrease observed in 2011 due to the fact that the seating capacity supplied to the passenger is more than the demand is seen as an increase of close to 1% with the increase in passenger demand in 2012, but a decrease is seen again in 2013. When the passenger data is examined, there is an increase of 18% with the alliance members. The number of passengers increased by 24% in 2012 and by 13% in 2013.

Table 5.8. Ethiopian Airlines Operational Report

ETHIOPIAN AIRLINES Operational Report	Before Star Alliance			After Star Alliance		
	2008	2009	2010	2011	2012	2013
Number of Destinations	56	60	65	68	73	82
% Change in Number of Destinations		7.14	8.33	4.61	7.35	12.32
ASK (million)	13,400	14,832	18,395	22,394	25,728	30.170
% Change in ASK		10.68	24.02	21.73	14.88	17.26
RPK (million)	9,389	10,705	13,151	16,175	18,424	21,358
% Change in RPK		14.01	22.84	22.99	13.90	15.92
Load Factor (%)	70.3	70.5	72.0	71.5	72.2	71.6
% Change in Load Factor		0.28	2.12	-0.69	0.97	-0.83
Passengers (0000)	250	281	315	373	464	523
% Change in Passengers		12.4	12.09	18.41	24.39	12.71

Source: Adapted from Ethiopian Airlines Annual Reports, 2008-2013

In spite of the fact that there is a nearly 3% decrease in operating profits within the financial report of Ethiopian Airlines in 2011, a spectacular increase is observed within the following years. When the percentages of change in net profit within the year of alliance participation are analyzed, we see a significant decrease of 24%, and this decrease continues in 2012, reaching approximately 17%. Despite the decrease in operating profit and net profit in 2011, there was an increase of almost 50% in airline turnover.

Table 5.9. Ethiopian Airlines Financial Report

ETHIOPIAN AIRLINES Financial Report (ETB: Ethiopian Birr)	Before Star Alliance			After Star Alliance		
	2008	2009	2010	2011	2012	2013
Operating Profit	427	974	1,380	1,340	2,774	3,707
% Change in Operating Profit		128.10	41.68	-2.89	107.01	33.63
Net Profit	508	1,345	1,626	1,232	1,025	2,054
% Change in Net Profit		164.76	20.89	-24.23	-16.80	100.39
Turnover	9,199	12,213	16,816	24,759	33,815	38,498
% Change in Turnover		32.76	37.68	47.23	36.57	13.84

Source: Adapted from Ethiopian Airlines Annual Reports, 2008-2013

When the financial report is examined in general, an increase was observed in all data in 2008, 2009, and 2010 before Star Alliance participation, and fluctuations with alliance membership were observed.

CHAPTER VI

CONCLUSIONS

Increasing competition rates with the effect of globalization, deregulations, liberalizations and open skies policies have led to many changes in aviation as well as in many sectors. The economic growth in the air transport industry has expanded air traffic. Airlines have confronted several transformations in response to this changing and increasingly competitive environment. Most airlines around the world have sought new strategies in order to survive in the market and protect themselves from the negative impacts of these changes. As a result of this situation, international airline alliances emerged in the 1990s.

In Chapter II, it has been mentioned that airlines tend to join alliances for purposes such as expanding their flight networks and creating a more uninterrupted flight network, increasing their market share and profitability and reducing the level of competition. While the development of airline alliances and the tendency of collaborative behavior among airlines have continued for many years, the growth in alliances continues steadily. Zou & Chen (2017) reveal that the three global airline alliances Star, Oneworld, and Skyteam continue to grow and expand, increasing their airline membership from 34 in 2004 to 54 in 2012, an increase of 58%. It has been widely seen in the literature that the intense interest in airline alliances does not always provide the expected improvement and positive developments to the alliance member airlines, and in some studies, they have a neutral effect (Douglas & Tan, 2017; Kottas & Madas, 2018; Min & Joo, 2016; Morrish & Hamilton, 2002). Contrary to these views, Oum & Park (1997) has revealed that alliances are permanent organizations, that airline companies increase their profit opportunities, alliances are limited in number and they cover a significant part of air traffic. On the other hand, Bilotkach & Hüschelrath (2012) mentioned the partial benefits of alliances to the competition between airlines.

The effects of alliance membership on carriers have been examined in various parameters, and has been summarized within the literature review that it has both positive and negative impacts on airlines. This study focused on Star Alliance. Star Alliance individuals Air China, Turkish Airlines, and Ethiopian Airlines were analyzed from a financial and operational point of view, based on the three years before and three years after participation within the alliance.

When the operational parameters are examined, the number of destinations increases continuously for all three Star Alliance member airlines in the pre-alliance and post-alliance periods. ASK and RPK percentage changes continue to increase in Turkish Airlines and Ethiopians with alliance membership, but this increasing trend of Air China was replaced by a decrease in 2009. This negative picture of Air China in 2009 also shows itself in the number of load factors and passengers. When the load factor percentage changes are evaluated, there are also fluctuations in Turkish Airlines and Ethiopian Airlines. However, on the contrary, the percentages of change in the number of passengers produced positive results with the alliance members. The examinations produced results parallel to the study of Iatrou & Alamdari (2005) and the alliance membership met the initial expectations of the airlines and caused an increase in passenger traffic. In addition, the empirical analysis results of Gorgi's empirical analysis on the determinants of airline alliances with sixty airlines between 1989-2008 and the effects of passenger number, freight factor and alliance market share all revealed positive effects.

When the financial data is analyzed, the negative situation in the pre-alliance operating profit change of Air China showed a positive effect with a significant increase as of the year of the alliance members. However, Turkish Airlines and Ethiopian Airlines do not have the same positive effect. The reason for this decrease in changes between years can be explained by the misfortune of joining the alliance in 2008, when the global economic crisis broke out for Turkish Airlines. Considering the changes in both operating profit and net profit for Ethiopian Airlines, serious decreases can be mentioned. We can say that alliance membership has a positive effect on turnover change percentages of all three airlines. As mentioned in Kuzminykh & Zufan's (2014) study, there is a strong effect between turnover, total assets, number of employees and alliance membership.

Although the positive effects of the Star Alliance on the operational performance of airline companies are mentioned, the same positive effect leaves its place in a negative situation when the financial performance is examined. In Chapter II, we mentioned the negative effects of alliances on airlines as additional costs, such as significant investments made to fulfill alliance commitments, alliance membership fees and aircraft design changes. Iatrou & Alamdari (2005) obtained parallel results in a comprehensive survey study conducted with the management departments of alliance member airlines. According to the study, it was revealed that alliance membership could not benefit airline companies in terms of costs. It has been stated that it brings with it some important initial expenses such as Information Technology (IT) system harmonization, marketing and advertising expenses which can create a serious burden for airlines in the short term.

In this study, we can assume that the reason for the negative impact of Star Alliance membership on the financial performance of airlines is the additional costs of the effort made for the alliance. In this case, it can be suggested that airlines should turn to other alliance groups that do not require large resource participation, where entry and exit are relatively easy, instead of large strategic alliance groups that require large resource participation. In cases where the airline does not prefer to give up the operational benefits provided by the strategic alliance groups, it is recommended to investigate activities to reduce the alliance participation costs. Evaluating the effects of alliance types on airline performance and the effectiveness of other alliance types may be the subject of study in the future.

REFERENCES

Agusdinata, B., & De Klein, W. (2002). The dynamics of airline alliances. *Journal of Air Transport Management*, *8*(4), 201–211. https://doi.org/10.1016/S0969-6997(01)00052-7Air China Annual Reports, (2004-2009). Retrieved from https://www.airchina.com.cn/en/investor_relations/index.shtml.

Air China Annual Reports, (2004-2009). Retrieved from https://www.airchina.com.cn/en/investor_relations/index.shtml.
Airline alliance. (n.d.). Retrieved from https://www.wikiwand.com/en/Airline_alliance

Air Transport Regulation Panel (ATRP) Competıtıon in International Air Transport Annex D, International Civil Aviation Organization ___ (2015). https://www.icao.int/Meetings/a39/Documents/Overview_of_Regulatory_and_Industry_Developments_in_International_Air_Transport.pdf#search=Search...alliance

Alderighi, M., & Gaggero, A. A. (2014). The effects of global alliances on international flight frequencies : Some evidence from Italy. *Journal of Air Transport Management*, *39*, 30–33. https://doi.org/10.1016/j.jairtraman.2014.03.002

Bamberger, G. E., Carlton, D. W., & Neumann, L. R. (2001). *An Empirical Investigation of The Competitive Effects of Domestic Airline Alliances*. http://www.nber.org/papers/w8197

Bennett, M. M. (1997). Strategic alliances in the world airline industry. *Progress in Tourism and Hospitality Research*, *3*, 213–223. https://doi.org/10.1002/(sici)1099-1603(199709)3:3<213::aid-pth71>3.0.co;2-c

Bilotkach, V., & Hüschelrath, K. (2012). Airline alliances and antitrust policy : The role of efficiencies. *Journal of Air Transport Management*, *21*, 76–84. https://doi.org/10.1016/j.jairtraman.2011.12.019

CAPA. (2011, December). *Ethiopian Airlines joins Star Alliance*. Retrieved from https://centreforaviation.com/news/ethiopian-airlines-joins-star-alliance-132954 ı

Doganis, R. (2006). *The Airline Business, Second Edition*. Routledge-Taylor & Francis Group.

DOT-U.S. Department of Transportation. (2010). *Transatlantic Airline Alliances: Competitive Issues And Regulatory Approaches*.

Douglas, I., & Tan, D. (2017). Global airline alliances and profitability: A difference-in-difference analysis. *Transportation Research Part A: Policy and Practice*, *103*, 432–443. https://doi.org/10.1016/j.tra.2017.05.024

Ethiopian Airlines Annual Reports. (2008-2013). Retrieved from https://corporate.ethiopianairlines.com/media/Performance-Report

Fan, T., Vigeant-langlois, L., Geissler, C., & Wilmking, J. (2001). Evolution of global airline strategic alliance, and consolidation in the twenty-first century. *Journal of Air Transport Management*, *7*, 349–360.

Flores-Fillol, R., & Moner-Colonques, R. (2007). Strategic formation of airline alliances. *Journal of Transport Economics and Policy*, *41*(3), 427–449.

Freidheim, C. (1998). The Trillion-dollar Enterprise: How The Alliance Revolution Will Transform Global Business. In *Perseus Books*.

Gaggero, A. A., & Bartolini, D. (2012). The Determinants of Airline Alliances. *Journal of Transport Economies and Policy*, *46*(3), 399–414.

Goetz, C. F., & Hale, A. (2012). Strategic alliance as a response to the threat of entry : Evidence from airline codesharing. *International Journal of Industrial Organization*, *30*(6), 735–747. https://doi.org/10.1016/j.ijindorg.2012.08.003

Goh, K., & Uncles, M. (2003). The benefits of airline global alliances : an empirical assessment of the perceptions of business travelers. *Transportation Research Part A*, *37*, 479–497. https://doi.org/10.1016/S0965-8564(02)00054-X

Gudmundsson, S. V., & Rhoades, D. L. (2001). Airline alliance survival analysis : typology , strategy, and duration. *TRANSPORT POLICY*, *8*, 209–218.

Holtbrügge, D., Wilson, S., & Berg, N. (2006). Human resource management at Star Alliance: Pressures for standardization and differentiation. *Journal of Air Transport Management*, *12*, 306–312.

Iatrou, K. (2004). *The impact of airline alliances on partners' traffic* (Issue January). Cranfield University.

Iatrou, K. (2006). Airline choices for the future: From Alliances to Mergers. *Global Symposium on Air Transport Liberalization*, 1–11.

Iatrou, K., & Alamdari, F. (2005). The empirical analysis of the impact of alliances on airline operations. *Journal of Air Transport Management*, *11*, 127–134. https://doi.org/10.1016/j.jairtraman.2004.07.005

Incorporated Gra. (1994). *A Study of International Airline Code Sharing.* (United States. Department of Transportation. Office of Aviation and International Economics (ed.)). U.S. Dept. of Transportation.

International Air Transport Association. (2010, June). Recommended Practice 1008 30th Edition. Montréal.

International Air Transport Association (IATA). (2018, December). *IATA Forecast Predicts 8.2 billion Air Travelers in 2037*. Retrieved from https://www.iata.org/en/pressroom/pr/2018-10-24-02/:

International Air Transport Association(IATA) . (2019). Retrieved from https://www.iata.org/en/about/members/airline-list/

International Air Transport Association(IATA). (2021). *Current Airline Members*. Retrieved from https://www.iata.org/en/about/members/airline-list/ 1

International Air Transport Association (IATA). (2021). *World Air Transport Statistics (WATS), Plus Edition 2021*.

International Civil Aviation Organization (ICAO), Airports Council International (ACI), Civil Air Navigation Services Organisation (CANSO), International Air Transport Association (IATA), & International Coordinating Council of Aerospace Industries Associations (ICCAIA). (2019). *Aviation Benefits Report*.

Kleymann, B., & Seristö, H. (2001). Levels of airline alliance membership : balancing risks and benefits. *Journal of Air Transport Management*, *7*, 303–310.

Kleymann, B., & Seristö, H. (2004). Managing Strategic Airline Alliances. In *Routledge*. https://doi.org/10.4324/9781315249858

Klophaus, R., & Lordan, O. (2018). Codesharing network vulnerability of global airline alliances. *Transportation Research Part A*, *111*(August 2017), 1–10. https://doi.org/10.1016/j.tra.2018.02.010

Kottas, A. T., & Madas, M. A. (2018). Comparative efficiency analysis of major international airlines using Data Envelopment Analysis: Exploring effects of alliance membership and other operational efficiency determinants. *Journal of Air Transport Management*, *70*(December 2017), 1–17. https://doi.org/10.1016/j.jairtraman.2018.04.014

Kuzminykh, N., & Zufan, P. (2014). Airline Alliances and Their Influence on Firm Performance. *Procedia Economics and Finance*, *12*(March), 329–333. https://doi.org/10.1016/S2212-5671(14)00352-9

Lin, B. (2013). *The Effects of Joining a Strategic Alliance Group on Airline Efficiency, Productivity, and Profitability*. Massey University.

Liou, J. J. H., Tzeng, G., Tsai, C., & Hsu, C. (2011). A hybrid ANP model in fuzzy environments for strategic alliance partner selection in the airline industry. *Applied Soft Computing Journal*, *11*(4), 3515–3524. https://doi.org/10.1016/j.asoc.2011.01.024

Min, H., & Joo, S. (2016). A comparative performance analysis of airline strategic alliances using data envelopment analysis. *Journal of Air Transport Management*, *52*, 99–110. https://doi.org/10.1016/j.jairtraman.2015.12.003

Morrish, S. C., & Hamilton, R. T. (2002). Airline alliances — who benefits ? *Journal of Air Transport Management*, *8*, 401–407.

Oneworld. (2021). Retrieved from https://www.oneworld.com/

Oster, C. V., & Pickrell, D. H. (1986). Marketing alliances and competitive strategy in the airline industry (U.S.). *Logistics & Transportation Review*, *22*(4), 371–387.

Oum, T. H., Park, J.-H., & Zhang, A. (2000). *Globalization and strategic alliances : the case of the airline industry*. 229.

Oum, T. H., & Park, J. (1997). Airline alliances : current status, policy issues, and future directions. *Journal of Air Transport Management*, *3*(3), 133–144.

Oum, T. H., & Yu, C. (1998). *Winning Airlines: Productivity and Cost Competitiveness of the World's Major Airlines*. Springer Science & Business Media.

Oum, T. H., & Zhang, A. (2001). Key aspects of global strategic alliances and the impacts on the future of Canadian airline industry. *Journal of Air Transport Management*, *7*, 287–301.

Pablo E. Fernandez dela Torre. (1999). *Airline Alliances: The Airline Perspective*. Massachusetts Institute of Technology.

Parkhe, A. (1991). Interfirm Diversity, Organizational Learning, and Longevity in Global Strategic Alliances. *Journal of International Business Studies*, *22*(4), 579–601.

Pels, E. (2001). A note on airline alliances. *Journal of Air Transport Management*, *7*, 3–7.

Rhoades, D. L., & Lush, H. (1997). A typology of strategic alliances in the airline industry : Propositions for stability and duration. *Journal of Air Transport Management*, *3*, 109–114.

Seredyński, A., Steitz, W., & Rothlauf, F. (2017). Code-share connectivity within global airline alliances – How much potential is utilized? *Journal of Air Transport Management*, *65*(October 2016), 43–53. https://doi.org/10.1016/j.jairtraman.2017.08.002

SkyTeam. (2021). Retrieved from https://www.skyteam.com/en

Star Alliance. (2021). Retrieved from https://www.staralliance.com/en/home 1

Tretheway, M. W., & Oum, T. H. (1992). *Airline economics: Foundations for Strategy and Policy*. Center for Transportation Studies, University of British Columbia.

Tugores-garcía, A. (2012). *Analysis of Global Airline Alliances as a Strategy for International Network Development*.

Turkish Airlines Annual Reports. (2005-2010). Retrieved from https://investor.turkishairlines.com/en/financial-and-operational/annual-reports 1

Wang, S. W. (2014). Do global airline alliances influence the passenger ’s purchase decision? *Journal of Air Transport Management*, *37*, 53–59. https://doi.org/10.1016/j.jairtraman.2014.02.003

Weber, M., & Dinwoodie, J. (2000). Fifth freedoms and airline alliances. The role of fifth freedom traffic in an understanding of airline alliances. *Journal of Air Transport Management*, *6*, 51–60.

Youssef, W. (1992). *Causes And Effects of International Airline Equity Alliances*. Institute of Transportation Studies, University of California.

Youssef, W., & Mark, H. (1993). *The Consequences of Strategic Alliances Between International Airlines: The Case of Swissair and SAS*.

Zhang, A. (2005). Competition Models of Strategic Alliances. *Transportation Economics*, *13*(05), 75–100. https://doi.org/10.1016/S0739-8859(05)13004-2

Zou, L., & Chen, X. (2017). The effect of code-sharing alliances on airline profitability. *Journal of Air Transport Management*, *58*, 50–57. https://doi.org/10.1016/j.jairtraman.2016.09.006

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