Louvain School of Management

The competition challenges between the European airlines and the Gulf airlines and the strategies to implement in order to better face this competition

A case study of Eurowings

Author : Nicolas Piraux
Supervisors : Michel De Wolf and Christophe Lejeune
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The purpose of this Master’s Thesis is to analyse the challenges faced by the major European airline groups due to competition from the Gulf carriers. The analysis focuses on understanding how the three main airlines operating in the Gulf region (Emirate Airlines, Qatar Airways and Etihad Airlines) have developed firm specific advantages that have put significant pressure on the European traditional carriers. Furthermore, the analysis observes and questions the response to this competition from the European carriers. The Thesis is split in two parts, the theoretical part, which consists in a literature review and the practical part, which consists in a case study based on one of the strategies implemented by the three major European groups to challenge the Gulf carriers. By analysing the case of the long-haul operations of Eurowings, the analysis questions the viability of the long-haul low-cost model when the variables of fuel costs and passenger load factors are changed and outlines the weaknesses of that strategy. The analysis concludes that despite the competitive advantage developed by Gulf carriers, the European carriers still have means to face that competition if innovation in their network architecture is strategically implemented.

Keywords: Airlines, Gulf carriers, European carriers, long-haul low-cost

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Introduction and Research Question

The title of this theoretical part is formulated as the competition challenges between the European airlines and the Gulf airlines and the strategies to implement in order to better face this competition. The theoretical parts aims to provide a detailed literature review of the available knowledge on the topic.

The choice of the question is motivated by the willingness to explore the topic at a moment when the gulf airlines have experienced almost two decades of exponential growth and are now encountering turbulent times.

The ambition of this Master's Thesis is to observe and understand how the three main airlines operating in the gulf region (Emirate Airlines referred as « Emirates », Qatar Airways and Etihad Airlines refereed as « Etihad ») have developed special capabilities that have put significant pressure on the European traditional carriers. The goal is therefore to understand the nature of the competitive advantage of the Gulf airlines, if there is one, as well as to understand how the dynamics of the market have changed since the introduction of those new players.

The focus will be put on two specific markets; the market of air transport services between Europe and India and between Europe and China. The selection of those two markets can be explained by the significant dissimilarities of market penetration of Gulf Airlines on both markets. This Master's Thesis does not aim to judge whether there is an unlevelled playing field between European and Gulf carriers.

After a first hand analysis of the changes in market dynamics and competitive advantage architectures, there will be a short analysis of the strategies that have been implemented by European carriers to better face this competition although one of these strategies will be analysed in detail in the practical part.

Part 1 - Literature Review

Chapter 1: Understanding the airline industry

The Airline industry is a sector of paramount importance in nowadays world. It helps people and goods to move across continents at an unprecedented speed. Sometimes called "the business of freedom", the aviation industry serves numerous purposes. It connects people from remote places to the world, supports the tourism industry and provides fast and effective means of transportation for goods with specific needs such as perishable products.

The airline industry is also a substantial pillar of economic development. Globally, according to a 2016 report from ATAG (Air Transport Action Group [ATAG], 2016), in 2014, the industry provided 62,7 million jobs (from which 9,9 were direct jobs) and supported 3,5% of the global Gross Domestic Product. Its financial impact is estimated at 2,7 trillion US$.

However, the industry has its downsides, as it is a significant CO2 emitter with 859 million tonnes in 2017 (ATAG, 2019). Despite a reduction of 5,6% of emissions from 2015 to 2016, the industry still has emission rates that surpass the ones of most countries. To put it in perspective, in 2016, the airline industry had emission rates comparable to France and the United Kingdom combined.

In this chapter, we are going to observe the industry from various points of view. We will start with a quick historic outlook, followed by the main aspects to consider when analysing the sector, the challenges that are faced today, the new trends arising in the industry and we will end with a description of the focus of this Master's Thesis.

1.1. Historic outlook

When observing the development of the airline industry from its beginning, four significant events are worth mentioning.

The Airlines that constitutes the industry as we now it today were created in the beginning of the last century. Numerous were or became state owned airline companies and for decades, those national carriers such as Air France (along with Air Inter), Lufthansa, British Airways (Imperial Airways), SABENA, KLM,... served as flagships abroad. The companies where used to connect the colonies to the metropolis and to the world. Competition was scarce and flying was reserved to an elite (Hooper, Walker, Moore & Zubaidi, 2011).

In January 1970, one event disrupted the rules of the market and opened the possibility for companies to transport new sections of the population. The arrival of the Boeing 747 changed the dynamics of people and cargo transportation across the world by reducing the cost of transporting a passenger of 50% (CNN, 2018). Flying became more affordable, creating the large scale industry that we know today. With an increasing demand, more airports at reach and wide-body aircraft in their fleet, airlines companies started expanding like never before.

In the middle of the twentieth's century, a new model of transportation arises, the Hub and Spoke model (referred as « hub model »). The first airline company to put that model in practice was Delta Air Lines in Atlanta in 1955. However, that model was generalised in the US after 1978 with the deregulation of the sector. While in the US, a domestic hub model was applied, the European carriers went for an intercontinental hub that later became the norm around the world. The different types of hubs and their functioning will be explained later in this Master's Thesis as it is a crucial element to understand the dynamics of Gulf Airlines.

In Europe, a major regulatory change in 1993 completely reset the rules for domestic, trans-European and trans-continental air transport services. The single market act relieved trade barriers and unified regulations in Europe. Concretely, this regulation change offers the possibility to any European carrier to base its operation in any European country and fly without restrictions inside Europe. Concerning flights outside Europe, this is still a highly regularised market that will be further explained in the next chapter.

To conclude this historic outlook, the four main events that we retained in order to better understand the current dynamics of the market and the challenges that are faced today are; first, the creation of the carriers and their original role, second, the arrival of the Boeing 747 in the market, third, the arise of the hub model and fourth, the single market act in Europe.

1.2. Current business context

1.2.1. Airlines alliances

The air transport industry is organised in alliances between the major players of the market.The airline alliances can be defined as « *any kind of agreement between independent carriers to mutually benefit from the coordination of certain activities in the provision of air transportation services* » (Fernandez de la Torre, 1999). Inside of these alliances, numerous practices are operated to mutually benefit the members and offer considerable cost reduction schemes. Those practices include: codesharing, the standardisation of frequent flyer programs, etc.

There are countless alliances of airlines but in the case of this Master's Thesis, only three are of interest for us. Those three alliances are directly linked to the three European biggest airline groups. It is important to notice that despite the fact that a large part of the aviation major players in Europe, North America and Asia belong to those alliances, only one of the three gulf airlines belong to them.

1. Star Alliance is the largest alliance in terms of number of members. It currently counts 28 members. It is also the oldest alliance that is still operating today. It was created in 1997. Its members include, among others, United, Lufthansa, SAS, Brussels Airlines, SWISS, Australian, Turkish Airlines,... Together, the members cover a total of 193 countries and 1317 airports (Star Alliance, 2018).

2. Sky Team is the second largest alliance in terms of number of members. It counts 20 members up to this date. The alliance was created in 2000 and includes, among others, Air France, KLM, Delta Airlines, Alitalia, Air Europa,... The alliance covers a total of 177 countries and 1 074 airports (Skyteam, 2018).

3. One World is the third largest alliance in terms of number of members, it counts 13 members to this date. The alliance was created in 2000 and include, among others, British Airways, Iberia, American Airlines, Finnair, Qatar Airways,... The alliance covers a total of

158 countries and 1,012 airports (Oneworld: Member Airlines, 2018).

1.3. Challenges of the industry

The airline industry is undergoing numerous challenges. However, we chose to limit our analysis to four specific challenges that are faced both globally and specifically on European markets.

1.3.1. Oil prices

The financial results of airlines are increasingly negatively correlated with the fluctuation of the price of kerosene. Although this was not an issue forty years ago as oil prices were substantially lower than today's prices (December 2018), it is of paramount importance to consider it today as it represents between a third and a fifth of the operating costs of airlines (Dichter, Hahn, & Maxwell, 2016). This concern is influencing the design of new airplanes as companies are more reluctant for large, heavy oil consuming carriers such as the Boeing 747 and the Airbus 380 and more interested by smaller and lighter, new generation, fluent efficient jets such as the Boeing 787 Dreamliner, the Airbus A350, etc.

As the price of jet fuel dropped in 2015 (IndexMundi, 2019) and this explain the financial recovery that the airlines experienced in 2015-2016. In 2015, from the 718 billion US$ that were earned in revenues, 181 were allocated to fuel expenses, what allowed 59 billions in operating results (8,3% operating margin). If the average price of fuel had remained unchanged between 2014 and 2015, an additional 131 billion would have been allocated to fuel costs, however, it is important to note that thanks hedging practices, half of those additional expenses could have been saved, leaving us with an -0,9% operating margin instead of 8,3% (Saxon & Weber 2017).

While fuel costs represent a fifth of the operating costs of airlines today (Dichter, at al., 2016), the current rising trend in the price of oil is a matter of concern as very few alternatives exist to limit their exposure. The way airlines respond today to this risk is by hedging the price of oil, in some cases use biofuels and renew their fleet with new generation jets such as the Boeing 787 or the Airbus A350. This last trend is what partially explains the lack of enthusiasm for extra wide body aircrafts such as the 747-8 and the A380. As a matter of fact, the neither the 747-8 in passenger configuration nor the A380 are commercialised anymore. The difficulty in making those aircrafts profitable lies in the fact that as long as the planes are not almost full, the fuel consumption per passenger is too significant.

As aforementioned, hedging practices are a common practice among airlines to protect themselves against the volatility of oil prices. Those hedging practices consists in instruments that can be the purchased such as current oil contracts, call options, swap contracts or implemented such as collar hedges (Tarver, 2015).

One thing that is important to mention is the almost perfect correlation between the revenues and the costs of airlines. This perfect correlation is due to the fact that the profits are captured on other parts of the value chain. As a consequence, airlines that do not have the appropriate cost structures are meant to disappear as competition rises and the fluctuations of the cost of fuel remain uncertain (Saxon & Weber, 2017).

1.3.2. Low-Cost Carriers

If we look at the European market, one emerging trend that has deeply affected traditional national carriers such as Air France, Lufthansa,... is the arrival of low cost airlines and their quick expansion. Since the year 2000, those companies have started to acquire market shares in the domestic and trans-European market, this trend accelerated during the financial crisis of 2008. It is difficult to compute the share of market that those companies took from traditional airlines since those companies accessed new types of customers by significantly lowering the price of their tickets. However, real yield for trans-European flights has halved between 2000 and 2014 (Spero, 2018) while during the same period, the seat capacity of low-cost carriers grew by 100% (Binggeli, Dichter & Weber, 2013).

When observing the market share that Low-Cost carriers have been occupying in western Europe. In this analysis we can see that from 2002 to 2017, the low cost carriers went from a 9% market share to a 43%. This trend has been pushing the price in western Europe down, requiring strong cost reduction schemes by the traditional carriers. It is hard for European traditional carriers to compete since the cost structures of low cost companies are extremely efficient and allow them to have considerable margins (Powley, 2017).

Take Ryanair for instance. In 2016, the company had an operating margin representing more than 20% of the revenue. The same year, Air France, KLM, Lufthansa, SWIS and many more were under 10% (Powley, 2017). As we will see later in this thesis, the three main European airlines groups responded by creating or acquiring their own low-cost carriers (Vueling for IAG, Transavia for Air France-KLM and Eurowings and German wings for Lufthansa Group).

The main low-cost carriers are for the moment almost solely operating short-haul routes. However, as we will see in the new trends section, this is changing as new low-cost players are trying to compete against the traditional airlines on their long-haul highly profitable routes.

1.3.3. Gulf Carriers

This topic is the main focus of the Master's Thesis. The challenge that Gulf carriers are posing to the aviation sector does not limit itself to the Europe-Asia routes but to a lot of other markets. More details will be given about the competition imposed to European carriers. However, it is important to note that for more than a decade, the Gulf Airlines (namely Emirates, Airlines Qatar Airways and Etihad) have developed highly cost effective hubs in the Middle-East to transport passengers between Europe and Asia, Asia and Africa, Europe and Oceania, North-America and South-Asia,...

Other similar players are trying to replicate a gulf-like models such as Turkish Airlines, OmanAir,... However, the reason for limiting ourselves to the three main players in the Gulf is due to the similarity of their business models. Turkish Airlines do not have the same geographical advantage as the selected companies do nor does apply the same hub and spoke configuration, in addition, the company is not as dependent on its international traffic as the gulf companies are.

1.3.4. Political uncertainty

One important factor to take into account when analysing the aviation market is the quality of the global economy. There is a strong correlation between the performance of the sector and the global gross domestic product growth. Local events do have significant effects on the industry performance.

Take the Brexit, the Gulf war, the Arab Spring or the Venezuelan economy meltdown, all of those events have had or do have an effect to a certain extend on the sector by either decreasing the size of the market or forcing airlines to stop their operations.

In our case, one political event that is significantly impacting the targeted markets of this Master's Thesis is the diplomatic crises that resulted in the blockade of Qatar by eight countries including Saoudi Arabia, the UAE, Bahrein, Egypt, etc. This blockade affects directly Qatar Airways as the airline is not allowed to flight to those countries anymore and is prohibited to use their air space.

The airspace of Qatar is completely surrounded by the Airspaces of Bahrain, the UAE and Saoudi- Arabia, therefore, the Qatar Airways is using the Chicago convention of 1944 that is signed by both the States of Qatar and Bahrein to keep using Bahrein's airspace. If it was not for that convention, one of the largest airline companies would be currently grounded (Center for Aviation, 2017b).

1.4. New trends in the aviation sector

1.4.1 The consolidation of airlines

In the last two decades and in particular after 9/11 and the bankruptcies that emerged from this event, the consolidation of airlines increased dramatically. As the competition in the market is getting tougher, the price of fuel is on the rise again and the cost structures of many airlines is unadapted to the current environment of the market, the airlines that do not keep strong margins are ceasing their operations (Alitalia and Air Berlin are some examples of airlines that could not adapt themselves to the new environment).

The movement of consolidation that is helping airlines to create synergies and make economies of scale has been specifically visible in the US, where, the six largest players of the market hold 90% of the market shares. In Europe the tendency is also very present but to a lesser extend (Powley, 2017).

If we observe the three biggest groups, namely, the International Airlines Group (IAG), Air France-KLM and Lufthansa Group, all three hold majority stakes in numerous airlines. IAG fully owns ten airlines including British Airways, Iberia, Vueling,... and has minority interests in four airlines. Air France KLM fully owns six companies (excluding Air France and KLM), among which, Transavia, Joon, Martinair, ... and has minority interests in nine companies and Lufthansa group fully owns twelve companies, including Lufthansa, Germanwings, Swiss International Air Lines, Austrian Airlines, Brussels Airlines,... and has minority interests in two companies (Center for Aviation Group Profiles, 2018).

This trend is not specific to the US and Europe. Other regions are following the same trend such as Latin America, East-Asia and the Middle-East. In the Middle-East, this strategy of consolidation is particularly operated by Etihad Aviation group that has been investing in numerous European and non-European airlines.

Nevertheless, as the European regulations (similarly to other countries such as Japan or the US) limit the equity holding of foreign companies in European airlines to 49%, the group has no majority interests in European carriers.

1.4.2. The long-haul low-cost carriers

This year, one particular trend is visible on the aviation market. It is the rise of low-cost long haul airline companies. From the rise of independent players such as Norwegian that proposes transatlantic flights at very competitive prices to new players from the three big aforementioned groups, namely Level from IAG, Eurowings from Lufthansa Group and Joon from Air France KLM. Those new companies do operate on very different business models and in most cases, different bases than the main companies of their group.

Furthermore, these companies are less reliant on the hub and spoke model which is explained in section 3.1.1 the corner stone of the main European traditional carriers but try to use a point-to-point model instead.

It is hard to predict whether this new model will be successful as several factors could undermine the profit prospects of this model. So far, some specific application of the model have been successful on particular routes (particularly in Asia) but whether this model represents the future of aviation deserves a deeper analysis.

We will analyse the low-cost long-haul business model in the theoretical part of the Master's Thesis with case studies as it is in some cases considered as a way to compete with gulf airlines.

Chapter 2: The current situation of the Eurasian Long-Haul flight market

2.1. Introduction

The goal of the chapter 2 is to provide, an overview of the current state of the market, as this was mentioned before, we will focus solely on the market of passenger transportation between Europe and India as well as Europe and China.

In order to ease the understanding of the market, we will differentiate the type of carriers as either "direct" or "indirect", we will consider as "direct" the carriers that operate flights from between both destination without stopping elsewhere and "indirect" the carriers that rely on aviation sixth's freedom (carriers that require passengers to take a connecting flight in-between the destinations such as Etihad for instance), beware that despite being called "direct" many of those carriers still operate a hub model and require, thus, their passengers to connect in one of their hubs located in either Europe or India/China.

2.2. The current state of the market

2.2.1. Europe – India - Direct carriers

On the Indian side, in 2018, the market of passenger air transportation from Europe to India without additional stop was dominated by two local actors, Jet Airways with 23.4% of direct flights market share and Air India 19.5% of direct flights' market share (Center for Aviation, 2019).

However, it is important to point out that the data is from 2018 and Jet Airways is since them a bankrupt airline (part of its scheduled flights to Europe were retaken by Indigo and other companies, although so far, having a clear estimation of how that market share split up among the new and existing actors is too early).

On the European side, the market is dominated by the three major airline groups, Lufthansa Group with a total of 21.5% of the direct flights' market share, IAG with a total of 12.7% of the direct flights' market share and Air France – KLM with a total of 9.5% of the direct flights' market share (Center for Aviation, 2019).

Combined, those three groups and the two main Indian carriers represent a total of 86.6% of the market, the rest is divided in smaller European carriers such as Finnair and Alitalia as well as Turkish Airlines (6.1% of direct flights' market share) (Center for Aviation, 2019).

It is interesting to note that Air France – KLM did operate a joint-venture with Jet Airways in 2017 in order to increase collaboration on the lines between South-Asia and Europe (Citrinot, 2017) as well as the routes between North America and India, one of the reasons behind such a partnership was to regain passengers that had chosen to fly with the gulf carriers. However, Jet Airways is also partially owned by Etihad (up to 24%).

2.2.2. Europe – India - Indirect carriers

The list of indirect carriers could conceptually be endless since, on paper, one could take any airline that both deserves Europe and India, however, we will make the assumption that consumers are rational individuals and will not take a flight with a connection if that requires an increase of the total travelling time of more than 100% (including layover period) without substantial costs gains.

Besides the three main gulf carriers, several players are competing on the market, mainly Aeroflot, Gulf Air and Kuwait Airways however their importance is limited in comparison with the above mentioned.

Emirates, Qatar Airways and Airways have been particularly successful on the Indian market as the country quickly became their biggest marketing terms of weekly departures (O'Connel, 2011). Emirates alone operates more than 170 flights per week to India (The Economic Times, 2019). When it comes to market shares, it is estimated that the Gulf carriers did growth from 22% to 44% of share of the passenger market from Europe to India from 2008 to 2014 followed by Australasia with a 39% market share in 2014 and South-East-Asia with a 27% market share in 2014 (Center for Aviation, 2015).

It is important to point out that one of the key advantages that the Gulf carriers have had in the region is based on the complexity of the bilateral air service agreements. The case of the market between India and the UK is a typical example. For years, the number of direct flights from London to Mumbai and New Delhi has been limited for British carriers to a restrictive amount (112 p.w.) in comparison with the potential market size (O'Connel, 2011). Gulf carriers have also faced limitations of access to the Indian market but these were less restrictive and are currently being updated to a give a greater to Gulf carriers (The Economic Times, 2019).

2.2.3. Europe - China - Direct carriers

On the Chinese side, the direct market is dominated by four major players which account for a total of 48.6% of the seat capacity from China to Europe in 2018. Air China is by far the largest player as it represents 24% of the entire capacity, followed by China Eastern Airlines with a 10% share, China Southern Airlines with an 8.2% share and Hainan Airlines with a 6.4% share (Airline Network News and Analysis, 2019).

On the European side, the direct market is again dominated by the three main groups which account for a total of 22.2% of the seat capacity between Europe and China. Air France KLM is the largest player with 11.3% of the capacity partially thanks to its extensive range of joint-ventures in China as explained in section 5.1.1., the second largest player is Lufthansa group which holds an 8.5% share, Lufthansa group also benefits from a joint-venture with Air China, IAG does count for a significantly lower share as it has only 2.4% of the capacity (Airline Network News and Analysis, 2019) although it is important to note that the group has no joint-venture in the country but has close ties with its Oneworld partner Cathay Pacific which operates from Hong Kong.

In addition to the three main European groups, smaller players are also competing on the market, mainly Finnair (3.9%), SAS (2%) and others but their importance is limited in comparison with the aforementioned groups.

2.2.3. Europe - China - Indirect carriers

Besides the three main gulf carriers, several players are competing on the market, mainly Aeroflot (7.2%), Turkish Airlines (4.4%) and others, their share of the capacity is interestingly high in comparison with the European groups (Airline Network News and Analysis, 2019).

When it comes to the Gulf carriers, we can observe a weaker position due to drastic limitations in landing rights. It is estimated that the Gulf carriers did growth from 3% to 9% of share of the passenger market from Europe to China from 2008 to 2014 outlining a deep difference against their share of the Indian market (Center for Aviation, 2015).

Once again, the difference lies on political will and air service agreements are used to control the supply. In this specific case, the main three carriers have been deeply restrained to fly to China. As a matter of fact, in 2005, the three Gulf carriers combined were flying, on average twice a day to China, in 2016, that average was 12 per day, far behind the average of European carriers (approximatively 30 per day) or US based carriers (approximatively 19 per day) (Center for Aviation, 2016b).

These restrictions come from the central authority which has been trying to limit their access in order to, first, develop strong and efficient domestic players that can compete on the global stage and, second, leverage on the limitation of access to its domestic market to Gulf carriers on trade talks with the European Union. Despite the reticence from the central authority, regional actors in China have been asking for the additional access to be granted to Gulf carriers as regional cities in China could benefit from Emirates's network (Center for Aviation, 2016b).

Chapter 3: The Gulf carriers's Firm Specific Advantages (FSA)

In this chapter, we will identify the main FSAs of the gulf carriers and observe how they managed to sustain their competitive position on the market as well as consolidate it overtime.

3.1. An intercontinental highly efficient hub model

3.1.1. The hub model

As mentioned in the section 1.1., the hub model was first applied in 1955 and was generalised in the US in 1978. The logic behind the model is to connect passengers through one airport in a city that is neither their origin nor destination.

For instance, if a passenger lives in Brussels and wants to reach Osaka, it would travel from Brussels to Frankfurt first and take a connecting flight from Frankfurt to Osaka, the passenger would not have to book two tickets nor to collect its luggage in Frankfurt as everything would be done to smooth its experience, the schedule of the flights would be conveniently adjusted to limit the layover time in Frankfurt.

The hub model is an effective way to reduce the number of lines between cities as only one line between each city and the hub is necessary, as example, in a scenario of six cities, nine lines are necessary to connect all the cities together in a point-to-point model while only six lines are necessary in a hub model (considering the hub as apart of the six cities). With fewer lines come effective cost reductions and environmental benefits.

In terms of cost reduction, the hub model is particularly efficient to cut on the number of airplanes needed (Button, 2002, pp. 27-33) as well as to drive demand up by offering all-in-one solutions to consumers that would, otherwise, have to buy multiple tickets. Furthermore, the model benefits from a network effect implying that the more it transports people the more it grows its numbers of flights and the more it grows, the more it matches with consumers demand.

In addition, the growth of the network tends to be superior to the growth in cost meaning that both additional routes and larger airplanes increase the supply while the fixed costs do not growth proportionally (Cook & Goodwin, 2008). Eventually, this incentives to enlarge the network tend to provide the airline with a higher market power thereby offering the opportunity to increase the fares (Borenstein, 1989).

Despite the significant advantages provided by the model, the model has its weaknesses. One of the main limits of the systems relies on the fact that connecting passenger are significantly more expensive as they require additional infrastructure, staff to assist customers and handle the luggage as well as more staff in charge of planes maintenance, pilots, stewards, etc. (Cook & Goodwin, 2008).

On the technical aspect, the model tends to bring additional costs as it increases the number of landings and takeoffs (implying additional fees), the total time in the air and the total time at low altitudes (Cook, Goodwin, 2008), factor of higher fuel consumption. Furthermore, as flights schedules have to be adapted to smooth passengers's experience, airplanes tend to spend more time parked at airports, some thus, argue that the hub model tend to decrease the assets use (Berdy, 2002).

Moreover, the hub model tend to make airlines more exposed to consequences of flight delays as there tend to be a snowball effect (dual hub models are a way to partially tackle that issue). Eventually, one major concern is the need to provide aircrafts adapted to each market, therefore increasing the variety of models among the airlines and implying higher costs of training, maintenance and adding a layer of complexity when it comes to providing effective scheduling and planning.

There exists countless types of hub models but we will focus on three particular types. The domestic hub model (referred as « American model ») which is mainly based on the connection of medium-haul flights between themselves, the intercontinental hub model (referred as « European model ») which is mainly based on the connection of short and medium haul flights with long haul flight and the super hub model (referred as « Gulf model ») which is mainly based on the connection of long-haul flights between themselves. Appendix 1 allows us to visualise more clearly how each model is applied.

3.1.2. The European model application

Each of the main airline group applied the European model differently, while Lufthansa group and Air France KLM applied a dual hub strategy, the former solely with Lufthansa's capabilities deployed in Frankfurt and Munich, later consolidated with auxiliary hubs from Austrian Airlines and SWISS while the later combined directly Air France and KLM capabilities to provide Paris and Amsterdam as their main hubs. British Airways started with a single hub strategy in London Heathrow which was later consolidated by Iberia in Madrid.

When Air France KLM started applying the dual hub model in 2004 it quickly seized the potential of the model in Europe, at that time, an average of 60% of the passengers were connecting passengers (63% for the routes from Europe to Asia and 56% from Europe to North-America), by summer 2015, with the combination of its two hubs in Paris and Amsterdam, the group was becoming the main player in Europe with 24,519 available medium-haul/long-haul weekly connections under two hours. In contrast with Lufthansa group that was counting a total of 14,958 connections and British Airways which had a total of 6,572 connections available (AF-KL dual hub strategy presentation, 2016).

In order to make the best use of the model, the group started linking both hubs to a greater extend as well as each other's regional basis. The group consolidated its network by re-attributing to each hub, some specific limited-demand lines. On the most popular lines, passengers could select new schedules by combining both airlines for their round trip. The group also adopted a single loyalty program (Flying Blue) for both airlines in 2005 (AF-KL dual hub strategy presentation, 2016).

In total, the group was providing in 2005 after a year of implementation, a total of 1,319 flight combination with an under-two-hours connecting flight thanks to its 111 long-haul destinations and 126 medium-haul destinations. The same year, both airlines noted a rise in both, total passengers (+6% for KLM, +10% for Air France) and revenue (+8% for KLM, + 10% for Air France) in comparison with 2004 (AF-KL dual hub strategy presentation, 2016).

3.1.3. The Gulf model application

In order to understand how that model was applied, we will have a look at the historical elements and rationale that lead to the design of global aviation hubs in the gulf region in the first place.

The Gulf model is quite singular and provides a complete shift in network architecture from the aforementioned models. For decades the Gulf region has served as a stop-over for aircrafts trying to reach the Eastern hemisphere from Europe but rare were the planes that had Dubai, Doha or Abu Dhabi as final destination before the seventies. When both countries started to exploit their Oil and Gas reserves in the seventies (particularly after the foundation of the UAE in 1971), the dynamics in the region changed (Shaham, 2009), population in both countries peaked in numbers and wealth creation was at all time highs.

With the ambition to diversify from its oil and gas revenues, the UAE and the emirate of Dubai in particular was the first to ambition its largest city as a global aviation hub. In 1985, Emirates was founded following a failed attempt in the region to have one consolidated airline for the four regional states (namely, the State of Qatar, the Kingdom of Bahrain, the Sultanate of Oman and the Emirate of Abu Dhabi) without including the Emirate of Dubai. Qatar Airways followed in 1993 and Etihad in 2003 (Hooper at al., 2011).

That ambition was made clear to the eyes of their competitors in 2000 when Emirates was the first company to commit to the acquisition of the A380 model. In the years that followed, all three gulf airlines increased massively their seat capacity, particularly to Europe and Asia (+419% in Europe from 2002 to 2008 and +379% in Asia from 2002 to 2008) (O’Connell, 2011).

The hubs developed in Dubai, Doha and Abu Dhabi were mainly designed to connect long-haul fights together, Emirates for instance was only sourcing 14.8% of its revenue in the

Middle-East in contrast with the three main European hub carriers for which the European routes accounted for approximately half of their revenue in 2008 (63.7% for British Airways, 47.2% for Lufthansa -including SWISS- and 68.6% for Air France KLM -including North-Africa-) (O'Connell, 2011).

The management of their hub became one a key asset in the development of the three Gulf carriers. The airlines started expanding not only in the main metropolitan areas but also in the regional areas thereby connecting secondary cities (such as Porto in Portugal or Penang in Malaysia) to their hub which used to be a major source of passengers for traditional European carriers (Powley & Kerr, 2017).

Furthermore, the carriers adopted very effective schedules to combine passengers convenience, departure airports restrictive schedules as well as meteorological constrains in the region (the mid-afternoon tend to be too hot and humid which negatively impacts the ascending of the aircrafts). The schedules are thus composed of two major arrivals slots each one followed by a departure slot, the two slots take place late at night and early in the morning (O'Connell & Bueno, 2018).

In contrast with European carriers, the three Gulf carriers operate a single hub strategy which implies that a higher pressure is set on each company's single hub. Following each carriers rapid development, the respective governments embarked in large scale expansions of their airports, building of new terminals or, in some cases, in the construction of a brand new airports. Doha now has a new airport which can accommodate 50 million passengers a year and which costed 11 billion USD (O'Connell, 2011). Dubai built a new terminal solely for Emirates operations and is currently a new airport which is expected to accommodate 260 million passengers per year at its maximum capacity (Cornwell, 2018).

To summarise, we can conclude that the gulf airlines built competitive single hub and spoke strategies based on a governmental ambition to make of Dubai, Doha and Abu Dhabi the aviation hubs of the 21st century. The hubs are designed to connect long-haul flights together, their passengers are sourced from primary and secondary cities mainly in Europe and Asia.

The hubs operate on a 24-hours basis with very effective schedules and modern infrastructure.

3.2. A strategic geographical location

3.2.1. Geographical advantage

As explained in the previous section, the Gulf region has been a stopover since the early beginnings of the aviation era, its central location playing a key role in its early development. As a matter of fact, the Gulf region is perfectly located to link Europe to Asia, Australasia, Eastern-Africa and the Middle-East as well as Asia to Africa and to a lesser extend North and South America. The Gulf airlines use the sixth freedom of the air to transport these passengers through their respective hub.

As a matter of fact, two thirds of the world's population can reach the Gulf region within eight hours through air transport (Powley & Kerr, 2017) giving the three Gulf carriers the opportunity to provide its services to a large scale market and massive economies of scope by concentrating their costs in a single hub.

One major advantage that the Gulf companies have is the fact that over 8 hours, the profitability of the flights tends to decrease due to additional costs such as extra pilots and fuel load (Swan & Adler, 2006). Giving a natural advantage to the Gulf carriers since, as aforementioned, more than 4.5 billion people can reach their hubs under eight hours.

However, by stoping in Dubai instead of one of the four major European hubs, the number of kilometres tends to be higher for passengers originating their trip in secondary cities in Europe and trying to reach Asia (Douglas, 2019). Although the analysis limits itself for passengers flying from Europe to Asia and the results show the differences of kilometres are, in most cases, inferior to 1 thousand kilometres.

3.2.2. From aviation hub to tourism and business hotspot

One of the reasons of the region's interest in the aviation sector was to bring more people to their respective cities. Besides the need to bring more foreign workers to fuel their booming economy and work in the construction sector and oil and gas industry (Hooper, at al., 2011). The three cities also had the ambition to become global tourists and business hotspots in order to diversify their revenues from oil and gas.

As we saw in the hub model section, the more we connect passengers the more costs it generates, therefore, decreasing the proportion of connecting passengers benefits both the airlines and the cities were they are based in as it generates more tourism and business revenues. This strategy is depicted in the opening of the Guggenheim and Louvre museum in Abu Dhabi (Oxford Business Group, 2017), the world exhibition to be held in Dubai in 2020, the organisation of the next soccer world cup in Qatar, the numerous attraction, theme parks, artificial islands as well as the world tallest tower and largest mall in Dubai.

This strategy has, so far, proven to be successful for Emirates which saw the proportion of connecting passengers significantly decrease, from 1997 to 2007, the share of connecting passengers fell 25% as argued by Clarke (as cited in O'Connell, 2011). The city of Dubai is now the seventh most visited in the world and Abu Dhabi the tenth most visited in the Middle East (Maceda, 2018).

3.3. An efficient cost structure

Besides their various ways to increase their revenues, the gulf airlines have also been able to provide some of the most efficient cost structures of the industry. Not without the help of their respective governments. When comparing the cost structure of Emirates and British airways for instance, we can observe a 39% difference (O'Connell, 2011). In this section we will further analyse where that cost advantage comes from.

In order to provide an accurate picture of the differences in costs we will base ourselves on two scientific studies, first, De Wit (2014) between the three major European airlines, Emirates and Singapore Airlines and the analysis of J.F O'Connell (2011) between Emirates, British Airways and Singapore Airlines, all three airlines having a similar single hub system. We will thus, solely focus on Emirates among the three gulf carriers for the sake of this analysis. Singapore Airlines will serve as a benchmark.

3.3.1. Fuel costs

Emirates benefits from significantly lower fuel costs in contrast with British Airways and Singapore Airlines for three reasons. It is important to note that all three reasons are replicable and thus not, UAE specific.

As Emirates is conveniently located in an oil producing country, it benefits from lower prices as there is no need for large scale transportation of the kerosene, supply costs are therefore cut. Interestingly, Singapore is also, a major oil exporter as it has large scale refining facilities but does not achieve the same economies of scale as oil has to be transported there in the first place (O'Connell, 2011). Although besides the advantage of lower transportation costs, Emirates does not benefit from any additional discount (De Wit, 2014).

The second reason why oil is cheaper is Emirates's effectiveness in hedging the price of the commodity. However, the third and main reason lies in the fact that Emirates has a significantly younger fleet and younger aircrafts tend to be more fuel efficient (Emirates marks significant fleet renewal milestones, 2019).

Eventually, Emirates saves 29% of the cost per Available Tonne Kilometre (ATK) thanks to its young fleet, effective hedging practices and privileged access to oil against British Airways which has an older fleet and no direct access to oil extracting and refining facilities and 16% against Singapore Airlines which has a slightly older fleet and limited access to oil.

3.3.2. Labour costs

Again, Emirates benefits from an advantage against its competitors in terms of labour costs due to four two elements.

First, Emirates outsources part of its activities which are not constrained by location and the low skilled labour performed in Dubai comes at a lower cost as wages in the country are lower and the country does not have an income tax (Center for Aviation, 2014). While this elements allows significant costs reductions as the average salary for those workers is 500 USD (Al-Kibsi, Benkert & Schubert, 2007), the ethics of these practices are questionable.

Second, the company benefits from weak labour regulations in the country. In contrasts with their British counter peers, the Emirati workers do not have the right to organise themselves nor to go on strikes (Center for Aviation, 2014).

We can therefore conclude that Emirates has significantly lower labour costs thanks to its outsourcing of non-location bonded tasks, sourcing of low-cost labour from neighbouring countries, UAE's advantageous fiscal regulations and weaker labour laws.

3.3.3. Airport costs

In this case, we can observe that Emirates has a clear advantage over its competitors as the overall airport charges are significantly lower in Dubai compared to London, Amsterdam, Paris and Frankfurt. In a scenario where 80% of the passengers would transfer at each airport, the European airports would charge, on average, 571% more expensive than Dubai, in a scenario where no passenger would transit by the airport, European airports would charge, on average, 398% the price of Dubai (Zuidberg, 2013).

The difference in price is explained by the fact that the ownership of Emirates and the Airport of Dubai is the same hands, the Sheikh which also happen to rule the aviation policies. This pushes to align interests and strategies (O'Connel, 2011).

3.4. Subsidies

One of the main critics from the European and North-American carriers in regard to the Gulf carriers is the subsidies they have collected directly and indirectly from their respective governments. As this is a highly politicised issue, it is crucial to approach it with a mix of scientific criticism, scepticism and above all, neutrality.

In the case of Emirates, as the company has increased transparency over its financials (in comparison to Etihad and Qatar Airways), the available information allows to identify six main sources of funding which are; financial markets, commercial banks, export-import bank, bonds, the European Credit Agency and Islamic funding. One major critic is the access to the Export-Import bank and European Credit Agency which European and US based carriers cannot benefit from. However, no tangible proof of any government financing of Emirates activities has been made public nor related in a scientific paper so far (De Wit, 2014).

Chapter 4: The Gulf carriers's strategies

This chapter is composed of two sections. A first section where we will observe the main growth strategies applied by each of the Gulf carriers from the early beginning as well as the additional strategies set in place to support that growth.

4.1. Growth strategies from the Gulf carriers

4.1.1. Etihad Airways: the acquisition strategy

Through its consolidated group, the Etihad Aviation Group (owned by the government of Abu Dhabi), the company embarked in a series of acquisitions of equity stakes in foreign airlines. In 2018, we could identify five significant stakes in foreign airlines, in Europe, Etihad invested in Air Serbia (49%), and Alitalia (49%), in Asia, Jet Airways (24%), in Africa, Air Seychelles (40%), in Australasia, Virgin Australia (21.8%) (Center for Aviation,2018). The stakes reflect local regulations as foreign companies cannot hold more than 49% stakes in European airlines, a similar legal framework applies for US based carriers with a 25% limit and 33% for Japanese based carriers(Center for Aviation, 2017a).

In addition to equity stakes, the company tried to develop its newly acquired partners, part of the motivation for acquisition was to transit more passengers through its hub in Abu Dhabi by sourcing them from its foreign partners markets (Etihad had 34 code-sharing agreements in 2012, more than Emirates and Qatar combines which accounted respectively, ten and eleven (Anwar, 2015) but the group also provided a more hands-on approach by developing synergies, advanced cooperation schemes, etc (Center for Aviation, 2017a). In a particular case (Darwin Airline), the company fully integrated it in its network as « Etihad Regional Airline », the subsidiary was later sold to Adria Airways and is thus, no longer part of the network.

Etihad's investment strategy in foreign airlines has faced numerous challenges in the past five years. When it comes to European stake-holdings, the company had a 29% stake in Air Berlin which filed for bankruptcy in 2017, the German carrier was reporting losses of 782 million EUR the former year (Financier Worldwide Magazine, 2017). Etihad also was in possession of 49% of stakes in Alitalia, the Italian however in an intriguing situation, the company filed for bankruptcy in 2018 thereby removing its stake but yet keeps on operating in 2019 (Goldstein, 2019). When it comes to Asia, the company's 24% stake in Jet Airways also happens to be compromised as the Indian carrier filed for bankruptcy in 2019 (Bahree, 2019) but can still be resold according to the Indian Bankruptcy Code.

Overall, Etihad lost 4.75 billion USD since 2016, from which 1.28 billion in 2018 (Carvalho, 2019). Despite what was a rapid rise in terms of passengers and revenues since its creation (Powley & Kerr, 2017), the airliner has not been able to provide a value-adding strategy. In its latests statements, the company says it is rethinking its strategy in order to shift its focus to point-to-point lines (Carvalho, 2019).

4.1.2. Emirates Airlines: the internal growth strategy

Similarly to Etihad, Emirates belong to a group (the Emirates Group which is owned by the Government of Dubai). Emirates strategy is different to its Emirati peer. First because it had a clear first mover advantage, Emirates was founded in 1985 while Etihad was founded in 2003, it had thus the time to establish a clear market base, have a larger fleet and develop a significant enough network effect. Second because it could benefit from Dubai's notoriety as a main base (Ulrichsen, 2016, pp. 151-154).

Its growth strategy was thus mainly focusing on its internal resources, in parallel, the company relied on the development of Dubai as an increasing tourism and business hub in order to be less reliant on connecting passengers. The company is facing some trouble since 2016 as several factors have contributed to a reduction of passengers and profits, from those factors we can identify the terror attacks in Europe, the diplomatic crisis with Qatar, the rise of oil prices, volatile currencies in certain markets such as India, etc (Macheras, 2018).

The internal resources of an airline can be assessed from three angles; human, physical and intangible (Low & Lee, 2014). Based on that model (Appendix 2), we can observe that Emirates outperforms its Gulf peers on key elements from the physical angle with a fleet uniformity (having no short-haul and medium-haul aircrafts and only four different models of passenger airplanes excluding cargo and executive fleets (Emirates Group Annual Report, 2018-19), a bigger fleet with 258 passenger aircrafts on service as of March 2019,), the intangible angle with more years of experience and more available passenger kilometre,) and the human angle with a greater number of employees (flight and non flight personnel).

Among the internal resources of the company we can also name the subsidiary of its group Dnata which has driven consequential synergies since the functional areas of both groups are shared (HR, Finance, IT) and an efficient way to diversify its revenues as from 2009 to 2014 the subsidiary has been increasing its share in the overall revenues of the group and presents higher margins compared to the airline (Redpath, O'Connell & Warnock-Smith, 2017).

Emirates was also able to provide a highly efficient cost structure as explained in chapter three and it has the advantage over its Gulf peers to have a larger but less diverse fleet allowing for greater economies of scope

Overall, the growth strategy of Emirates allowed the company to transport a total of 58.6 million passengers in 2018, 0.2% more than last year (Emirates Group Annual Report, 2018-19), despite the current stagnation of passengers, it is important to note that Emirates has shown above average passenger growth in the last decade, starting from 14.5 million passengers in 2006 (Kuljanin, Mallic, 2016).

4.1.3. Qatar Airways: the alliance strategy

As Doha does not benefit from the same tourist attractiveness as Dubai or Abu Dhabi, the company had to innovate differently. Additionally, the company grew up with a different ownership structure from its Emirati peers as half of the company was privately owned until 2013 after what, the Qatari sovereign fund acquired full ownership of the airline (Menon, 2014).

One of the key elements to point out from the Qatar Airways strategy is its adherence to a global airlines alliance, the company is the only one among the three Gulf carriers to have entered an alliance. The carrier joined Oneworld in October 2013, two months after its ownership change and change of hub (the company moved to the new Hamad International

Airport in Doha). Its introduction into the alliance was sponsored by British Airways in 2012 (Oneworld, 2013). The adherence allowed Qatar Airways to face the competitive disadvantage it had against Emirates as the Emirati carrier had greater seat capacities and a larger network.

Qatar Airways has thus been focusing on transiting international passengers sourced either from their own destinations or alliance partners by their hub in Doha. However, the carrier also started to develop carriers abroad, after a failed attempt to create its own subsidiary in India due to unclear foreign ownership regulations (Shah & Cornwell, 2018), the Qatari carrier successfully acquired 49% of Meridiana in 2018 (Rucinski, 2019), an Italian carrier later rebranded as Air Italy. The new Italian carrier is now based in Milano and ambitions to become the new reference in Italy (Trevidic, 2018).

In addition to the development of a new major carrier in Italy, Qatar Airways also continued to consolidate its place in Europe by acquiring a 20% stake in its alliance partner IAG. Besides Europe, the company has started consolidating its position in China with a 9.6% stake in the Hong Kong carrier Cathay Pacific in 2017 (BBC, 2017) and a 5% stake in China Southern (Alsharif, Azhar & Qiu, 2019). Eventually, the carrier also has a 10% stake in the South-American carrier LATAM Airlines.

Despite a significant growth, the Qatari carrier was largely affected by the diplomatic blockade from its neighbours explained in section 1.3.4.

4.2. Strategies from the Gulf carriers to support and sustain their growth

In this section, we will analyse what was set in place by Gulf carriers in order to support their strategies and improve their market shares.

4.2.1. Marketing investments

One notable activity from the Gulf airlines is their heavy sponsorships of events, and more particularly the sports events. All three companies did invest all types of sports sponsorship, the type of sports depicts the global nature of their customers ranging from soccer to cricket

(Taneja, 2016). Emirates alone sponsors more than 50 sports events in a variety of categories (golf, cricket, tennis, soccer, horse racing, etc.), in addition the company sponsors cultural events and shopping festivals (O'Connel, 2011).

Besides the sponsorship of events the three carriers have tried to appeal to their customers as premium carriers that provide services at the highest standards of the industry while being cheaper than their European peers. All together, the heavy investments and the numerous marketing campaign did provide the Gulf carriers a significant growth in brand valuation. From 2011 until 2016, Emirates was the most valued brand in the airline industry (but experienced a drop in 2017), Qatar airways was ranked in the top ten during the same period and Etihad managed to get into the top 20 (Brand Finance, 2017).

4.2.2. Politics

As the Gulf Airlines did raised numerous critics in Europe and the US, mostly about unfair competition and governmental subsidies (Abeyratne, 2017), the companies were forced to find ways to leverage on those critics in order to influence decision makers in their best interest. The cornerstone of their strategic response to those critics was the massive acquisition of airplanes from the two main aircrafts manufacturers namely Boeing and Airbus.

In addition, the three carriers responded to those allegation neglecting or denying the accusations of their competitors from Europe and the US. Emirates which has been increasing its financial transparency did provide a listing of the subsidies that were provided over time to its European and North-American peers making the argument that governmental subsidies or bailouts are not specific to the Gulf region (Emirates Group, Airlines and subsidies: our position, 2012).

In 2010, when faced with the refusal of new slots in Canada, the UAE carriers (namely Emirates and Etihad) turned to their government in to receive diplomatic support. The UAE government responded by restricting Canada's access to a military basis that was being used for the deployment of troops in the region, furthermore, the UAE set stronger visa requirements for Canadians. In 2013, the diplomatic crisis ended and protective measures were terminated (Ulrichsen, 2016).

4.2.3. Providing Low-Cost services

In order to keep their competitive advantages the Gulf carriers did try to make the most of the low-cost trend by getting their own low-cost subsidiary. However, only one truly succeeded, as a matter of fact, Qatar tried first to launch its own low-cost subsidiary in Saudi-Arabia but failed (ch-aviation, 2017) while Emirates followed in 2017 with a strategic partnership with Fly Dubai, a low-cost carrier that was sharing the same hub, both carriers now have adjusted their activities to make the best of each other's network (Cornwell, 2018).

Nevertheless, it is important to note that those low-cost services were only based on a short-haul model with limited range airplanes, a model which has proven to be successful in foreign markets. In the case of Emirates, the success of this strategic partnership is yet to be proven.

Chapter 5: Strategic response from the European carriers

In order to face the increasingly tough competition from the Gulf which put pressure on their Asian and Australasian lines, the European carriers did leverage four elements to sustain their market share and build their own competitive advantage.

5.1. Strategic Partnerships and Join-Ventures

Besides consolidation, European and US based carriers also innovated with strategic partnerships and joint-ventures in Asia. The European carriers have been very effective at creating joint ventures across time as each main group do have a joint-venture partner in the US (Delta with Air France-KLM, United with Lufthansa group and American Airlines with IAG).

However, when it comes to connecting the two major markets in Asia, namely China and India, Air France KLM has proven to be particularly effective. As a matter of fact, the group has developed joint-ventures in China with China Eastern (Air France-KLM Group, 2018) as well as China Southern Airlines and Xiamen Airlines (Air France KLM Press Release, 2018). In South-East-Asia the group has a a joint-venture with Vietnam Airlines (Air France Corporate Press Release, 2017) and in India, the group did operate a joint-venture with the now bankrupt Jet-Airways (Citrinot, 2017).

Lufthansa Group has also consolidated its position in China thanks to a join-venture with Air China in 2016, besides China, the group did operate joint-ventures in South-East-Asia with Singapore Airlines and in Japan with ANA (Lufthansa Group, 2019). Interestingly, the group has no joint-venture with any Indian carrier but operates a codeshare partnership with its Star Alliance partner Air India (Lufthansa Group, 2019).

IAG is notably the weaker player in terms of joint-ventures in Asia with no joint-venture in China nor in India. The group has a joint-venture with Finnair which is very present in Asia as well as Japan Airlines. Interestingly, the group is the only one to have a joint-venture with a Gulf carrier, as IAG and Qatar Airways have joined forces but the agreement excludes de lines to the americas (Center for Aviation, 2016a).

Creating joint-ventures is an effective way to maximise revenues while sharing the risks of a specific route, a joint-venture allows more synergies compared to a simple code-sharing agreement (Citrinot, 2017). By doing so, the European carriers have developed extensive networks in China particularly where thanks to restrictive measures against the gulf carriers, the European carriers have been able to largely outperform their Middle-East peers in terms of passengers (Center for Aviation, 2016b).

5.2. Low-Cost Long-Haul

One of the solution to face extensive competition on some lines that was implemented by all three groups with distinctive applications is the Low-Cost Long-Haul model. The model is based on the Low-Cost Short-Haul business that has proven to be successful both on the US market as well as European market with companies such as Ryanair and Southwest becoming major players in the industry (Powley, 2017). The three main European groups first started replicating the short-haul model with their own created or acquired subsidiaries (mainly Vueling for IAG, Transavia for Air France KLM and Eurowings and Germanwings for Lufthansa Group).

But as the same model applied to long-haul flights started gaining popularity with airlines such as Norwegian Air Shuttle in Europe or Air Asia in South-East-Asia, the three groups started implementing their own long-haul low-cost airlines. IAG and Air France KLM did it by creating a new airline (respectively Level and Joon) while Lufthansa Group used its subsidiary Eurowings.

The sustainability of the sustainability is yet to be proven as some argue that the business model is weak when competing against specialised airlines and that traditional carriers might still hold a competitive advantage (Binggeli & Weber, 2013). It is however important to point out that in 2019, both Lufthansa Group and Air France-KLM announced to stop the operation of their respective low-cost long-haul carrier (Collet, 2019; McWhirter, 2019).

It is hard to conclude on wether this model is successful when it comes to facing the main three Gulf carriers competition as well as if the business model is sustainable. In order to get a deeper understanding on the topic, this will be further analysed in the practical part of the thesis.

5.3. Political support

One key element that was used by traditional carriers in North-America and Europe was the political support from authorities to limit Gulf carriers access to their market. Under allegations of unfair competitive practices, the traditional carriers did push for numerous policies in order to limit their Gulf peers expansion. The laptop ban operated in the US is a perfect example (Cornwell, 2017).

In Europe, the governments of Germany, Austria and others have been very reluctant to granting additional access landing rights to Qatari and UAE based airlines (De Wit, 2014). Air France KLM and Lufthansa Group did repeatedly complain about unfair competition. In 2017, the European Union proposed new regulation to tackle the issue (Fioretti, 2017).

In 2019, the Air Transport New Competition Law was voted with the purpose of protecting the European airlines against abuses such as subsidies. The regulation came formulated as follows: « *The regulation gives the Commission powers to carry out an investigation and take financial or operational redressive measures if a non-EU airline uses a market-distorting practice that has caused or clearly threatens to cause injury to an EU air carrier.* » (Council of the EU, 2019).

However, these measure do not limit themselves to Europe nor the US. China has been taking similar measures. As explained in section 2.2.3. the Center for Aviation agues that the Chinese might be restricting the access to its market in order to, first, let its domestic carriers develop and consolidate and, second, use the limitation of landing authorisations for Gulf carriers in China as leverage in trade talks with the European Union (Center for Aviation, 2016b) (assuming that it benefits Europe to limit the access of the Gulf carriers since it does restrain the competition against European carriers and their partners in China).

Conclusion

The Gulf airlines have been effective at growing on the global airline market were they established specific capabilities to catch long-haul passengers and make them transit through their hubs in Dubai, Doha and Abu Dhabi. On the Indian and Chinese markets, we can note some disparities in terms of performance with the Gulf carriers outperforming on the Indian market thanks to a wide access to the market and a lack of strong local players while underperforming in China due to regulatory restrictions and strong domestic players economically tight with European carriers.

The three gulf carriers have been able to develop a competitive advantage against the main European groups thanks to their geographical advantage, development of highly efficient hubs, more efficient cost structures and lower airport costs. We can thus note that one key element, the location of the hubs, is non-replicable while the rest can be, to some extend, replicated elsewhere. Despite a partial replicability, some strengths such as the lower labour costs also imply a poorer treatment of part of the workforce which also raises ethical questions.

Due to their different realities, each Gulf carrier has developed a different strategy. Emirates has based its strategy on its internal resources (its existing extensive network, efficient cost structure, efficient hub,…), Qatar Airways entered an alliance (Oneworld) and developed strategic partners abroad in order to extend its network and Etihad did invest in numerous airlines abroad.

Besides their respective strategy, the Gulf carriers have been supporting their growth by investing massively into events sponsorship (sports sponsorship in particular) and tried to appeal as a premium brand as well as developing low-cost carriers in the region in order to limit competition.

The European carriers did provide strategies in order to better face that competition, these strategies include the creation of low-cost long-haul carriers, the call for political support and the setting of strategic partnerships and joint-ventures with major Asian airlines.

To close the topic, and reflect on the initial question, we can argue that the European carriers should provide more agility when it comes to competing with the Gulf carriers, their large scale hub business model and cost structures are weaker but that does not mean that the battle is settled, European carriers have the advantage to be based in Europe with direct access to a large market. European airlines should beat the Gulf airlines at their own game by providing a new business model that outperforms the Gulf hub model. As analysed in this thesis, one of the only ways to have lower costs is to operate point-to-point models, as new smaller and lighter aircrafts are entering the market, this is offering the carriers the rare opportunity to partially shift their model and regain market share by offering cheaper flights to new segments of the population in primary and secondary locations.

Limits and critics

As explained in the introduction, this theoretical parts is a literature review that aims at giving an overview on the available knowledge on the topic. However, various challenges were faced during the collection and summarising of the information.

First, there is a massive amount of information on the topic and it is impossible to cover everything nor to be too detailed which directly limits the understanding of the reader. Nevertheless, this thesis was made with the ambition to give a structured overview of the problem from above and calls for further deepening of the topics discussed.

Second, as this is a sensitive topic, a lot of information is not publicly available, specifically when it comes to passenger numbers, loading factors or in the case of Qatar Airways and Etihad, specific financial data, as their ownership structure does not require the detailed publicity of their financials.

Third, as the topic and the industry in itself is highly politicised, a large part of the information available tend to defend a particular point of view, even in the case of scientific articles we can, in many cases, observe that the author picks sides, sometimes openly defending it, like in the case of De Wit, which named its article: « Unlevelled playing field? Ah yes, you mean protectionism ».

The pursue of either a protectionist agenda (which argues that European carriers should be protected through policies as they do not benefit from same advantages and are unable to face that competition although these companies support a significant amount of jobs) or a liberal agenda (which argues that opening the skies benefits both the passengers and the industry as a whole) is constantly present and distorts the information. To describe the model from the most unbiased perspective which should be the ultimate goal of an academic work becomes more challenging and reviewing articles from each side is crucial.

On the basis of this analysis, interesting questions emerged such as the ethical considerations in the global airline industry, a comparative approach on the success rate of Eurasian joint-ventures, a viability analysis of the low-cost long-haul business model (topic of the practical part) which could be further analysed in the future.

Part 2 - Practical Analysis

1. Research Question

The title of this practical part is formulated as a question which is directly linked with the theoretical analysis that was performed in the first part of the thesis. The question is the following: *Is the low-cost long-haul model a viable answer to the competition from the gulf airlines?* As we have analysed the theoretical frameworks of the fierce competition between the European carriers and the gulf carriers, it is now time to observe at the best ways to face that competition.

One of the ways Europeans carriers have responded to the gulf carriers is by creating low-cost long-haul airlines, we saw it with Lufthansa Group introducing Eurowings, Air-France KLM with Joon and IAG with Level. But wether this new business model is the best way to face the competition is still to be proved. In the recent months, the bankruptcy of Wow Air, the struggles of Norwegian Air Shuttle (previously considered as a successful application of the business model) and the discontinuation of Joon may suggest that a more critical approach should be taken towards the model and its applications.

In order to answer the question, we will analyse the profitability of the low-cost long-haul (LCLH) business model, we can thus redefine the research question from a conceptual perspective as: *how viable is the LCLH business model?* And understand the concept of viability from a profitability perspective, in other worlds, we could rephrase it as: *how financially sustainable is the model?* In order to analyse the financial sustainability of the model, we will start by answering the question: *what is the LHLC business model? and how can we frame it into a theoretical model?* outlining the exploratory nature of our research.

It is important to note that this practical part of the thesis will not give a overview of the options for European carriers to better compete with the Gulf carriers but instead analyse throughout a case study whether one of the options that has been used so far, namely the low cost long-haul model is viable. One of the challenges of the research question is that it is too wide and requires additional refinement. This is why the case study will solely focus on one low-cost long-haul airline, Eurowings.

2. Methodology

2.1. Selection and definition of the research method

Before jumping into an analysis and a detail plan of how we will proceed, we will explain what a case study is and the way the research method will be applied. It is important to point out that our case study is based on a qualitative research method that explores a specific question through a specific context, the case study is best defined by Yin (1984:24) as: « *an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used* » .

A case study can be categorised as exploratory, descriptive or explanatory (Yin, 1984), an exploratory method can be used to provide a first observations of a new phenomenon (Kemanusiaan, 2007). A descriptive method describes a particular phenomenon in line with the information gathered (McDonough & McDonough ,1997). An explanatory method aims at investigating a phenomenon and drawing up theories from findings (McDonough, McDonough, 1997).

Besides their categorisation, cases studies can also be divided in three types: intrinsic, instrumental and collective (Stake, 1995). The type of case study depends on the object of the analysis. If the case analyses one particular organisation (or individual) for a specific phenomenon, we will speak about an intrinsic case study. If the case analyses one particular organisation (or individual) to explain a general phenomenon, we will speak about an instrumental case study. If we are analysing multiple organisations or groups of people in order to draw patterns for more general phenomenons (Harling, 2018).

Providing a case study for our topics allows us to leverage on the many perks of the method. First, it allows us to have an understanding of the LCLH model thanks to a direct application of the model, it also allows us to use a qualitative approach or a quantitative approach to the problem, Kemanusiaan (2007) argues that a case study can use both qualitative findings and numerical evidence to back them, which will partially be applied in this thesis. A case study also allows us to select whether an exploratory, descriptive or explanatory method should be used according to the question and past researches on a topic (Yin, 1984).

Nevertheless, the case study method has its limits. Yin (1984) points out that the method can, in some cases, lack of scientific accuracy and rigour, provide conclusion which cannot be assumed correct for an industry or different groups of people as the focus was on one particular subject and can, in some cases, be too complicated to generalise.

2.2. Application of the research method

From the aforementioned elements we can conclude that we will provide an exploratory case study which will have an instrumental approach to the question of the viability of the LCLH business model. This question originates from the theoretical part of the Master's Thesis which outlines the challenges of competition from Gulf Airlines to European airlines and in which outlines the way European airlines answered to that challenge.

As seen in the theory, one of the emerging trends in the aviation industry and which has been used to compete with the Gulf carriers, is the LCLH model. However, limited research is available on the new model and the recent application seem to have been unsuccessful (judging from the bankruptcy of Wow Air, discontinuation of Joon, financial trouble of Norwegian air Shuttle and current talks to discontinue the long-haul segment of Eurowings). All in all, this incentives us to take a more scientific approach to the business model and analyse whether the recent problems are based on flaws from the model or specific mismanagement issues.

2.3. Data collection

The data gathered for our analysis is composed of primary and secondary sources. The primary sources are the annual reports issued by Lufthansa Group which give specific data regarding the long-haul performance of the year of Eurowings. Manually consolidated these indicators gives us an overlook of the performance of the company on that particular market, the indicators being: the total number of passengers, the available-seat-kilometer (« ASK », which is the multiplication of the total number of available seats by the total number of kilometer traveled), the revenue-seat-kilometer (« RSK », which is the multiplication of the number of seats sold to passengers by the total number of kilometer traveled) together, those indicators allow us to compute the passenger load factor.

The annual reports will also be used to extract the total number of passenger specific to the long-haul section and total revenue for the long-haul section allowing us to compute the revenue per passenger. Furthermore, additional secondary sources of data will be used in order to have more details regarding the industry performance, fuel prices and and etc.

The secondary sources of information are mainly scientific articles and industry reports. One specific article will be used for the analysis in order to cross the data from the primary sources. Daft and Albers (2012) did a quantitative approach of the same topic, this thesis aims at doing the qualitative version of that analysis by directly analysing one application and using the most recent data on the topic. The industry analysis of Binggeli & Weber (2013) will also be used to have an outlook of the practical application of the business model, beyond the single application by Eurowings.

2.4. Research strategy

In order to be able to answer the questions of *what is the LHLC business model? what are its strengths and weaknesses? and how can we frame it into a theoretical model?* We need to understand how the model emerged first, which is on the basics of the Short-Haul Low-Cost (SHLC) business model. To have a clear understanding, we will first create a framework of the SHLC business model look at what its competitive advantage is build on.

Afterwards, we will analyse qualitatively how the model can be replicated on Long-Haul flights and schematise the LHLC business model. Furthermore, we will create a second model in order to visualise the dynamics of revenues and costs. This model will allow us to visualise part of the quantitative study by Daft and Albers (2012) and link it with our business model framework.

Once both concepts and their limits will be clear, we will look at the application of both models by Eurowings. Our costs and revenue model for the LHLC will be a mix of a revenue analysis based on actual data from Eurowings, a cost analysis based on our framework which originates from Daft and Albers (2012) cost estimates and actual kerosene prices. As Kerosene price are a variable cost and they do occupy in the profits and loss statements of the airlines (i.e. 40% of the total costs in the case of Emirates), we will use the actual fluctuation of those costs, add the fixed and variable costs estimates and compare them with the actual revenue trend of Eurowings. By doing so, we will be able to outline whether the cost structure of the LHLC German carrier can be sustainable through time.

Once the two schemes finished and the model developed, we will try to answer the questions asked in the first section by looking at the LHLC business model, its strength and weaknesses and if the model, taking its current application is truly sustainable in the long-term. In order to evaluate the long-term sustainability of the model we will primarily analyse whether the variable cost can easily put the model into jeopardy and whether the strengths of the model (in this case, the current cost advantages against traditional carriers) are consequential enough to keep the model in an advantageous position if its non-model bounded variable costs (mainly, fuel costs) gets too volatile.

The analysis will thus be split in two parts. The first part will focus on the creation of our own frameworks in order to better understand the specifics of the LCLH industry, this will include a chart that will outline the building blocks of the business model and categorise them into different types of sections and a chart that will show where the revenues and costs are sourced and what is their proportion. The second part will be the analysis of the case of Eurowings for which, first gather the specific information to apply the business model framework and second apply the costs and revenue model.

The results of the analysis will consist in an observation of the strengths and weaknesses of the model when applied to a case, a set of observations of the findings and the creation of thresholds in order to provide a more detailed understanding of the risks in case of variation of the current parameters.

2.5. Questioning of the results

After the analysis and results, a questioning of the method, data collection and data quality will be performed in the limitation section. Furthermore, the contribution of this thesis to the current available literature on the topic will be detailed. A summary of the current global challenges faced by airlines on the market will be provided in order to put in context the recommendations that will follow. Eventually, a global recommendation will be based on both the findings in the theoretical thesis and the practical thesis. The recommendation will particularly target the European major airline groups which created their own LCLH subsidiary. Eventually, the remaining questions and need for further verification through different approaches and methods will be explained in order to advocate for additional research on the topic.

3. Analysis and Results

3.1. The SHLC business model

In order to understand the LHLC model we need to first have a clear understanding at how the SHLC model works as this model served as foundation. We will, first, have a look at the basic elements that are set to be the building blocks of the model and second, try to schematise these elements.

3.1.1. What are the building blocks of the SHLC model?

As argued by Rosenstein (2013), the SHLC business model has eleven building blocks that distinguish it from the traditional, charter and specialised airlines. The model is fundamentally attached to the logic of cost reduction, this logic has been applied to both the product offered by the airlines as well as their operating model.

When building his model, Rosenstein (2013) divides the elements into two categories, the product features and the operating feature. While this division is relevant, we can add one layer of categorisation by offering three new sub categories, the elements that impact the revenues (in this case the Revenue per Available Seat Kilometer, « RASK »), the elements that impact the costs (CASK) and the elements that impact the number of passengers. It is important to point out that the impact of some elements can also reverberate in other categories (i.e. the lower fares impact directly the RASK while they will also indirectly impact the number of passengers).

In the RASK category of the product features, the main element is the lower fares for passengers and the use of dynamic pricing (Malighetti, Paleari & Redondi, 2009). Two elements will also be indirectly transferred to this section, the non-pre-attribution which is used as an additional source of revenue by selling the possibility to choose once seat and the sales of beverages and food aboard or during the booking (in contrast to traditional airlines which tend to offer beverages and some snacks on short-haul routes, the low cost carriers sell them along with many other duty-free products.).

In the CASK category of the product features, the main elements are the suppression of the physical ticket, the mono-class configuration of the planes with the minimum distance between the seats to maximise the number of people on board (implying that it is also a passengers feature), the non-pre-attribution of the seats (despite not being widely used anymore the method of not attributing a specific seat to each passenger and let them find a place when they board the aircraft tends to be one of the most efficient ways to speed up the boarding time) and the sales (instead of giving by courtesy) of the beverages and food.

In the passenger number category of the product features, the main element is the higher number of flights between to destinations regardless of the timing in the day. Increasing the number of flights between two destinations is achieved with lower time on the tarmac, in order to do so, low-cost carriers tend to minimise boarding time, cleaning time (in some cases, no professional cleaning is performed at all), etc. In addition, the carriers continue flying beyond the regular flight schedules by providing night flights when the airports allow it. Moreover, the mono-class configuration also contributes to an increased number of passengers.

In the product features, we can also add a cross category element which is the application of the point to point model instead of the the hub model and therefore, no sales of tickets that include more than a flight on a different airlines (called « interlining » in the industry vocabulary).

The operational features mainly focus on cost reduction, we can find four key elements in that category. First, the use of only one model of planes, that attribute is very common amongst Low-Cost carriers, as example we can cite the B737 that has become part of the branding of Ryanair as well as the A320 for EasyJet.

Second, the use of base of operations in regional airports. The attribute is key in the early development of Ryanair as the company chose to develop in regional airports distant from metropolitan areas such the Brussels-south Airport in Belgium or Frankfurt Hahn in Germany. This element is embedded in Ryanair strategy as it could benefit from subsidies provided by the regional/national/European authorities. The subsidies will not be granted from 2024 as new regulations are prohibiting regional airports to benefit from those financial incentives. Nevertheless, Ryanair has started to move from the regional airports to the main metropolitan airports in the recent years.

Third, the focus on short-haul routes. As we can see, the successful application of the SHLC model such as Ryanair, EasyJet, Vueling and Transavia have all been operating solely short-haul lines. Fourth, the use of different remuneration systems.

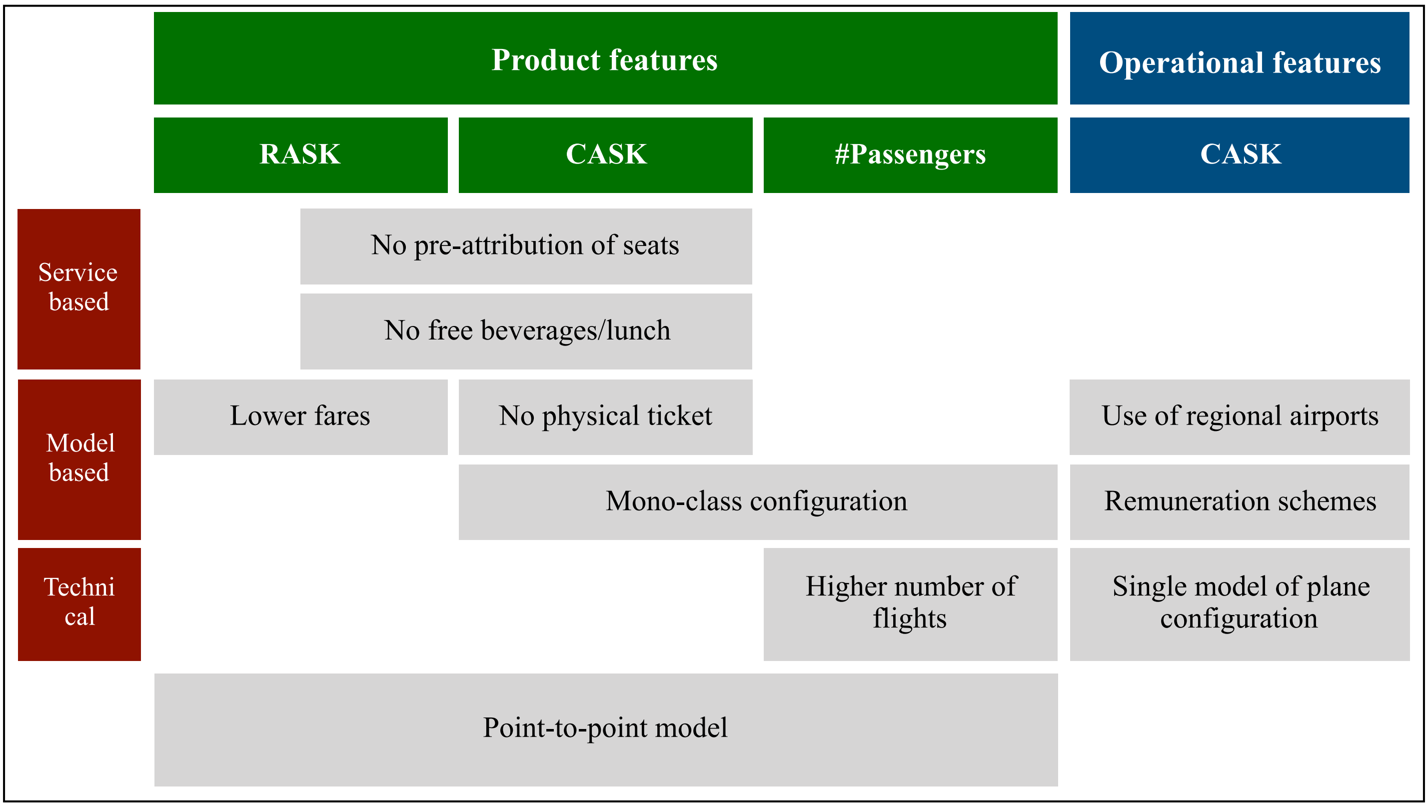
These eleven elements will be used as the corner stone in our analysis. Every company has its specificities and deviates its on way from the above mentioned elements that constitute the model of the Low-cost transportation. However, Francis, Humphreys, Ison, and Aickien (2006) argue that the more a carrier deviates from the model the less profitable they tend to be (Alamdari & Fagan, 2005).

The last element that will be added is the distinction between the type of element we are analysing, regardless of its category. We will see whether the element is service based, technic based or model based. Service based refers to elements that are services offered or charged depending on the type of carrier. Model based refers to particular features that are inherent to the model of low-cost transportation, these are not services per-se but specific adaptations of the normal air transporting methods to cut down costs and be more competitive. Technical based refers to all the adaptations that refers to the aircrafts, their use and maintenance. Those distinctions are directly reflected in the model on the left side allowing us to compare them across categories if features and sub categories of objectives.

3.1.2. Schematisation of the SHLC business model

The analysis provided above allows to categorise the element in two global categories and two sorts of sub-categories. All in all, we can visualise the model as shown below. This will be used as basis to further understand how the model was transferred in a long-haul configuration. One element is not represented in the chart, the focus on short-haul routes as it is irrelevant in regards to the purpose of this analysis.

The Business Model Framework



A first analysis of the chart can quickly outline the main priority of the model which is the control of the CASK.

3.2. The Long-Haul Low-Cost business model

3.2.1. How replicable is the SHLC model in the Long-Haul?

- Theoretical perspective

The second step in our analysis is to observe which of the aforementioned elements are replicable for a long-haul application. The first step will be to simply observe which elements can be replicated while the second step will provide a deeper analysis to see wether despite the possible application, the elements are sufficient to build a comparative advantage.

From a first hand observation solely based on the elements without looking at the application by airlines we can observe that every element is replicable. However, some elements are easier to replicate than others. A lower fare service is per se, easily replicable as long as the company is willing to cut its margins. By lowering their fares, airline companies open the market to new customers thereby increasing the original demand. The creation of a different remuneration system is also an easily replicable feature for low-cost long-haul carriers, however, legacy carriers have encountered a fierce opposition from the unions of their pilots and stewards who repeatedly demanded alike working conditions for their peers in the low cost branches.

Increasing the frequency of flights is replicable in the long-haul as long as the distance between both destinations allows it, traditional companies tend to leave their planes parked for long hours waiting for the the best slots for departure. To a certain extend, this time could be used to flight to closer destinations. Nevertheless, this is, in some cases, simply not achievable due to the complexity of the airports slot booking systems.

It is important to note that despite being conceptually replicable, having a point-to-point network architecture, higher frequencies, a mono-class configuration and fly from regional airports is challenging to apply simultaneously (which means applying the model based and technical based features at the same time). The establishment of a point to point model instead of a hub system is replicable for a long-term application, however, this implies that the short-haul routes will not be used to source passengers in the long-haul routes, in other terms, most of the customers have to be sourced locally and their destination has to match the final destination of the plane.

If we add more frequencies and a mono-class configuration to the model, we need to consider that more demand will be required as there will be more seats compared to regular flights with a two or three classes configuration. Eventually, using regional airports or secondary airports as base may be an effective way to reduce the costs but considering the aforementioned challenges, that would require a sufficient customer base in the areas/cities that surround the airport. There might be some limitation for the use of regional airports as well in what regards the runway’s lengths.

This argument that the model is, in theory, replicable is backed by Daft and Albers (2012), although they argue that the model has its limitations due to limited demand. Taking our analysis and the general acknowledgement from the scientific literature that the model can theoretically replicated, we can conclude that the chart provided in the short-haul section also applies for the LHLC business model. However, in order to have a more thorough understanding of the ins and outs of the model, it is important to have a more practical approach and look at what are the challenges currently faced by those companies before conducting our analysis.

- Practical perspective

Despite the possible replica of the short haul model to a long-haul application in theory, a McKinsey analysis argues that the cost reduction schemes that might be required to truly compete with non-low-cost carriers are not significant enough to build a sustainable comparative advantage (Binggeli & Webber, 2013).

In the above-mentioned article, the authors argue that on a long-haul configuration, the traditional carriers might not face the same competitive disadvantages as on the short-haul. The reasons can be sorted in three categories, first, due to limited cost reduction and revenue maximisation opportunities for long-haul low-cost carriers, second, due to limited demand and intense competition and third, due to natural limits present in current environment.

The first argument supports the fact that despite some cost optimisation schemes that can easily be put in place and offer around 26% of cost reduction per available seat per kilometer against a traditional carrier, the reduction of cost mainly lies on lower input costs while an increased density of seats permits to further diminish the CASK as airlines have to face significant fixed costs. However, despite such advantage, traditional carriers might be more agile when it comes to maximising their revenues through seat configuration adjustments and additional revenue generation (with cargo for instance) in comparison with long-haul low-cost carriers.

The second argument supports the idea that there is already a fierce competition on the lines that best suit the low-cost long-haul business model, specifically from specialised or charter airlines (such as TUI Fly for instance) as well as airlines with additional connecting flights (such as the gulf airlines for European travellers that want to reach Asia, Oceania or Africa) together with a limited demand driven by the fact that despite the access to new types customers thanks to lower fares, the tickets being more expensive than short-haul tickets, the opportunity cost of buying something else (an expensive object or entertainment feature) is higher and might, to some extend, affect the original demand.

The third argument is based on the assumption that given the current aircrafts that are in service among the long-haul low cost carriers, the four to seven hours lines are the most profitable and should be prioritised. This can be linked to the theoretical part of the thesis in which the analysis of the geographic advantages of the Gulf carriers outline the perks of having less than eight hours-long flights (Swan & Adler, 2006). Furthermore, traditional carriers still have ways to face that competition by leveraging on attractive frequent flyers programs, the acceptance of short term losses,…

This practical perspectives points out severe weaknesses in the model but more particularly in its capacity to cut costs, generate revenues from diversified sources and face competition from the different actors on the market.Taking both perspective into consideration, it is clear that a different angle is required to understand the strengths and weaknesses of the model.

3.3. The Costs and Revenues model

When analysing the LHLC model, the business model does not provide enough information to understand how it differs from the traditional long-haul model. In order to understand it from a different angle, a framework for costs and revenues model will be created and schematised.

In order to apply our model to our case, we will compute the revenues and costs for the same category of service, same model of plane and same flying route as the ones used in the sub-unit of analysis. This information is sourced from the quantitative analysis of Daft and Alberts (2012) which give us the prices under different scenarios and the average demand for such kind of services on the route that is analysed in the case study of Eurowings. In order to remain consistent with our model, we will solely source our data from one source of information, the aforementioned quantitative analysis, the numbers extracted originate from the « pragmatic scenario » of the paper. Only one cost will be estimated from an outside source, the management costs as these were not estimated in the paper but are yet essential to consider, the origin of these costs is a similar analysis of Binggeli & Weber (2013) which provide us the particular cost on metrics that can be replicated in our analysis.

On the revenue side, there is a significant difference between a traditional carrier revenue model and a low-cost revenue model. While a traditional carrier will primarily source its revenues from the sales of tickets, secondarily from cargo transportation and thirdly from additional charges such as excess baggage, LHLC carriers source their revenues from a variety of sources, as ticket prices are significantly lower. The carriers can charge for any service that a traditional carrier would offer for free such as food and beverages, entertainment, seat reservation and extra comfort features (such as blankets or pillows).

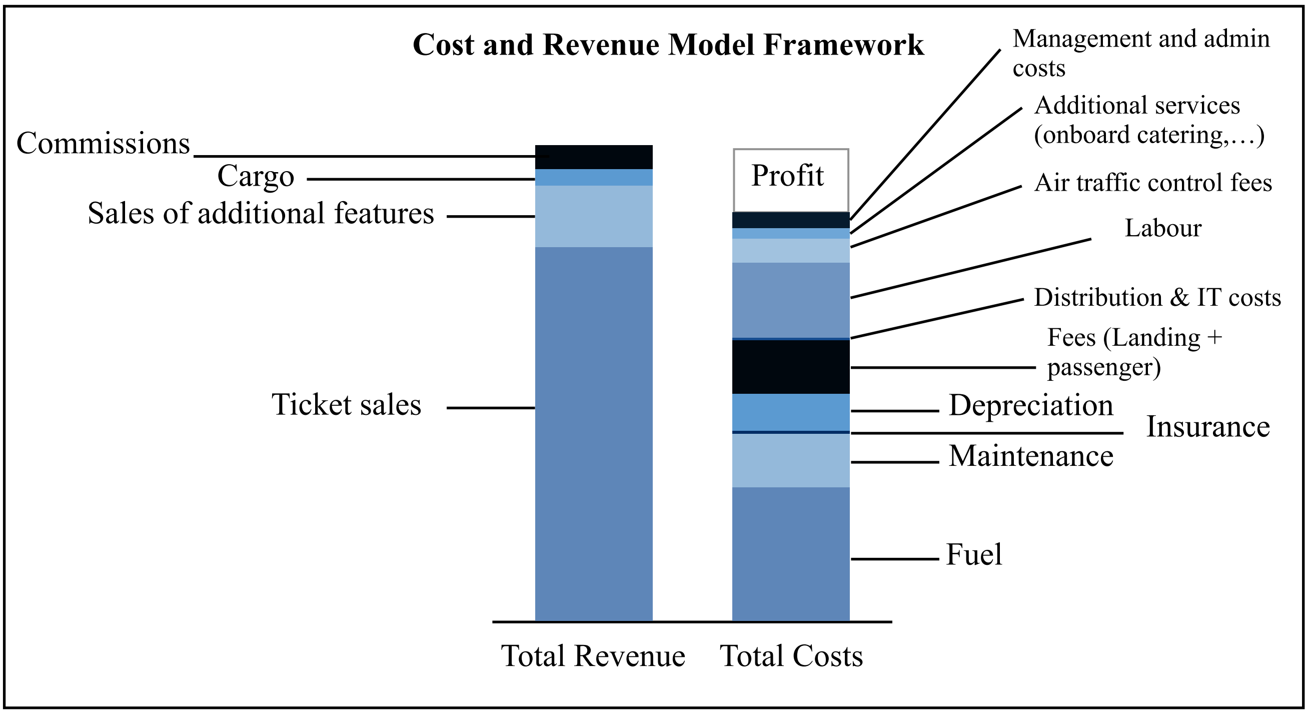
Based on the data we have, we can calculate the average premium extracted in addition to the basic ticket price (as the paper gives us the proportional demand per features and its average price we can simulate the total average premium that a carrier can get per seat). A LHLC carrier can thus expect a 17% additional revenue from the ticket price for selling additional features prior or during the flight. Furthermore, if we take the average cargo freight per flight on a A330-200 and its price provided in the paper, at an 80% seat load factor, we can estimate the additional cargo revenue at 4% of additional per seat revenue from the basic ticket price (we refer as cargo per seat in order to reflect all the costs on the same metrics).

Overall, if we include the commission rate of 6%, we get a total premium (including additional services and cargo) of 27% from the ticket price. The total revenue gets, thus, to rely at 21% on additional revenue streams and 79% on ticket sales.

On the cost side, some differences can be pointed out as well but the major variable and fixed costs tend to be the same as for traditional carriers as those costs are independent of the type of service or operation. The fuel costs, aircraft insurance, depreciation and maintenance costs are the same irrespectively of the model. Therefore, cost cutting opportunities can be found elsewhere, mainly in the airport fees with the use of secondary airports, onboard service with no free meals, labour costs with different remuneration schemes for the pilots and stewards and etc.

By dividing the total costs by the number of passengers (following the same seat-load factor as in the revenue analysis), replicate the same conditions as the ones used above, we can compare both revenues and costs on the same metrics. Actual fuel costs, aircraft insurance, depreciation and maintenance costs account for 59% of the total costs per passenger (34% for the fuel alone), labour accounts for 19% percent, airport and passenger fees account for 14%. The rest of the costs accounting for 8% of the total price.

With the given numbers, we can establish and visualise our model with the sources of revenue on the left and the different costs on the right. The difference between revenues and costs representing the profit margin.



The purpose of this model is to give an accurate understanding of the dynamics of a profit and loss statement among a LHLC carrier. When Daft and Alberts provided the data for the analysis their purpose was to observe under which conditions of seat load factors would the model be profitable for a particular line. Their conclusions were that the model was able to provide a sufficient profit as long as the load factor was above 65%, former studies question the capacity for LHLC carriers to drive the demand in the first place given the use of secondary airports.

A more thorough analysis is however required in order to point out the weaknesses of the model and question whether the 14% profit margin observed on the conceptual model can be maximised. Furthermore, we will observe how the cost structure can challenge the model.

3.4. Eurowings

3.4.1. What is Eurowings?

Eurowings is a low-cost carrier that was founded in 1993 in Germany after a merger of two regional carriers. The company was controlled by the Lufthansa Group in 2005 but was only fully acquired in 2009. Since 2010 the headquarters of the company are in Dusseldorf, after its acquisition, Lufthansa progressively handed the routes that were not based in one of its two hubs (Frankfurt and Munich) to the company (Flottau, 2012). In 2013 the company positioned itself in the « quality low-cost segment ».

The company was historically a short-haul airline providing connections from Germany to the rest of Europe. In October 2015, the company started operating long-haul flights to Thailand and Dubai from Cologne. Later on, new destinations such as the US, Cuba, Mexico and the Dominican Republic were added. The long-haul fleet is solely composed of A330 (except for one A340 under Eurowings delivery but operated by Brussels Airlines, subsidiary of the same group).

The company has been operating under the point-to-point model since its beginnings, as we saw in the theoretical part, the point-to-point model is an effective way to reduce the operational costs and reduce the time spent by the planes parked at the airport, it also requires less infrastructure and labour forces as the system is not optimised for connecting passengers thereby significantly cutting overall CASK.

For European traditional carriers, adding LHLC airlines in their groups is a recent phenomenon. The LHLC model first appeared in 1977 but almost every application of the model between 1977 and 2006 was unsuccessful. Interestingly, the first traditional carrier that did provide a successful application was Qantas in Australia in 2006 with Jet Star. Afterwards, other LHLC airlines emerged in the APAC region such as Air Asia X and Scoot (subsidiary of Singapore Airlines). In Europe, the first successful application was launched in 2011 with Norwegian Air Shuttle.

As the three main European airline groups (namely IAG, Air France-KML and Lufthansa Group) saw that there were under threat on every angle of their businesses (Short haul routes were being attacked by SHCL carriers such as Ryanair and EasyJet, Long-Haul routes to Asia were increasingly attacked by Gulf airlines and routes to North-America were attacked by LHLC carriers such as Norwegian and Wow Air) as their business model was based on a sourcing of passengers in Europe transiting through their hub and being redirected to other long-haul destinations (see section 3.1.2. of the theoretical part for additional details).

The strategy to react was similar among the three groups, all three created or acquired SHLC subsidiaries to compete against companies such as Ryanair and EasyJet and later created LHLC subsidiaries to respond to their long-haul competitors both in Asia and in North-America. Lufthansa Group started with Eurowings in 2015 and IAG and Air France KLM followed in 2017 with LEVEL and Joon respectively. This strategy to compete against Gulf carriers is clearly outlined in the type of routes that were launched, in the case of Eurowings, launching Dubai and Bangkok, Joon with Mumbai and etc.

Despite a similar strategy by the three groups, the applications of the model differed slightly, Air France-KLM operated Joon from its hub location, Paris while IAG and Lufthansa group did operate their LHLC subsidiaries from elsewhere, in general from secondary cities in their main countries of operation such as Dusseldorf and Cologne for Eurowings and Barcelona for LEVEL while IAG also launched operations in Paris, the hub of Air France-KLM.

Interestingly, the long-haul destinations of the company has evolved and is now mainly focused on North-America and the Caribbean. Those two types of destinations show the priority of the company to target holiday/leisure destinations were it directly competes with charter and specialised airlines such as TUIfly, Corsair and etc.

To answer the question of what is Eurowings, we can say that Eurowings is a low-cost German carrier subsidiary of Lufthansa group that does operate short-haul and long-haul flights from secondary cities in Germany (mainly Dusseldorf and Cologne). The long-haul destination are mainly concentrated in North-America, Caribbean region and Asia.

3.4.2. Business model analysis

Before moving on to the analysis of our data with the model we will perform the necessary technical, service based and model based analysis of long-haul operations of Eurowings. After visualising them, we will perform the application of the data to the model in order to answer the questions of the methodology.

In terms of technical features, it is important to note that the Eurowings fleet is mainly composed of Airbus A330 (except for one Airbus A340 under Eurowings delivery but which is operated by Brussels Airlines). The Airbus A330 is a long-range aircraft which, according to its configuration (A330-200 and A330-300 later referred as the « 200 configuration » and « 300 configuration ») can fly between 11,750 and 13,450 kilometers (Airbus, 2019). The plane can fit up to 440 passengers in an all-economy 300 configuration although Eurowings has 310 seats in its 200 configuration in a two class configuration (« Basic & Smart » which is the equivalent to an economy class and « Best » which is the equivalent to a premium class offering extra legroom, extra luggages and other advantages but is to be distinguished with the business class). The 300 configurations of Eurowings has 283 seats in a three class configuration (the « Biz Class » is added and is the equivalent of a normal business class) (Eurowings, 2019).

Both configurations have only two reactors which helps limiting the fuel consumption per passengers compared to the A340 or other four reactors aircrafts. Taking in account what has been explained above, we will provide our analysis based on a A330-200 in order to have results that are as close as possible to reality. As Eurowings operates under a point-to-point model, the scheduling of the planes is independent to other planes implying that planes can be used at their full capacity.

In terms of model based features, it is important to note that Eurowings does not have a mono class configuration but a two or three class configuration depending on the type of A330 we are referring to. This element is important to point out as it significantly reduces the maximum number of passengers that can be carried and directly negatively impacts the CASK (as costs per passenger increase if the costs are divided by a smaller number of people). In the A330-200 the plane is only used at 76% of its capacity due to the seats configuration while the A330-300 is used at its 64% capacity.

Continuing with the model based features, the company operates a different remuneration system as its peers part of the same group. This has been the cause of numerous critics and strikes in the recent years (Lauer, Wissenbach & Hummel, 2019). Furthermore, as the company mainly operates its long-haul routes from secondary cities such as Dusseldorf and Cologne where airports fees are lower compared to major aviation hubs such as London Heathrow or Frankfurt am Main, we can consider it using as origin, secondary airports while most of its long-haul destinations arrive at primary airports (Newark in New York and etc.).

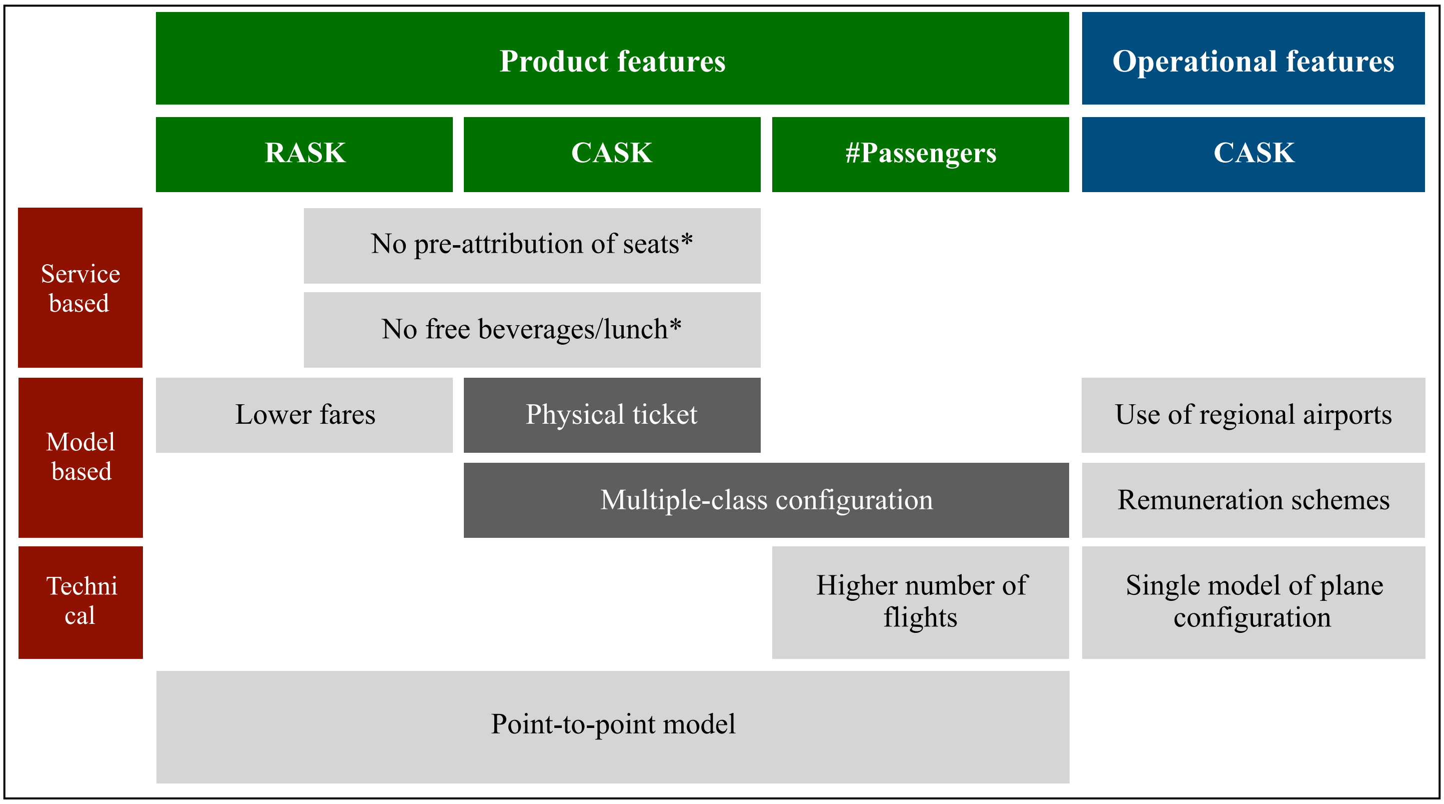
The last element of the model based features is the physical ticket. On that aspect, Eurowings encourages its clients to print it at home although they still give a ticket at the airport with advertisements for other firms at the back.

In terms of service based features, the carrier does not provide free meals or beverages in its economy class (the Best and Bizz Class do receive free meals as a premium was paid for it) but do sell it, similarly to the pre-attribution of seats during the booking which is also charged.

We can therefore schematise the business model of the carrier as below putting in darker grey the non-applied elements and marking the sold articles with an asterisk. From this analysis we can conclude that Eurowings partially applies the LHLC business model, the non-applied items are the mono-class configuration which severely decreases the total seat capacity and the use of physical tickets.

The second part of our analysis require us to look at the Revenue and Cost model and apply it to the current data we collected from Eurowings and outside sources in order to observe the dynamics of revenue generation and cost take place in the long-haul segment.

The Business Model Framework applied to Eurowings



3.4.3. Revenue and Costs model analysis

The last and main point of our analysis is the Revenue and Cost model application by Eurowings. As explained in the methodology, Eurowings was selected as unit of analysis for various reasons, first, it is a subsidiary of a major European group which was created to face increasing competition from Gulf carriers in Asia and local independent LHLC carriers such as Wow Air and Norwegian.

Second, the company provides specific traffic and revenue information regarding its long-haul activities separately which allows us to be more accurate, an analysis of overall activities with short-haul flights included would be unreliable to provide more detailed conclusions. A full quantitative analysis of flights between Dusseldorf and New York (which is a service currently provided by Eurowings) was already conducted in a paper in 2012 by Daft and Alberts. At that time, the analysis was based on simulations Today, on the basis of this analysis with the data provided by Lufthansa Group and market data, we can have a more accurate picture of the route's profitability.

Furthermore, our sub-unit of analysis is a route in particular, the Dusseldorf - New York route. The route is of particular interest for us as it not only matches the parameters of the analysis that was previously done by Daft and Alberts (2012) in terms of origin, destination, airplane model and etc. but is also representative of routes operated by the company as most of the destinations are currently in the US and Caribbean, the route is above the 7 hours limit, like other destinations, which is set to contribute negatively to the profitability. Additionally, despite the topic of the thesis, analysing the route to Bangkok would make the generalisation of the findings harder as the company has closed its other routes to Asia.

In order to apply the model to Eurowings we need to make assumptions as we do not have the full detailed information for each type of costs and revenues. Moreover, the model will be adapted, we will look at the revenues as total for one flight and not per passenger, the costs will be computed similarly allowing a comparison of revenues and costs. Furthermore, costs will be split in fuel and non-fuel costs, the non-fuel costs will be composed of all the costs that were listed on the chart in section 3.3.

In order to compute the revenues for one flight, we will use the annual reports provided by the group, the long-haul total revenue of Eurowings will be divided by the total long-haul number of passengers. Once computed, we will have the revenue per passenger. In parallel, we will compute the average number of passengers per flight by multiplying the number of seats on an Airbus A330-200 by the annual seat load factor giving us the average number of passengers per flight on the targeted route. The average number of passengers on the route multiplied by the revenue per passenger is thus the total revenue for one flight.

This total revenue includes both additional sales and fees as well as cargo revenues since the full amount was used and divided by the total number of passengers. The split of revenues per category is in our application not possible. We will thus focus on the full amount of revenues and observe the evolution from 2017 to 2019 (Q1+Q2).

The costs part is divided in three parts, the first two parts at the bottom represent kerosene prices. Based on the Jet Fuel prices on the market (Index Mundi: Jet Fuel prices 5Y, 2019), the number of litters required to fly the route provided in the aforementioned paper, we can compute the total price for the flight. The part below represents the minimum during a given year while the light blue is the difference between the lowest price during the year and the highest price. In our case, we can see that a large difference of almost seven thousand euros in 2018.

The third part at the top (dark blue) is the rest of the costs (maintenance, labour, depreciation and etc.) which were estimated in the paper and applied in the original model. The cost part is thus divided in three parts, the second part should be understood as a buffer as the total price paid for kerosene should be inside of the light blue section.

3.4.4. Results

Overall, when observing the application of the model, we can make various observations:

1. Since reported and given our estimates of costs and revenues, the model provides profits from 2017 to 2019 included, although the share of profit did decrease from 2017 to 2018 due to an increase in costs and stable growth of sales. From 2018 to 2019, both revenues and costs plateaued;

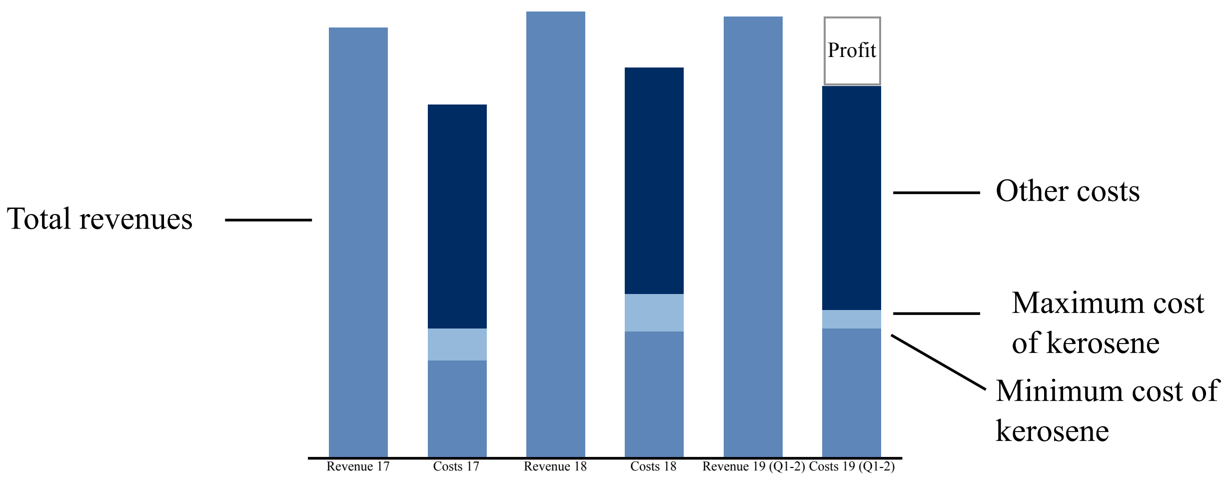
2. The total costs did significantly increase from 2017 to 2018 due to a rise in fuel prices, from 2017 lowest price to 2018 highest price we see an increase of 41%, the costs stabilise in 2019 compared to former year;

3. From 2017 to 2019, profitability dropped from 18% in 2017 to 13% in 2018 and 15% in 2019.

If we want to establish the limits of the model, it is important to set thresholds that should not be exceeded. Two thresholds can be set on the most important metrics, a limit in the price of kerosene and a minimum seat load factor. Thresholds will be set independently of each other for better clarity, although the price of kerosene actually impacts the seat load factor as it is linked with the fuel price and a rise in fuel price decreases the purchasing power of people thereby decreasing the passenger load factor.

- The maximum threshold for Kerosene price in 2019, given the estimated revenues and costs comes at a 2.58 USD/gallon (close to August 2012 price of 2.55 USD/gallon). Above that price the profitability of the flight becomes negative.
- The minimum threshold for passenger load factor in 2019 is 70% assuming the costs remain constants. The load factor was of 74% in 2018 and 67% in 2017 outlining how the system has become increasingly fragile.

Cost and Revenue Model Framework applied to Eurowings



Now that we have visualised the evolution of the Cost and Revenue model applied to the targeted route, we can assess the strengths and weaknesses of this model.

Strengths

In terms of strengths, it is important to point out that despite what was criticised in the scientific literature, Eurowings has been able to drive sufficient demand as the company has shown an average load factor of 82% on its long-haul flights. As we explained above, having a high passenger load factor is crucial for the carrier that can thus, split the costs among more passengers and therefore reduce its CASK.

A second strength that we can point out, is that the model has been able to extract more revenues from its passenger and cargo activities than estimated in the literature. By combining high load factors and solid revenues the carrier is able to face increasing costs with less risk exposure.

A third strengths is that despite the critics to the model, the model is capable of sufficiently reducing its costs in order to provide a profit despite the lower revenues and the numerous fixed costs which are common for the industry.

Weaknesses

The first and main weakness of the model is its exposure to the fluctuation of kerosene prices, as it cover more than a third of the costs, the risk of loosing profitability is significant. One way to limit that exposer is to buy hedging instruments.

The second weakness of the model is its exposer to a weakening demand, as explained above, we used the average passenger load factors which are high compared to the industry average and to the short-haul activities of the airline however, as explained in the thresholds, a reduction of the passenger load factor of only 6% is needed in 2018 in order to turn the model unprofitable.

4. Discussion

4.1. Limits of the analysis

The first limit to this practical thesis is the data availability, as most of the traffic figures, revenues per passenger or per route and costs are highly confidential, it was complicated to get the necessary information to perform the analysis. All the data collected is, thus, publicly available and was crossed with data from scientific papers.

As aforementioned, we used specific long-haul flight data for our analysis although this data was not specific to the flight we analysed but an average of revenue (including cargo and additional features) which was later computed per passenger. The load factor used is also an average load factor specific to the long-haul routes. This clearly challenges the accuracy of the analysis and results but allows us to hedge the effects of seasonality of results.

The costs analysis is based on two sources, the actual price of jet fuel and the costs estimated in the paper of Daft and Albers (2012). The former allows us to have an accurate representation of the fluctuations of oil prices and their impact on the costs although it can be argued that Eurowings could use hedging instruments to fix the price of kerosene which would make the cost analysis biased but by using the actual prices, we outline how weakened the model can be by the commodity.

The latter is an estimation of the costs for a LHLC carrier between Dusseldorf and New York that was conducted in 2012, the validity of this data today can be questioned since it is likely that costs have evolved although it is important to point out that other costs are not as volatile as fuel costs and that using the exact estimations of costs for the LHLC model is more accurate than taking the CASK of the total activities of Eurowings since the short-haul operations do have different costs structures.

Additionally, the cost side of the costs and revenue model does not include various costs that are not directly linked to the transportation of passengers such as the taxes. Therefore, the profit box that is displayed on the chart is the EBIT of that particular route.

Another limitation of the case analysis is that it provides results and conclusions from a single sub-unit of analysis. That limit was raised by Yin (1984), arguing that there is limited room for generalisation of the findings when using a case study strategy. In our case, even if revenues are based on averages, those are limited to the long-haul activities of Eurowings and the results cannot be assumed equal for other LHLC carriers.

Furthermore, a major limitation of the analysis is the limited amount of previous research on the topic. As the model has only been applied to a wider extend in Europe in the last for years except for Norwegian who was pioneer in Europe, limited qualitative and quantitative research is available and require the setting of frameworks which have not been verified nor questioned by the scientific literature.

Eventually, one of the major limits of the analysis is based on the previous argument of limited previous research, as we had to provide our own frameworks, there is a risk that the frameworks might flawed or biased by the perception of the author, as these was no opportunity to confront those models to experts or scientists specialised in the field.

3.4.3. What is the contribution of this Master's thesis?

Despite the limits of the research, the thesis provides new angles to analyse a model that is emerging.

The main contribution of this thesis is the creation of a business model framework that can be applied to LHLC airlines specifically, the basis of the model comes from the a paper from Rosenstein (2013) which cited the elements that composed the short-haul business model and categorise them into product features or operational features. This thesis takes as background those eleven elements, sub-categorise them with two additional layers and analyse their replicability for the long-haul application. The thesis provides a unique approach to the LCLH business model and provides a framework and visual chart to assess a specific application by a carrier.

In addition to the creation of a business model framework, a specific revenue and costs model is provided in order to visualise the specific dynamics of the model. By providing both frameworks which are links to each other (the former gives the strategies to maximise the RASK and limits the CASK while the latter gives a detailed analysis of the construction of each parameter), one can more easily apply it to a particular case as it is done in this case with Eurowings.

The reason why the thesis aims at providing both frameworks is to avoid the comparison of the LHLC model with other models as it is generally performed in the literature or industry analysis but to compare a specific application to the model itself. With such tool one can see whether a carrier fully applies the model or provides a variant to the model.

Furthermore, both theoretical and practical aspects are taken in account during the construction of the models. The theoretical aspects are based on the scientific literature while the practical aspects are based on industry articles and reports.

Besides the creation of specific frameworks, the thesis also provides the application of the frameworks on a particular company, Eurowings, outlining, first, how the application on a practical case can be conducted and second, what are, despite the limits of the analysis, the results and conclusions that can be observed. By doing so, the analysis provides thresholds for the fuel prices and load factors that can be set as warning signs for this specific sub-unit of analysis.

3.4.5. Recommendations

The airline industry is continuously undergoing transformations which require its player to constantly innovate in order to keep ahead, as explained in the theoretical part, in the past two decades numerous new players have emerged, from low-cost carriers (short and long-haul) to Gulf carriers. In order to give recommendations it is interesting to observe the current trends and risks.

Financially speaking, airlines are facing two major challenges, first, the volatility of the fuel prices which are increasingly putting pressure on the airlines's balance sheets. The

Environmentally speaking, the airlines have to face numerous challenges as well. As the air transportation of people and goods is a major source of carbon emissions, airlines are increasingly under pressure to curve their emissions. So far, the of renewal of their fleets with new generation aircrafts such as the B787 and the A350 has been one of the most effective ways, other companies such as KLM are starting to use Biofuels.

However, the risk of additional taxes on tickets or kerosene is emerging again (a carbon tax on intraeuropean flights already exists but the tax on flights departing from Europe and landing outside was revoked due to pressure from foreign governments that argued that their airlines had an unfair disadvantage against network carriers operating close but outside of the EU such as the Gulf carriers). Additional taxes are likely to have a direct impact on seat load factor which negatively impacts profitability as shown in the Eurowings case.

Political uncertainty is also a major factor currently affecting the airlines, lately, routes from Joon the LHLC airline from Air France-KLM that were flying to Teheran were stopped due to political pressure from the US. As current trade tensions are increasing between the US and China, it is unclear how the airline industry will be affected but global events that impact negatively the purchasing power of the people tend to reverberate on the airline industry.

As it was pointed out in the theoretical thesis, current traditional airlines which operate under the hub model are under pressure to innovate with their business model. The point-to-point model was evoked in order to cut the costs and better face the stiff competition of the Gulf carriers. However, as we saw in this analysis, the point-to-point model has its flaws when it comes to fuel costs and load factors.

3.4.6 Final recommendation

Given the elements listed in the previous section, we can formulate our recommendation as follows: The point-to-point model is part of the solution as shown in both theoretical and practical parts, in helps decreasing the costs and is capable of driving sufficient demand. However, as the system has showed its flaws when it comes to oil prices and passenger load factors, the companies should use smaller aircrafts (medium-haul aircrafts) to perform long-haul point-to-point routes, specifically when departing from secondary airports. This helps reducing total costs of kerosene while ensuring a higher load factor. Furthermore, fuel prices should be hedged according to the revenues and costs models.

3.4.6. Remaining questions

As our analysis focuses on one particular case, it is insufficient to explain why several LHLC carriers went bankrupt this year, a first analysis with the business model framework might be useful in order to see to which extend the model was applied.

Further research should be conducted in order to question and verify quantitatively the frameworks created in the analysis. Furthermore, these models should be further tested and improved in order to have a more accurate visualisation of the business and revenue and costs model of the LHLC carriers.

Further research should also include the questioning of which deviation to the model can to provide additional revenue and cost reduction opportunities as well as the viability of such model applied in other continents taking the relative success of Asian LHLC carriers.

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