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Economics of the Airline Industry

The Alitalia bankruptcy: a review

Supervisor
Ch. Prof. Chiara Saccon

Assistant supervisor
Ch. Prof. Marco Vedovato

Graduand
Andrea Rizzetto
Matriculation Number 865717

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Finally, last but not least, I would like to thank my family, my girlfriend and my friends, without whose support it would not have been possible this one and a half years master's degree experience.

PREFACE

(Fabio Cassan)

Fabio Cassan is a former Italian Air Force pilot officer next to retirement.
In 1975 he began his career in the Aeronautical Academy of Pozzuoli (NA, Italy) followed, after 4 years, by flying schools in the United States (Texas). He commanded the 22nd Caccia Intercettori di Istrana Group (TV, Italy) with the rank of Lieutenant Colonel on F104 Starfighter aircraft. He graduated in Aeronautical Sciences.
In 1993 he decided to start a new career becoming an airline pilot. He served on several aircraft, such as the McDonnell Douglas MD-80, the ATR 42, the BAe 146 and, finally, the Embraer 195. He graduated with honours in Political Science (political geography and transport) and has scored around 15.000 flight hours.
He gained almost ten years experience in technical interventions in seminars on the fear of flying organised by Texter-Air Dolomiti. Today he works with some hospitals and universities to train staff on patient safety and with some companies for safety at work transferring the safety methodologies used in aviation by crews: teamwork, communication, leadership, situation awareness, decision making.
Recently he attended a flight accident investigation course organised in collaboration with the National Flight Safety Agency.

Could our grandparents imagine that one day we could go from Paris to Sydney in less than 24 hours?

From the first scheduled flights, at the beginning of the last century, commercial aviation has undoubtedly exerted a great social, economic and technological impact on our civilisation. Aircraft and airports have undergone an incredible transformation, especially considering the safety of the flight and the efficiency of this type of transport.

The commercial aviation industry is experiencing a new and important expansion today. The orders of the airlines to the two major world manufacturers, Boeing and Airbus, are a clear sign of the end of the economic crisis and of the trust placed on the markets.

The world commercial aircraft fleet grew by 4% in 2017, closing the year to over 31,000 units, a new record. The number of aircraft ordered was over half of this number and the order book was almost 10 years the highest at any time in the jet era. *(CAPA - Centre for Aviation)*

The long haul carriers are flying today with the new Airbus A-350 and Boeing B-787 Dreamliner. These represent the state of the art of technology, energy saving and low environmental impact. The materials and systems used to build these new machines are very different from those used until a few years ago. For example, electrical systems are used extensively to the detriment of hydraulic ones. It means less weight and less power needed to fly. Lighter and more resistant composite materials are developed. The engines are lighter, they consume less jet-fuel and they are less noisy. Nowadays we have international laws and agreements that regulate emissions and noise pollution. Moreover, bioenergy or fuel cells may replace traditional fuels soon.

The industry is pursuing a 4-pillar strategy for addressing aviation's climate impacts and to meet the carbon targets: 1. Improved technology, including the deployment of sustainable alternative fuels 2. More efficient aircraft operations 3. Infrastructure improvements, including modernised air traffic management systems 4. A single Global Market-Based Measure (GMBM) to fill the remaining emissions gap. *(IATA - International Air Transport Association)*

The impact that the commercial aviation has had in our society in the last decades is enormous: every moment are flying around 10.000 aircrafts carrying about 1,300,000 passengers. In 2017 all airlines carried about 4 billion passengers.

Driving our car we are dealing with technologies that come from the aerospace industry. From materials to systems. Think about the ABS (anti-lock braking system) or, better, the GPS navigator. Not to mention digital technology like biometrics, sensors and tracking technology; virtual and augmented reality or composite materials such as fiberglass and carbon fibre.

It is also possible to think about how easy it is nowadays to meet somebody in London in the morning and sign an agreement in Rome in the afternoon. How simple it is to organise a reunion in New York City with colleagues from all over the world at a reasonable cost, deciding your seat on board, booking an hotel to stay and renting a car, and all can be arranged through an airline's website.

In parallel with the airlines, airports have also grown and in large cities have become important business and shopping centres.

All this is happening and progressing every day in the air transport industry which is the safest way of travel.

Now we have to ask ourselves two questions. What are the economic and financial aspects behind air transport? Why Alitalia, a former jewel of national air transport, is put on sale on the verge of bankruptcy?

With this thesis Andrea has deepened these aspects and answered these and many other questions, making this work both very interesting for specialists but also understandable and pleasant to read for those who are not familiar with this sector.

Fabio Cassan

INTRODUCTION

This dissertation will survey the economics of the airline industry, covering both theoretical and empirical topics. It wants to be simple and discursive to give the possibility to understand the dynamics of the sector in question in the easiest but effective way possible. The European market follows the policies of the American one after a few years. In fact, if in the United States the market concentration is now visible to everyone, in Europe it has been emerging only in recent years. Alitalia, grew as one of the most important and recognised companies in the world but has marked significant setbacks over the years. This work stems from the idea that one of the strongest economies in the world can not have its own flag airline and therefore an air transport system able to promote the growth and development of the country. The purpose of this dissertation is tantamount to recognise the problems that have extinguished the growth of the company, leading it to three bankruptcies. From the analysis of the balance sheet we want to discover the indexes that could make management understand how the company was going before it was too late. Then the analysis of the Italian market and of the European competitors will clarify strengths and weaknesses of the former Italian flag carrier and market. The purpose is to answer to some questions: is it true that the Italian market is not profitable enough for a successful area company? Alitalia could avoid the two failures after a few years? What are the wrong strategies that led to these failures? What are the strategies that should be adopted to re-establish the flag carrier of the past?

Alitalia simply did not manage to adapt to market competition. After the process of liberalisation of the European airline industry, the expectation of a consolidation of the market began to assume shape, as happened in the United States. This process is actually taking place. In principle, Alitalia could have played an important role in this process by emerging as one of the 4 or 5 groups that will emerge at the end. Instead, Alitalia seems to be the end of a niche airline, if not even dismembered and the brand, once a symbol of the Italian economic boom, will be dispersed among

many other corpses taken away from the market, competition and globalisation . In fact, Alitalia seems to be too small to travel alone but the data show a company that, at least from a financial point of view, could be saved and developed, with the effort of a competent management and a country, of a different policy from the one that has governed our country in recent years. Our national company has been thrown into a process of privatisation nothing short of nefarious, hasty and absolutely devoid of forecasts and concrete growth strategies.

This document, thanks to the support of the latest literature and reports, and the latest news, will test how Alitalia has not developed, leaving space to the competition of low-cost carriers in the short-medium routs and large European groups in the long haul. Apparently, the cannibalisation of our former airline carrier at the hands of Lufthansa or of a consortium of European and American airlines, is therefore written. Of one thing, however, they all agree. Alitalia leaves uncovered an important slice of the European market, Italy. This statement was confirmed on February 16th by the the CEO of Air France-KLM, Jean-Marc Janaillac, at a press conference in Paris: He says that keeping Alitalia in Skyteam is truly important. It is necessary in order to maintain the presence of the alliance in the Italian country. Then he concludes: "the business in northern Italy is very important and it is obviously preferable not to have big competitors in that area".

It will turn out to be a document for patriotism but it is what Alitalia needs once again, with a new and strong management, aware of the peculiarities of this economic sector. Different from the patriotic behaviour put in place in 2008-2009 by the former prime minister of that time.

CHAPTER ONE

"Air Transport Industry Overview"

"Air transport is one of those industries that has transformed the world. Providing rapid connections between the world's cities by air has enabled the globalisation that has shaped modern business." Tony Tyler (IATA's CEO until June 2016).

Basically, the airline industry makes its contribution to the economy in every country in the world, playing an integral role in the creation of a global economy. As the data demonstrate, this sector is one of the most important forces that stimulate the world economy every day.

According to the chaps at FlightRadar24, who keep track of aircraft around the world, the number varies based on the time of day and year. "If we're talking about peak traffic for the whole year, a Friday afternoon between 2pm and 4pm (UTC - coordinated universal time) in July or August will see slightly more than 16,000 flights in the air," said Ian Petchenik, from the company. "The same time period in January or February will see about 13,000 flights in the air."[1]

The aviation industry, certainly, is a crucial contributor towards economic development; especially since the deregulation process started in the late 1970s. During the next two decades this industry could give a workplace to over 99 million people, generating US$ 5.9 trillion in GDP. By 2034, in developing countries it will support, according to the latest estimates, about 61 millions jobs (54% more than 2014) a US$ 1.6 trillions contribution in GDP. Revenue Passenger Kilometres (RPKs) grew 6.3% in 2016, as compared to 2015.

Over half of the world's tourists who travel across international borders each year are transported by air. Air passengers benefited from oil prices, which remained relatively low, with airlines able to choose between stimulating the market through lower yields and therefore ticket prices, and their margins.

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[1] Hugh Morris. *How many planes are there in the world right now?*. August 16th, 2017. The Telegraph Retrieved from: http://www.telegraph.co.uk/travel/travel-truths/how-many-planes-are-there-in-the-world/

1. A long story short

Among the means of mass transport industries, the air transport one is the last to be developed but also the one that experienced the fastest growth and evolution. Without dwelling on the experiments carried out by scholars and inventors in the years prior to the second half of the 18th century — from Chinese kites (to date around the 7th to 8th century AD) to Leonardo da Vinci studies and machines such as the "*elicottero a vite*" in 1480 — the first man-made flight can be dated 1783 aboard a hot air balloon built by the Montgolfier brothers.

It has been recognised by everyone that the first sustained and controlled flight of a "heavier than air" motorised vehicle was completed on December 17, 1903, in Kitty Hawk (North Carolina, US). The aircraft was the *Flyer* designed and assembled by the Orville and Wilbur Wright brothers, who began studying the flight mechanics in the late 1800s. Continuing to do huge strides through history, Romanian Traian Vuia, on March 18, 1906, made the first flight on board the first monoplane.

Prior to the outbreak of the First World War, it was the success of the seaplane Benoist (designed by the American Tom Benoist). In 1914, thanks to it, was launched the regular service of history with heavier aircrafts operating the route St. Petersburg - Tampa (Florida, USA) at a cost of US$ 5 per person (one passenger seat only) or about 45 pounds of goods. The first decade of 1900 saw the foundation of one of the current giants of the industry: Boeing. To date, it shares the role of industry oligarch with Airbus, founded in 1967.

Although prior to the war there were already regular passengers and freight air services (such as between *St.Petersburg* and *Tampa* - Florida USA, and that one provided by the German company Delag operating Zeppelin, considered world's first airline in history), during the years between the two wars to see a massive development of civil aviation took place. In those years, KLM, which was founded in 1919, inaugurated the service in 1920. Other companies include: Qantas (1920), Lufthansa (1926), American Airlines (1930), Air France (1933) and, in Italy, Ala Littoria (1934), resulting from the merger of three Italian airlines. With its 95-year history, KLM is the oldest international airline still flying under its original name. Moreover, in 1952, the International Bank for Reconstruction and Development granted a US$ 7 million loan to KLM. This loan was the 59th loan of the World Bank since its creation in 1944, and it marked the first financing in the air transport sector

of a client country recognising the importance of the sector for the economic development of post-war Europe.[2]

The years between the two world wars saw the disorderly proliferation of airlines and aircraft builders, often followed by bankruptcies and market concentration (often by the will of the state), which reduced the number of companies making the sector more controlled and profitable.

MERGERS AFTER THE WWI	
Carrier created from M&A	**Merged/Acquired Companies**
British Airways	*Formed by the merger of British Overseas Airways Corporation (BOAC) and British European Airways (BEA)*
Air France	*Air Orient - Air Union - Compagnie Générale Aéropostale - Compagnie Internationale de Navigation Aérienne (CIDNA) - Société Générale de Transport Aérien (SGTA)*
Deutsche Lufthansa	*It derives its origins from the Deutsch Luft Hansa, born from the merger between two airlines: Deutscher Aero Lloyd e Junkers Luftverkehr.*
American Airlines	*It takes its origins from the merger of 80 small airlines, which took place in the 1930s.*

TAB 1.1 - M&A's activities. The origins of the largest airline group nowadays.

In the 1940s, the airplane as a means of transport was already widely acknowledged thanks to newly designed aircraft (such as the Douglas DC-3) and infrastructures that, given the war needs, had greatly advanced. Many were the sites for the construction of airports and the technologies created and used during the two world conflicts were then adapted for civil use, such as the RADAR installations.

In the end of the 1944, shortly before the end of the Second World War, the United States convened the Convention on International Civil Aviation, or Chicago Convention[3], which was signed on December 7th. Its ultimate goal was the affirmation of the freedom of air traffic. Five fundamental rights (later extended to 9)

[2] The World Bank - Air Transport, Annual Report 2016. Retrieved from: http://www.worldbank.org/en/topic/transport/publication/air-transport-report-fy14

[3] See third paragraph for details

were set and named “freedom of the air"[4]. To oversee, the ICAO (International Civil Aviation Organisation) was created. To date, ICAO exists as a specialised UN institute. Following the Convention key points, each state closed itself in a protectionist position, implementing a stringent industry regulation aimed at protecting the flag companies, closing the market to an healthier competition. In the United States about 90% of the domestic market was held by the "Big Four" - American, TWA, United, Eastern - and Pan Am (the only US airline to be able to make international flights as flag until 1947), while in Europe each state owned its respective flag carrier. To understand how this industry has grown, we can consider that the number of passengers raises from 9 million in 1945[5] to over 3.7 billion in 2016[6].

2. A fast-growing industry

Since its liberalisation in the United States, followed by Europe after approximately a decade, the air transport industry has experienced a series of setbacks. From year to year, periods of great profits and periods of drought have alternated. In fact, when an economic activity is strongly linked to the performance of a country's economy, if the latter falls into recession due to a crisis — such as the crisis of the subprime securities in 2009 — it is practically assumed that the aforementioned economic activity follows the trend of the economy in general. It is one of the first lessons given by macroeconomics teachers at universities, that is, the cyclical nature of the economy is nothing but the alternation of recessions and expansions.

This uncertainty, also caused by factors such as the price trend of oil, terrorist attacks and natural phenomena — in addiction to the macroeconomic cycles previously mentioned, has caused airline bankruptcies, employees pay cuts and massive redundancies.

To graphically explain these few but crucial aspects, the graph below has been developed (Figure 2.1) which relates the transport passengers annually in the world

[4] https://www.icao.int/Pages/freedomsAir.aspx

[5] Source: ICAO - International Civil Aviation Organisation. Retrieved from: https://www.icao.int/secretariat/PostalHistory/the_growth_of_icao.htm

[6] Source IATA - Annual Review 2017. Retrieved from: http://www.iata.org/publications/Documents/iata-annual-review-2017.pdf

with the growth in percentage of the gross domestic product on an annual basis. To this the main world economic crises that have characterised the last forty years have been impressed.

The liberalisation has led to a significant increase in competition, as the state no longer protects the market. New players, new routes and rising price fluctuations slammed the profits of incumbent airlines who had enjoyed government protection. On the other hand, the same liberalisation process has led to a considerable reduction in tariffs. This decline has led to an increase in customers willing to travel by air and the birth of low-cost airlines (LCCs) such as Southwest in the United States and Ryanair and easyJet in Europe.

The main factors resulting from a regulated environment include, but are not limited to, the following: strict ownership control of airlines, limited to no competition on selected routes, limited markets served, limited city-pair frequency, high air fares for passengers, government bail-outs for air carriers in distress, and incentive to achieve airline profitability.

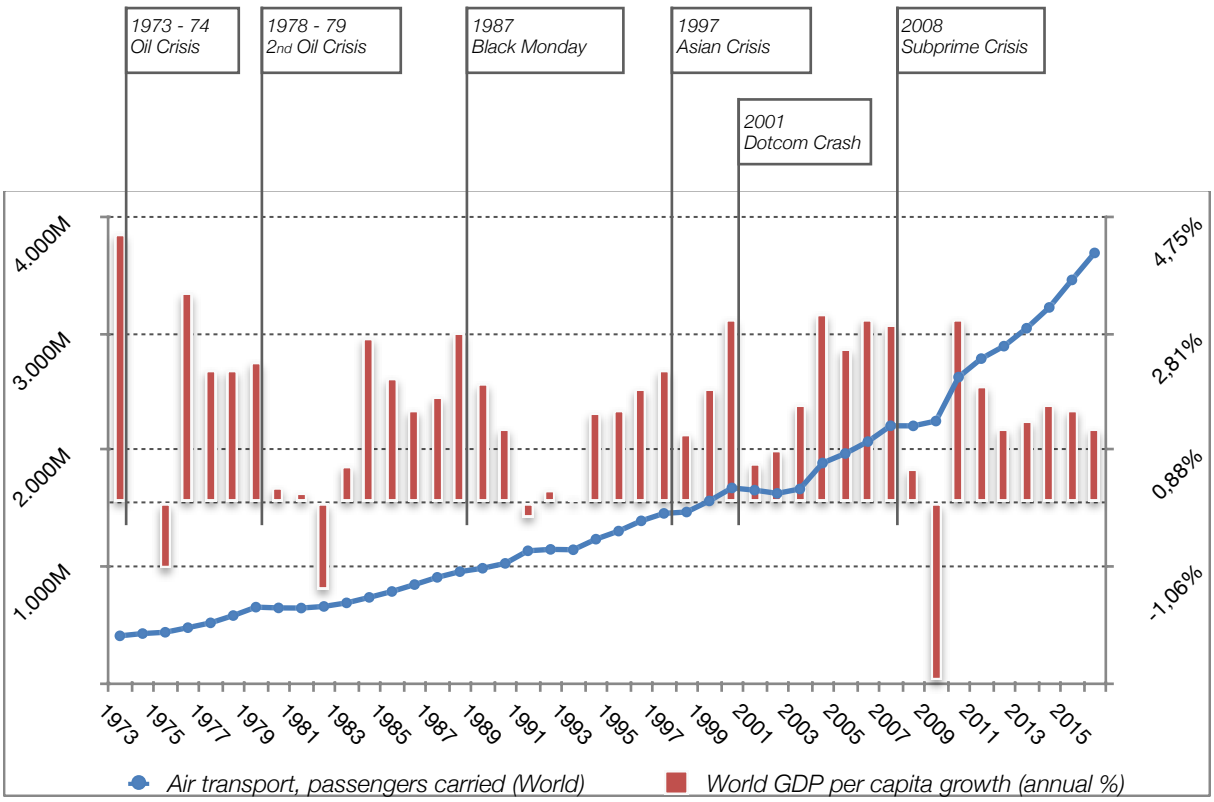

FIG 1.1 *Air transport, passengers carried worldwide vs. World GDP per capita growth (annual %)*
Data source: The World Bank
Drafted by Andrea Rizzetto

The substantive difference between before and after deregulation period is thus based on competition. Historically, as stated in a few lines above, the air transport industry was marked by periodical shocks, some setbacks, produced by the cyclical and physiological highs and lows of the world economy, the oil price rally, and the political uncertainty, which led to an increasingly tighter market consolidation process in the recent years.

Another difference is the strategy that guided the airline companies. Before deregulation the environment guaranteed high profits and the major concern of companies and States was the technological evolution. Soon after, beginning with the industry deregulation in the United States in 1978, cost efficiency, operating profitability, and competitive behaviour have become the dominant issues facing airline management.

According to the World Bank, the air transport industry continues on its successful path, marked by strong growth in certain emerging markets, and healthy consolidation in more mature regions[7].

As stated by Yasar and Kiraci (2017), analysing the concentration both with the CRM method and with the HHI (Herfindahl-Hirschman Index) method from 2006 to 2015, one can notice a general competitiveness still present although, on the other hand, their research has shown that the market is gradually moving towards a more oligopolistic structure and therefore to a greater concentration.

There are innumerable companies that have declared bankruptcy and then acquired and embedded by the strongest airlines. In other cases, the same companies in financial crisis decide to merge to look for efficiency that cannot be found by traveling alone (perhaps the case of Delta Air Lines and Northwest Airlines - the deal ended at the beginning of 2010).

These merger and acquisition operations saw a considerable increase after deregulation, as shown by the chart below, since before these were entirely regulated by the state.

[7] Source: The World Bank - Air Transport, Annual Report 2016. Retrieved from: http://www.worldbank.org/en/topic/transport/publication/air-transport-report-fy14

Lufthansa Group: history of M&A operations in the airline industry

Today's Deutsche Lufthansa AG, founded in 1953, took the name and logo of Deutsche Luft Hansa[8], although there was no legal connections between the two companies. In 1987, Lufthansa, together with AirFrance, Iberia and SAS, founded Amadeus, a computer services company, making it possible for travel agencies to book and sell airline tickets. At the end of 1994, Lufthansa Cargo AG was founded. A month later was the time of Lufthansa Technik and Lufthansa Systems. On May 18th 1997, Lufthansa, Air Canada, Scandinavian Airlines, Thai Airways and United Airlines founded Star Alliance. In the same year the privatisation process of Deutsche Lufthansa AG was completed. In June 2003 was opened the Terminal 2 at Munich airport, the first in Europe partially owned by an airline company. A month later Lufthansa finally acquired 100% of Air Dolomiti. In 2004 Lufthansa Regional was born. On July 1, 2007 Lufthansa acquires all the shares in Swiss International Air Lines AG and the integration, started in March 2005, was completed. January 2008 Lufthansa acquires an interest of 19 per cent in the US low-cost airline jetBlue. In September 2008, 45% of Brussels Airlines was acquired, with the option to purchase the remaining 55%. December 2008 Lufthansa and the Austrian state holding company ÖIAG agree on the full integration of Austrian Airlines in the Lufthansa Group. December 2008 Lufthansa acquires an interest of 50.9 percent in Eurowings. January 2009 Eurowings Luftverkehrs AG sells its shares in the low-cost Germanwings to Deutsche Lufthansa AG. February 2009, born Lufthansa Italia S.p.A. The operations ceased in October 2011. According to the Lufthansa vertices, the Italian market did not provide a fairly profitable network to continue operations through a separate brand such as Lufthansa Italia. April 24, 2012, British Midland (acquired in 2008) is sold to International Airlines Group for £ 172.4 million. July 2013 New Germanwings takes off as Germany's largest low-cost airline. The ones listed above are the most important merger and acquisition operations completed by the group. In fact, the latter is made up of more than 550 subsidiaries and equity investments all over the world. In the financial year 2016, Lufthansa Group generated € 31.7 billion of revenue and employed an average of 123,287 employees[9].

3. International institutional and regulatory environment

Very few global industries are as deeply affected by changes in the international and domestic regulatory environment as the airline one. It has experienced dramatic regulatory changes over the past half-century and today are subject to a wide variety of rules and regulations in different parts of the world. This is due to a large number of organisations, agencies, and associations — national and international,

[8] Founded by the merger between Deutscher Aero Lloyd and the Luftverkehr Junker

[9] Source: Lufthansa Group - Annual Report 2016. Retrieved from: https://investor-relations.lufthansagroup.com/fileadmin/downloads/en/financial-reports/annual-reports/LH-AR-2016-e.pdf

governmental and nongovernmental — which play crucial regulatory, oversight and advocacy roles on critical issues such as safety, economics, security, and even national defence affecting air transport industry. This subchapter is to exhibit the historical perspective on the framework within which these regulations have been established. This can lead to understand why the regulations that govern international air transport exhibit such major differences from country to country. The “Chicago Convention” developed the core elements and the resulting regulations and International agreements make constant reference to it and to the “Freedoms of the Air” concept described in it.

3.1 The Chicago Convention

The Convention on International Civil Aviation (Doc 7300), meeting in Chicago (US) form November 1st to December 7th, 1944[10], and attended by 54 nations by the will of the United States, was established to promote cooperation, and create and preserve friendship and understanding among the nations and peoples of the world. Known more commonly today as the "Chicago Convention”, this landmark agreement established the core principles permitting international transport by air, and led to the constitution of the specialised UN agency which has overseen it ever since — the International Civil Aviation Organisation (ICAO).

The ICAO replace the previous international organisation, the International Commission for Air Navigation (ICAN). Basically the Chicago Convention had the purposes to "make arrangements for the immediate establishment of provisional world air routes and services”, “to set up an interim council to collect, record and study data concerning international aviation and to make recommendations for its improvement,” and to “discuss the principles and methods to be followed in the adoption of a new aviation convention.” [11]

Signed in 2006, the convention reached the ninth edition and it is composed by 22 chapters, divided in 96 articles.

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[10] Source: ICAO (International Civil Aviation Organisation). The original convention. Retrieved from: https://www.icao.int/publications/Documents/7300_orig.pdf

[11] Source: ICAO (International Civil Aviation Organisation. Retrieved from: https://www.icao.int/ChicagoConference/Pages/default.aspx

3.1.1 The Freedoms of the Air

The “Freedoms of the Air” are international mercian aviation agreements — or *traffic rights* — that grant a country’s airline the right to enter and (or) land to another country’s airspace. ICAO characterises all "freedoms" beyond the Fifth as "so-called" because they have not been officially recognised as such by the treaty. All of them are applicable in respect of scheduled international air services and they are usually established between States in bilateral or multilateral air service agreements.

F*irst Freedom of the Air* - the right to fly across its territory without landing.

Second Freedom of the Air - the right granted to another State (-s) to land in its territory for non-traffic purposes.

Third Freedom of The Air - the right granted to another State to put down, in the territory of the first State, traffic coming from the home State of the carrier.

Fourth Freedom of The Air - the right granted by one State to another to take on, in the territory of the first State, traffic destined for the home State of the carrier.

Fifth Freedom of The Air - the right granted by one State to another State to put down and to take on, in the territory of the first State, traffic coming from or destined to a third State.

Sixth Freedom of The Air - the right, in respect of scheduled international air services, of transporting, via the home State of the carrier, traffic moving between two other States.

Seventh Freedom of The Air - the right granted to another State, of transporting traffic between the territory of the granting State and any third State with no requirement to include on such operation any point in the territory of the recipient State. The service need not connect to or be an extension of any service to/from the home State of the carrier.

Eighth Freedom of The Air - the right of transporting cabotage traffic between two points in the territory of the granting State on a service which originates or terminates in the home country of the foreign carrier or outside the territory of the granting State ("consecutive cabotage”).

Ninth Freedom of The Air - the right of transporting cabotage traffic of the granting State on a service performed entirely within the territory of the granting State ("*stand alone" cabotage*).

3.2 Airline industry privatisation

The airline industry privatisation — or better called *deregulation* — was the process of removing the restrictions imposed by governments on airline industry economy. This policy usually affected the allocation of the national and international routes, tickets price, and the number of airlines in the domestic markets — in this context competition was strictly monitored. Airlines used to be regarded as a vital part of transport infrastructure, like roads or bridges. According to Amedeo Odoni, professor at the MIT (USA) in the Aeronautics & Astronautics and Civil & Environmental Engineering Department, "[…] the most important of the many reasons for this state of affairs was the perception of the airline industry as a nascent one, too fragile to be exposed to the rigours of competition" (Belobaba, Odoni, Barnhart - 2015). Governments wanted to protect their respective so-called flag carriers because they were the best way to sustain the growth of the industry to economic maturity, that is, they mostly operated as monopolist in their domestic market and in a protectionist environment the international routes. Thus, the drain on public funds has a long tradition.

Privatisation made air travel more competitive, bringing competition from low-cost carriers. Most airlines in state control have failed to adapt, but few exemptions already exist. This privatisation process wasn't the same in the US and Europe, and in other regions it never started, that is, in many countries the aviation market is strictly regulated and flag-carriers are still owned by the government. The most known and prominent international ones, just to name a few: Aeroflot[12], Emirates[13], Etihad Airways, LOT Polish Airlines[14], Qatar Airways, Singapore Airlines[15], Turkish airlines[16]. According to The Economist, "[…] poor management, overstaffing and strong unions have left airlines struggling in a changing business and with little hope of cost-cutting or streamlining. Privatisation plans are plentiful but rarely succeed because heavy losses, debts and legacy costs frighten investors away"[17].

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[12] *Aeroflot* - 51% owned by the Russian Government.

[13] It is a subsidiary of The Emirates Group owned by government by the Investment Corporation of Dubai.

[14] The Polish Treasury Ministry owns the 68% of the company.

[15] The National Wealth Fund, owned by the Government of Singapore, owns the 56% of the voting rights.

[16] Turkey Wealth Fund, a sovereign wealth fund, owns the 49.12% interest in THY

[17] Flags of inconvenience. The Economist. The Economist Group Limited - Aug 16, 2014

Before going any further, another lesson given during any course of macroeconomics should be recalled: the mere threat of competition may be successful in keeping prices and profits down. As a basic principle, companies are in favour of keeping the competition low thus they can leverage prices, keeping profits high. From a Government point of view, however, it can be stated that competition is necessary to lower prices, make a product or service accessible to the citizens, and encourage the innovation. For this reason, since the '70s, many countries have started the processes of airlines privatisation and the aviation sector deregulation which has literally exploded, leading to growth trends rarely experienced so far. More specifically, these processes have not been carried out in the same way, and, at least initially, the results obtained have been very different.

3.2.1 United States vs. European Union: different perspective same goal

The airline industry in the United States has been deregulated since 1978, when President Jimmy Carter signed the Airline Deregulation Act. It decided the dismemberment of the federal Civil Aeronautics Board (CAB)[18], which had set interstate air transport routes, regulating fares, routes, and schedules for the commercial airlines.

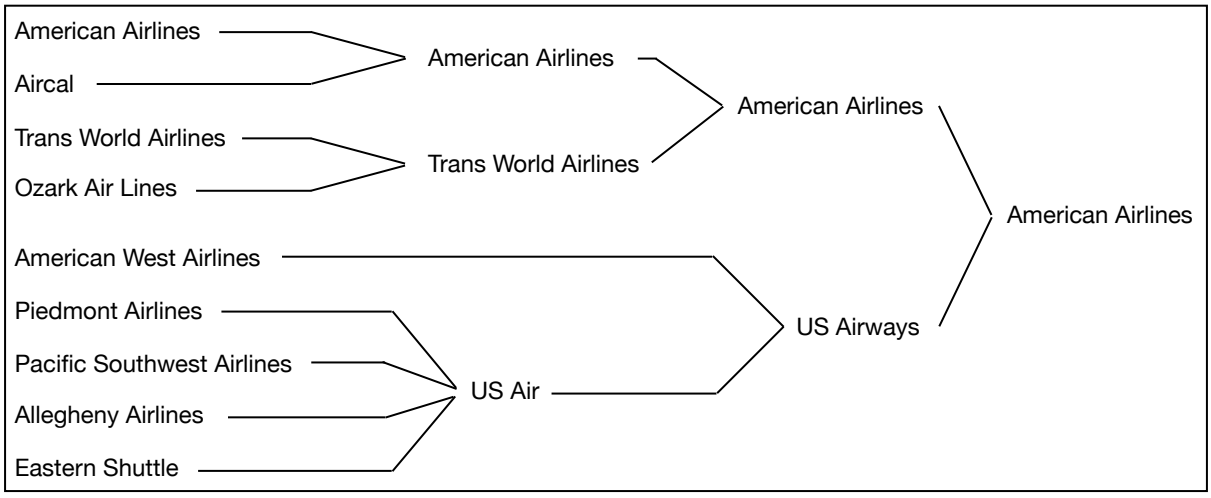

FIG. 1.2 - *American Airlines M&A operation History*
Data source: Vasigh, B., Fleming, K., Tacker, T. (2013)

[18] Civil Aeronautics Board (CAB) operated from 1938 to 1984. The dismemberment began immediately after the signature of the Air Deregulation Act in 1978. Its residual functions were assumed by the US Department of Transportation.

Following the Act many major airline company went bankrupt. To avoid this situation many of them merger together. American Airlines is the latest example as summarised in the previous figure (FIG. 3.1).

In European continent, the two processes began almost ten years later. Before January 1993, when the transformation into a single market was completed, the European Union aviation legislation was composed by almost 200 bilateral air services agreements, granting each others some of the “freedoms of the air” seen above. (Scharpenseel, 2001-2002)

What is necessary to be remark is the fact that, before the deregulation, all the Airlines based in the United States are privately held. On the European side, all the airline companies were owned by the Governments — those are commonly called national-flag-carriers. Nowadays they are fully privatised, even though some kind of State intervention still exists, mainly as Stated aid decisions previously reviewed by the European Union[19].

What the deregulation and privatisation processes have led both the United States and Europe is the expansion of low-cost carriers (LCCs) with a consequent growth of market competition. In the US, Southwest airline could take its air services out the Texan borders[20]. Nowadays, it is the largest low cost carrier worldwide, before Ryanair, easyJet and IndiGo. On the European side, Ryanair founder (the Ryan family) learned the Southwest precious lesson and, with a share capital of just £1, launched daily flights on a 15-seater Bandeirante aircraft, operating from Waterford (Ireland) to London Gatwick[21].

3.2.2 The Effects

First a new network management emerged. The full-service carriers changed their strategy from a point-to-point system to a hub-and-spoke one.

Prior the deregulation many airline services were taking place on a point-to-point basis. The latter system specifies the situation in which an aircraft flies directly to its destination. Nowadays, an updated version — the multi-base network — is primarily

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[19] The Guidelines on State aid to airports and airlines my be found here: https://goo.gl/L14pxG

[20] Unnikrishnan M. (Jun 4, 2015). A Law That Changed The Airline Industry Beyond Recognition (1978). Aviationweek. Retrieved from: https://goo.gl/fPwmXi

[21] History of Ryanair: Retrieved from https://corporate.ryanair.com/about-us/history-of-ryanair/

used by low cost carriers. This updated system consists in the positioning of some aircrafts at respective airlines' operational bases establishing a connection network between them and other airports of the carriers' network.

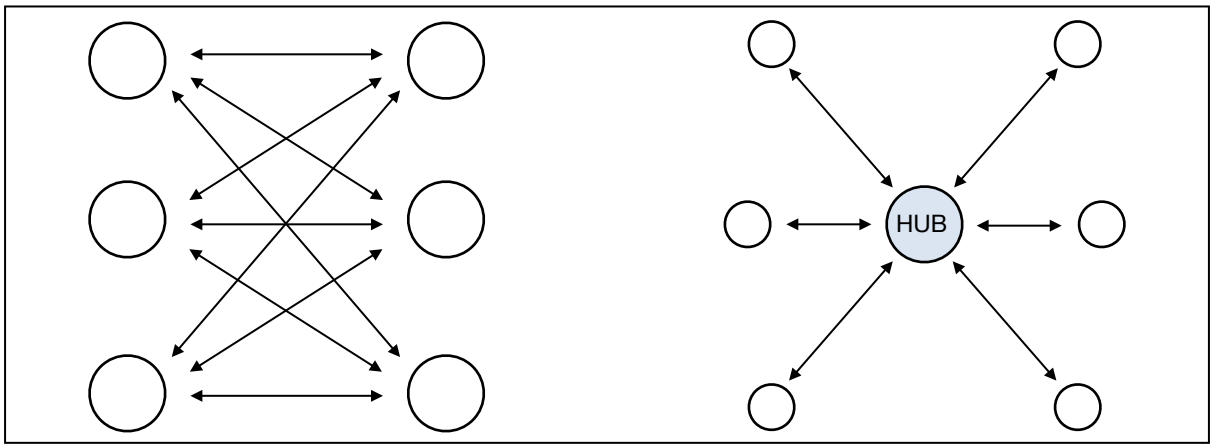

FIG. 1.3 - *Hub&Spoke and Point-to-to. Network system differences*

The deregulation imposed a massive reorganisation aimed at easing the costs structure and efficiency of service. Following this ideas, the hub-and-spoke system was elaborated. It is a network that develops a radial model around one or more airports called hubs. An airline can claim to operate through its own hub when it has acquired the majority of the "runway slots", which means the possibility given to the airline to land, take off and perform the related ground operations. This new network structure guarantees a considerable reduction in operating costs, the increase in the load factor (using different types of aircraft depending on the airport served), revenues maximisation and greater efficiency in fleet management.

Secondly, a massive phase of market consolidation began. Many airlines, once protected by state laws, found themselves with a non-competitive cost structure and stumbling into considerable difficulties to adapt to the new competitive regime. Famous names at that time such as Eastern and PanAm went out of business, and, in the depth of the 1992 recession, 32 American carriers went out of business. Merger and acquisition operations[22] created larger and larger groups to counter the advance of overshadowing companies such as Delta, United and American Airlines,

[22] See page 13 for the American Airlines example and Chapter 3 for the major European Group M&A operations.

and low-cost companies such as PeopleExpress[23] and Southwest. Its strategy has been followed in Europe by easyJet and Ryanair, as many other airlines worldwide.

The full-service companies in recent years have adapted to this low-cost phenomenon, acquiring or creating their own low-cost airlines. Third, it led to the development and implementation of Revenue Management. In the annual report of the American Airlines for the year 1987 we find a concise but clear description of what is meant by revenue management: *"selling the right seats to the right customers at the right prices"*[24]. The surviving companies, as already anticipated, had to make sacrifices to significantly reduce each item of cost in the budget.

The American Airlines marketing manager, Robert L. Crandall, saw the operating low marginal costs as a possible solution to compete on the market. According to Crandall, the operating costs reduction alone was not enough. Briefly, full-service airlines needed to manage the pricing and booking policies, through a proactive system based on the demand analysis. This led to differentiated rates based on demand and timing, in order to maximise load factors. In two words, Revenue Management, currently used by all the active airlines.

Lastly, there was the introduction of frequent flyer program, trying to generate more customers' loyalty, and the code-sharing system thanks to the establishment of the Airline Alliances[25]. Briefly, a flight operated in code-share between two or more carriers, provides for the insertion of two or more airlines codes in a single flight, thus leading to the aircraft filling using the network of connections provided by the hub & spoke network.

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[23] In just five years People Express has experienced a strong growth and a sharp slowdown which led to bankruptcy and subsequent sale to Continental Airlines. The airline was based out of Newark, and launched its operations on April 20, 1981. In May 1983, People Express started transatlantic service from Newark (NY) to London Gatwick, at just $149 one-way *(Salpukas, A. People Starts $149 Flights. New York Times. 1983)*. In 1985 People Express went through some merger and acquisition operations it acquired three airlines: Frontier, Britt Airways and Provincetown-Boston Airlines. The airline spent a lot of money trying to integrate them in its operations, and it was immediately clear that it over stretched itself growth wise became known as "People Distress." Just a year later began the decline of the company that led to the cessation of all activities from February 1, 1987.

[24] Smith B. C., Leimkuhler J. F., Darrow R. M., *Yield Management at American Airlines*, The Institute of Management Sciences, 1992

[25] Star Alliance, 1997. One World, 1999. Skyteam 2000.

4. Aviation Industry and the World Economy

The airline industry itself is a major economic force, in terms of both its own operations and its impacts on related industries (Belobaba, Odoni, Barnhart - 2015). Moreover, air transport industry in general is a key factor in achieving economic growth and development. It facilitates integration into the global economy and provides crucial connectivity at national and international level. It helps to generate business, promote tourism, and create job opportunities.

The world region that has experienced a staggering growth in recent years is undoubtedly the Middle East where the mega hubs of the Gulf companies continue to gain ground. According to the ACI World Airport Traffic Database, in 2015 passenger traffic in these mega hubs increased by 9.6% compared to 2014 and detaching the Asia-Pacific region by one percent point. Europe, which in 2014 had registered a 5.5% progression, in 2015 it saw this figure reduced by 0.3 percent points. North America, which stopped at 3.2% in 2014, regained momentum in 2015 achieving a 5.3% increase in passenger traffic. Globally, the air transport industry now supports 62.7 million jobs (9.9 million of which work directly in the aviation industry[26]) and US$ 2.7 trillion in global GDP[27].

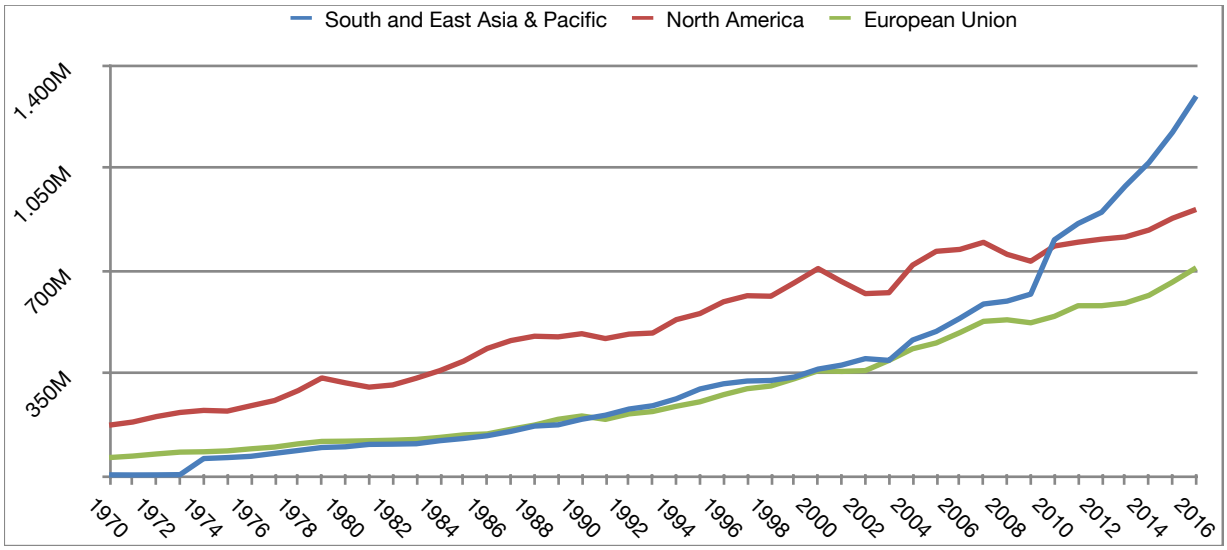

FIG. 1.4 - *Air transport, passengers carried by Region*
Data source: The World Bank
Drafted by Andrea Rizzetto

[26] ATAG - Retrieved from: http://www.atag.org/facts-and-figures.html

[27] The World Bank - Air Transport, Annual Report 2016

According to the ATAG (*Air Transport Action Group*)[28], 1.397 airline companies operate a fleet of 25,000 aircraft serving 3,864 airports. In 2016, according to IATA's forecast, the world's airlines flew more than 36 million commercial flights and transported roughly 3.8 billion passengers than count about US$ 501 billions in revenue[29]. Looking for a moment at airports side, the table on the next page shows the trend along the ranking of the 30 most congested airports in the world (passengers traffic). It can easily be noted that the constant development of the Asian economy has had a significant impact on the ranking itself, going to undermine the supremacy of US airports.

Rank	2000	CONTINENT	Rank	2016	CONTINENT	
1	ATLANTA (ATL)	NORTH AMERICA	1	ATLANTA (ATL)	NORTH AMERICA	–
2	CHICAGO (ORD)	NORTH AMERICA	2	BEIJING (PEK)	ASIA	NEW
3	LOS ANGELES (LAX)	NORTH AMERICA	3	DUBAI (DXB)	ASIA	NEW
4	LONDON (LHR)	EUROPE	4	LOS ANGELES (LAX)	NORTH AMERICA	▼1
5	DALLAS (DFW)	NORTH AMERICA	5	TOKYO (HND)	ASIA	NEW
6	TOKYO (HND)	ASIA	6	CHICAGO (ORD)	NORTH AMERICA	▼4
7	FRANKFURT (FRA)	EUROPE	7	LONDON (LHR)	EUROPE	▼3
8	PARIS (CDG)	EUROPE	8	HONG KONG (HKG)	ASIA	▲14
9	SAN FRANCISCO (SFO)	NORTH AMERICA	9	SHANGHAI (PVG)	ASIA	NEW
10	AMSTERDAM (AMS)	EUROPE	10	PARIS (CDG)	EUROPE	▼2
11	DENVER (DEN)	NORTH AMERICA	11	DALLAS (DFW)	NORTH AMERICA	▼6
12	LAS VEGAS (LAS)	NORTH AMERICA	12	AMSTERDAM (AMS)	EUROPE	▼2
13	MINNEAPOLIS (MSP)	NORTH AMERICA	13	FRANKFURT (FRA)	EUROPE	▼6
14	SEOUL (SEL)	ASIA	14	ISTANBUL (IST)	EUROPE	NEW
15	PHOENIX (PHX)	NORTH AMERICA	15	GUANGZHOU (CAN)	ASIA	NEW
16	DETROIT (DTW)	NORTH AMERICA	16	NEW YORK (JFK)	NORTH AMERICA	▲5
17	HOUSTON (IAH)	NORTH AMERICA	17	SINGAPORE (SIN)	ASIA	▲11
18	NEWARK (EWR)	NORTH AMERICA	18	DENVER (DEN)	NORTH AMERICA	▼7
19	MIAMI (MIA)	NORTH AMERICA	19	INCHEON (ICN)	ASIA	NEW
20	MADRID (MAD)	EUROPE	20	BANGKOK (BKK)	ASIA	▲6
21	NEW YORK (JFK)	NORTH AMERICA	21	NEW DELHI (DEL)	ASIA	NEW
22	HONG KONG (HKG)	ASIA	22	JAKARTA (CGK)	ASIA	NEW
23	LONDON (LGW)	EUROPE	23	SAN FRANCISCO (SFO)	NORTH AMERICA	▼14
24	ORLANDO (MCO)	NORTH AMERICA	24	KUALA LUMPUR (KUL)	ASIA	NEW
25	ST LOUIS (STL)	NORTH AMERICA	25	MADRID (MAD)	EUROPE	▼5
26	BANGKOK (BKK)	ASIA	26	LAS VEGAS (LAS)	NORTH AMERICA	▼14
27	TORONTO (YYZ)	NORTH AMERICA	27	CHENGDU (CTU)	ASIA	NEW
28	SINGAPORE (SIN)	ASIA	28	WASHINGTON (SEA)	NORTH AMERICA	NEW
29	SEATTLE (SEA)	NORTH AMERICA	29	MUMBAI (BOM)	ASIA	NEW
30	BOSTON (BOS)	NORTH AMERICA	30	MIAMI (MIA)	NORTH AMERICA	▼11

TAB 1.2 - *Most congested airports by passenger traffic*
Data Source: ACI - Airports Council International
Drafted by Andrea Rizzetto

[28] ATAG - Facts & Figures 2016 - Retrieved from: http://www.atag.org/facts-and-figures.html

[29] IATA - Fact Sheet Industry Statistics (June 2017)

Going beyond the thirtieth place in the ranking the positions taken by the Chinese airports are higher and higher. It is no coincidence that this rate of growth is sufficiently high to overtake the American airports leadership in a few years. Europe, in line with the economic growth and demographic development expectations in recent years, has maintained a certain equilibrium throughout the whole period.

Seen the table above (TAB 1.2) we can see what has been said so far[30]. In sixteen years, the number of US airports, among the thirty world most congested by passenger traffic, has dropped from nineteen to ten. On the contrary, the Asian ones have gone from five to fourteen units. Moreover, the first ones have climbed the rank gaining in some cases several positions.

From the aircraft manufacturers point of view, CAPA recorded 1,665 commercial aircraft deliveries in 2016 — compared with 1,674 delivered in 2015. Boeing delivered 748 airplanes and booked 668 net orders, valued at US$ 94.1 billion at list prices[31]. On the another hand, Airbus delivered 688 and booked 731 net units, valued US$ 104.9 billion[32]. If just aviation industry were a country, it would rank 21st in the world in terms of gross domestic product (GDP), generating US$ 664 billion of GDP per year, considerably larger than some members of the G20.

The impact of the aviation sector on the world economy can be divided into three categories: direct, indirect, and induced.

[30] See appendix 1.1 for details (pg. **NUMBER**)

[31] BOEING - Boeing press realese - January 2017. Retrieved from: https://goo.gl/VEoUsu

[32] AIRBUS - 2017 Airbus Commercial Aircraft Press Briefing - 2016 Orders and Deliveries

CHAPTER TWO

Airlines' Economics, Supply and Demand

From the outset, it should be reiterated that the deregulation, which triggered the low-cost phenomenon and led to the failure of many full-service companies, ensured that the latter went through a period of internal and activities restructuring, improving efficiency and streamlining cost structure (Tsoukalas at al., 2008; Belobaba et al., 2015). In the United States, all the airlines that are still active today had experienced at least a bankruptcy defiance. For this reason, from these crises, the consolidation process began (going through many merger and acquisition operations) that benefited the US market.

Nowadays, the European Union is trying to instil a replication phenomenon in the old continent market. Without a crisis it is difficult to change course. A crisis is the best way to innovate and as far as aviation industry is concerned, so it has been. According to some scholars (Good at al., 1993; Belobaba et al., 2015; Bitzan, Peoples, 2016 - for example), the fear of failure and the low cost that year after year grinded profits and market shares led governments, associations unions and the management of the airlines to collaborate to increase productivity and efficiency in the sector, maintaining the consumer's wellbeing as a final goal, thus leaving ample space to the levers of competition.

Besides the commonly used ratios, the civil aviation sector (as well as for maritime and rail transport ones, just to make two strictly related examples) uses specific parameters, analysis and profitability indexes, not used in other sectors because of the nature of the activities of the sector itself. To be more specific, the distinction between passenger and freight transport is very different in terms of what is being transported but the indices used are practically the same. This chapter is designed to analyse these indices used in the aviation industry and the items that compose them. Finally, it will be necessary to evaluate the fundamental cost and revenue items in the balance sheet of an airline, as well as the evaluation of the main assets.

The driving force is the demand for air transport services, whether they are passengers or cargo services, which include air freight, mail, luggage. Cargo airlines transport primarily air freight, while the passenger aircrafts transport passenger and one or more of the other categories seen above. More specifically, the latter airline type, that one mainly focused on passengers transportation, signs a contract with another company to transport goods for a volume equal to the resulting surplus after loading passengers' luggage in the belly compartment, against payment.

1. The basic airline profit equation

As for any industry, operating profit for an airline is defined as total revenues minus total operating expense. For passenger airlines, the revenue and expense terms can be broken down into the measures of output and sales respectively defined as ASK (*available seat kilometre*), which refers to how many seat miles are actually available for purchase on a flight, and RPK (*revenue passenger kilometre*), which shows the number of miles traveled by paying passengers.

The combination of these to ratio gives the profit equation as follows (Belobaba et al. 2015):

$$\textbf{Profit} = \underbrace{RPK * yield}_{\textit{Revenues}} - \underbrace{ASK * unitcost}_{\textit{Expenses}}$$

This equation can be extended as follow:

$$\textbf{Profit} = RPK \cdot \frac{Total\ passenger\ revenue}{Total\ RPK} - ASK \cdot \frac{Total\ expenses}{Total\ ASK}$$

The term “traffic” refers to passengers carried or enplaned ones. “Demand” instead is the total number of passengers available, both those who can actually be boarded (or, in other words, the “*available seats kilometre*”) and those who want to

take a flight but they don't have a seat on board due to insufficient load capacity (they are known as "spill" or "rejected demand"). The so-called "*passenger airline traffic*" is defined by the first entry in the equation, the *revenue passenger kilometres* (RPK). For example, the cabin of a Ryanair Boeing B737-800 is configured to accommodate 189 passengers. Now, consider a popular route as the TSF (Venice-Treviso) - STN (London Stansted), a little more than 1,100 kilometres route. The RPK is the multiplication of these two data, that is, 189 moltiplicate by 1,100. The multiplication therefore generates a revenue passenger kilometre equal to 207.900.

To compose the minuend of the above equation we have to add the necessary multiplier, the "*yield*", as the equation structure wants. This is the average ticket price paid by the passenger for a specific flight. In 2016, Ryanair officially admitted that the average fare proposed to flight aboard its Boeing B737-800 was € 46.67[33].

Suppose we want to use this value[34]. We therefore admit that Ryanair sold the whole aircraft capacity at the same price per seat, this means that the total revenue from the ticket sales alone was € 8820 (nothing other than €46.67x189). This revenue is the yield needed to close the first element of multiplication. It should be emphasised that this is not the actual economic entry of Ryanair. Besides remembering that this is a product starting from an average, this count does not include purchases on board during the flight, extra services such as fast-track at the security checks and priority boarding, as well as revenues from penalties paid by passengers who don't know the policies of the company. The *yield* per RPK is obtained by dividing the value just found by the *revenue passenger kilometre* found earlier (€ 8.820 / 207.900).

$$\textbf{Profit} = (189 \cdot 1100) \cdot \left(\frac{8820}{189 \cdot 1100} \right) - ASK * unit\ cost$$

Now it is possible to go through the second part of the equation related to costs. The most frequently used index for cost evaluation is known as ASK, which means

[33] Conghaile, P, Ó. (May 23 2016). Ryanair reveals its average fare and you could soon fly for free. The Independent. Retrieved from: https://www.independent.ie/life/travel/ryanair-reveals-its-average-fare-and-you-could-soon-fly-for-free-34738539.html

[34] The price actually paid by passengers may have been € 9.99, the most advertised fare by the company, or may have exceeded the 200 euros limit.

an *available seat kilometre*. It is a measure of an airplane's carrying capacity available to generate revenue, and calculated by multiplying the seats flown by the number of kilometres flown. It is immediately evident that if an aircraft takes off with a 100% *load factor*, then ASK and RPK will be exactly equal. In fact, by multiplying 189 seats by 1,100 - the flight length - we get an ASK equal to 207,900.
In order to better understand the point, it is better to define what the *load factor* is.

$$\textbf{Load factor} = \frac{passengers}{capacity} \cdot 100$$

It is a ratio. It represents the sold proportion of an aircraft, that is, the percentage of the total seats of those one actually filled before the departure. This is valid only for one flight at a time. Seen the correlation between RPK and ASK we can use them to calculate the average load factor, defined as the ratio of RPK to ASK.

There are other possible combination to calculate the load factor for a specific situation, such the *average network load factor* or the *average leg load factor* but this is not the main issue to solve in this dissertation.

To sum up it is better to improve the example. It is better to leave aside the unit cost element for now. We can assume that our TSF-STN Ryanair flight had a load factor of 87%, which means that of the 189 available seats, 164 were the seats actually sold and filled up before the departure. Thus the basic profit equation will be:

$$\textbf{Profit} = (164 \cdot 1{,}100) \cdot \left(\frac{8{,}820}{164 \cdot 1{,}100}\right) - (189 \cdot 1{,}100) \cdot unit\ cost$$

$$\textbf{Profit} = (180{,}400) \cdot (0.049) - (207{,}900) \cdot unit\ cost$$

$$\textbf{Profit} = 8820 - (207{,}900 \cdot unit\ cost)$$

We will return on this equation in this chapter, after a comprehensive review of the main costs and revenues sources in which an airline daily incurs.

2. Airline operating costs

The operating costs categorisation, within the balance sheet of an airline, is not an effortless operation and of course it varies depending on the country, the associations and agencies in the industry, as well as the differences that can be observed reading the financial statements of any airlines. It should be specified that, to date, only the United States maintain an updated database of the operating costs of each company registered within the United States. Data come directly from the American airlines, obliged to the annual sending of those, both from an administrative point of view and from an operational point of view based on each model of aircraft in the respective fleets. A second database is maintained by the ICAO (International Civil Aviation Organisation), which has always been committed to finding a way to standardise the categorisation of costs, worldwide. In the next pages will be analysed the major operating costs, in particular their main drivers and categories, and then move on to revenues and elements that could affect the productivity of the company.

2.1 Cost categorisation

We begin by specifying that an airline has a particularity, it has a preponderant percentage of fixed costs in its balance sheet and, consequently, low marginal costs. In other words, an extra passenger will only cause a slight increase in costs since most of the transport costs are fixed, they remain stable as passengers number increases. This aspect will be dealt with in detail in the following pages when examples of economies of scale and scope, as well as the breakeven point analysis, will be introduced. Consequently, airlines' managers cannot decrease costs quickly if it is necessary. (Vasigh et al. 2013)

A particularity of this industry, as well as those of transport in general and hotelier ones, is that the load capacity remains fixed and limited over time and, if not allocated, it will result in an economic loss. Revenue management developed from these ideas. In other words, what distinguishes air transport is the high budgetary impact of investments and fixed costs, compared to more modest outlays related to

variable costs. Fixed costs have also some advantages: they increase the entry barrier of the industry. That is one of the main reason why there are this market concentration and this high number of bankruptcies.

An airline will therefore be subject to costs for the most part related to maintenance, personnel, fuel, taxes and charges, insurance, even when, bringing an example to its extreme, the load factor is 0%. Going more in detail, we can divide the cost structure of an airline based on different useful prospects. We will analyse them trying to discover the differences at the same time. Assuming that the costs details of any firms are found by analysing their balance sheets with particular attention to the cost section of the notes, for the purposes of this description, we will rely primarily on the two most important public database of cost data: one is reported in the *US DOT Form 41 Database*[35] and the second one in the ICAO annual reports. The first is a detailed and comprehensive source of traffic, financial, and operating costs database provided by all the major US airlines to the US DOT (the US Department of Transportation) quarterly.

The cost of producing a unit air transport capacity includes a number of component which can be grouped in various way to facilitate the analysis. It is possibile to divided them by their nature of fixed or variable costs as introduced above. Other way is to split them in direct and indirect categories. The latter is widely used in the air transport industry and because of this nature is the main categorisation that will be used in the next pages.

According the basic definition of them, direct cost are those associated directly with the characteristics of the aircraft. These cover flight operations (flight crew, fuel, oil, flight equipment insurance, rental if any), maintenance and overhaul, and depreciation. Specifically, fuel makes a significant portion of airline's total costs.

High fuel prize means that ticket prize increase and profitability declines accordingly. This is why fuel efficiency plays a crucial role in aircraft design (see the Boeing B-787 Dreamliner, for example) and consequently in airline profitability.

Indirect costs cover all other items of operating cost. These include station and ground expenses (including lending and departure fees), passenger service, ticketing sales and promotion, general and administrative activities.

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[35] Retrieved from: https://www.transtats.bts.gov/Tables.asp?DB_ID=135&DB_Name=Air%20Carrier%20Financial%20Reports%20%28Form%2041%20Financial%20Data%29&DB_Short_Name=Air%20Carrier%20Financial

Another way we have to categorise operating costs is to follow somehow the nature of them, thus it is possibile to describe them both in a functional way or in an objective way. For an easier and faster reading the table below (TAB 2.1) is summarised as much as possible.

The detailed table is found in Appendix 2.2 and 2.3. The categorisation table above is based on two basic principles previously explained. Costs were basically divided in direct and indirect costs.

DIRECT COSTS	INDIRECT COSTS
Flight Operations	Passenger Service Expense
Flight Equipment	Aircraft Serving Expense
Depreciation - Flight Equipment	Traffic Servicing Expense
Expense of Interchange Aircraft	Reservation And Sales Expense
Amortisation Flight Equipment	Advertising and Publicity Expense
Applied Maintenance Burden - Flight Equipment	General And Administrative Expense
	Depreciation Expense - Maintenance Equipment
Net Obsolescence And Deterioration - Expendable Parts	Amortisation - Other Than Flight Equipment
	Transport Related Expense

TAB 2.1: Direct and Indirect Operating Costs - Functional Categorisation
Source: Adapted from US DOT Form 41

What it is possibile to see and understand from this table is than the functional categorisation can be split in direct and indirect costs. In other words, the Aircraft operating costs, the sum of the expense associated with flying aircraft, are also referred to as “Direct Operating Costs” (DOC) or “Flight Operating Costs” (FOC), that is, the first column of the table.

On the other column, the indirect costs could be divided in four categories. According to ICAO, the “aircraft servicing costs” which include the aircraft handling on the ground and the expenses related to its stay at the airport. “Traffic service costs” is the second category, where processing passengers, luggage and cargo at airport expenses are included in. The third group - “passenger service costs” - is composed by the expenses related to meals, flight attendants and the in-flight service. Finally there is the “reservation and sales costs” which include the airline

OPERATING COSTS
Salaries
Related Fringe Benefits
Materials Purchased
Services Purchased
Landing Fees
Rental
Depreciation
Amortization
Other
Transport Related Expense

TAB 2.2: Operating Costs - Objective Categorisation
Source: Adapted from US DOT Form 41

reservations and ticket offices expenses and the travel agency commissions of any.

Outside these categories there are a couple more costs, such as: advertising and publicity expense, general and administrative expense, depreciation (aircraft not included), and other transport related expenses.

The TAB 2.2 shows the objective - or administrative - categorisation of the operating costs of any airline. This is the classic "list" that we find in the budgets of any company, obviously with the respective cost indexes. We will never find the “landing fees” item in the FCA balance sheet, just to make an example.

Going in order, the “salaries” and "related fringe benefits” items are usually composed of the cost of ground and flight personnel, management, and other personnel as well as all the benefits related to them.

Under the heading "materials purchased" we find instead the costs related to fuel and oil, the components necessary for aircraft maintenance, food for passengers, and other materials.

"Services purchased" summarises cost items such as advertising, communication and promotions, insurance, commissions, and other services.

Finally, it will be all the other important items such as "rentals" (including the the aircraft leased), and ”depreciation" which means any movable and immovable property, including aircraft.

This categorisation reflects the total cost to generate the output of an airline. In other words, added together they form the input for production of the final service to the consumers. As for the previous one, this table is summarised as much as possible for an easier and faster reading. The detailed table is found in Appendix 2.1. The latter is accompanied by data extrapolated from the "US DOT Form 41 - Air Carrier Financial: Schedule P-6” database from US airlines with a turnover of more

than US$ 20 million. The data entered refer to the year-end results for 1990, 2000 and 2016 (the last year with complete data, updated in September 2017).

2.2 Economies of scale and scope in the aviation industry

Economies of scale - or increasing returns to scale - occur when the average total cost (ATC) decreases as production increases (Krugman et al. 2012). Decreasing returns to scale, on the contrary, are experienced when the ATC increases with production. In a graph would be a convex line with a flattened vertex, representing the constant returns to scale. In high capital intense industries, where fixed costs represent a significant part of the cost structure, such as aviation industry, steel industry, and manufacturing industry, economies of scale are especially common. Following an oversimplified point of view it is possible to say that, in this case, bigger is better. This is the most simplify reason why merger and acquisition operations occur so often. Basically, market consolidation could provide significant cost advantages for the joint operation of the airlines. Vasigh et al. (2013), listed the following sources of economies of scale in the air transport industry:

- lower cost and higher productivity due to division of labor;
- lower average cost labor due to specialisation;
- increase in labor productivity (learning curve);
- lower average cost due to higher seat density;
- lower average cost due to higher aircraft utilisation;
- lower average cost due to using less crowded secondary airports;
- single aircraft type.

Economies of scope are related to diversification instead of volume, as for the increasing returns to scale seen above. A clear and comprehensive example is given by Delta Air Lines. In fact, in 2012, managers agreed to acquired an oil refinery near Philadelphia[36]. Delta bought this refinery for US$ 150 million and, after a US$ 100 million refurbishing process, it was estimated that it would have reduced its annual fuel expense by $300 million. Now “Delta Air Lines is flooding the New York

[36] Source: http://www.nytimes.com/2012/05/01/business/delta-air-lines-to-buy-refinery.html

market with jet fuel from its refinery […]. [It] will act against its own financial interest to try to maintain lower jet fuel prices and save the nation's second-largest airline money on fuel, its top operating expense." (Renshaw, Reuters, 2016)[37]. Another example of economies of scope is the research of other income sources carried out by Lufthansa Group thorough the acquisition - or the creation - of many companies or subsidiaries such as: Lufthansa Cargo, Lufthansa LSG Sky Chefs, Lufthansa Consulting, Lufthansa Systems, Lufthansa Technik, Lufthansa Flight Training, and Miles & More GmbH.

2.3 Low-cost carrier model

In March 2006, Ryanair accepts delivery of its 100th Boeing 737-800. Now Ryanair operates a fleet of 400 Boeing B737-800, with an average age of 6.4 years. Moreover, it has an orders plan which will enable Ryanair to grow its fleet to 585 by 2024[38]. These few lines enclose two of the main characteristics of the low-cost model. Ryanair, as all the other no-frills airlines operates only one aircraft type and place huge new aircrafts order to *1)* lower the unit price *2)* maintain its fleet young and more importantly, efficient[39]. Moreover, having only one type of Aircraft means that pilots, flight attendants, mechanics, and ground staff only need to be trained on one type of aircraft which saves an enormous amount of time and money.

Looking at the labor costs side, the second most burdensome expense of an airline company, the low-cost ones tend to pay lower than industry average wages, as well as emphasise the employees' productivity. Take the Ryanair example into consideration, it pays low wages, has lower employees number than the average and it agrees to recognise labor unions just a couple months ago[40]. The labor case

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[37] Source: https://www.reuters.com/article/us-delta-jetfuel-exclusive/exclusive-deltas-refinery-sacrifices-profits-for-lower-fuel-cost-memo-idUSKCN10E0EZ

[38] Source: Ryanair Corporate Website. Retrieved from: https://corporate.ryanair.com/about-us/history-of-ryanair/

[39] In March 2013, Ryanair placed an order for 175 Boeing B-737 at a list price of US$ 15.6 billion. According to industry analysts Ryanair paid less than half the amount, close to US$ 40 million per unit, instead of US $89.1 million.
Source: Thomson Reuters.
Retrieved from: https://www.reuters.com/article/us-boeing-ryanairorder/ryanair-lifts-boeing-with-16-billion-737-order-idUSBRE92I09120130319

[40] Weiss, S., Doyle, D. (December 15th, 2017). Ryanair Recognizes Unions in Historic Shift to Avert Strike. Bloomberg. Retrieved from: https://www.bloomberg.com/news/articles/2017-12-15/ryanair-offers-to-recognize-unions-as-first-ever-strikes-loom

is a crucial point where full-service airlines can compete on with the no-frills airlines such as Ryanair, easyJet, Southwest, AirAsia, and IndiGo, just to make few examples. Traditional airlines cannot get away from their labor agreements and their honest business practices, and sometimes it is not enough (see the Lufthansa issues with the labor unions throughout the 2017).

Another discrepancy stays on the ticket distribution costs. It is free when passengers buy their own ticket and check-in on the airline website, elsewhere they have to pay really high commissions. In other words they prefer only the direct ticket sales. For example, forgetting to check in on the Ryanair website before the departure costs € 50, a huge amount of money considering that the 2016 average fare was about € 4 lower that amount. Full-service airlines use many more distribution channels, such as: website, official and unofficial booth at the airport, travel agencies.

	RYANAIR	easyJet	BRITISH AIRWAYS	Alitalia	AIRFRANCE
Route	TSF - STN	VCE - LTN	VCE - LWG	VCE - LHR	VCE - LHR
Fare	33,65 €	62,02 €	53,00 €	77,88 €	114,00 €
Ora partenza	9:45	10:40	12:25	10:15	09:55
Direct flight	✔	✔	✔	X	X
Cabin luggage	✔	✔	✔	✔	✔
Two cabin luggage	X	X	✔	✔	✔
Free snack on board	X	X	X	✔	✔
Free seat selection	X	X	X	X	✔
Checked luggage	X	X	X	X	X
Flexible ticket	X	X	X	X	X
Optional airport check-in	X	X	X	X	X
Fast track	X	X	X	X	X
Priority boarding	X	X	X	X	X

TAB 2.3: Economy light fare comparison
Source: Official airlines' website
Drafted by Andrea Rizzetto

Other main characteristics which are typical for the low-cost airlines are: a simple fare structure, flying to cheaper and less congested airports, no frequent flier programs, no free food and beverages (*no-frills*), and fast aircraft turnaround times.

Finally, paying the basic fare usually you can have access to the aircraft with just a hand luggage without selecting your seat, that is, all other services have to be paid.

Traditional airlines have added an economy-discounted rate to keep costs and prices as low as possible trying to compete with low-cost carriers. In the table above, the Venice-London route has been taken as an example to clarify the differences in service and, above all, in the proposed tariffs. The details are as follows:

- Route: *Venice (any) - London (any)*
- Date: *Monday, March 5th 2018*
- Flight: *Flight in the morning, as close as possible to 9.45 am*
- Fare: *The lowest possible*
- Last modified: *Monday, January 15th 2018*

Low-costs' aircrafts tend to operate all-day no stop. This does mean that the airplane is always making money. From no seats reservation to the prohibition of carrying hand luggage with you when a certain number of those already onboard is exceeded, this is why that people almost always show up to the gate early and line up in an orderly line. In this way, less time is spent on the ground boarding and more time is spent in the air flying. As seen in the first chapter, traditional carriers operate thorough a hub-and-spoke network system.

Budget airlines, on the other hand, simply have a lot of destinations from everywhere to feed their point-to-point network system. That does mean that many destinations are served only a few times per week, and usually they don't even allow for connections between their flights. Basically, connections add costs. For example, those related to the ground crews to transfer bags, or to the creation and maintenance of a more complicated ticketing system.

It should be emphasised that the low-cost model does not seem to be flawless.. Being a relatively young model in a market where the entry barriers are difficult to overcome there are dozens of bankruptcy cases. The table below lists the low cost airlines that went bankrupt. In fact, as noted by the author: "Most of these airlines operated for a period and then went into bankruptcy. Some, such as Go Fly and

BuzzAway, merged with successful low-cost airlines. In a few cases, but never offered actual services "(Button, K., J., 2012)

Aeris	BaasiqAir	Flying Finn	Maersk Air
Agent	Bexx Air	Free Airways	Monarch
Air Andalucia	BuzzAway	Fresh Aer	MyAir
Air Bosnia	Color Air	Germania Express	Niki
Air Catalunya	Direct Fly	GetJet	Now
Air Freedom	Dream Air	Go fly	Silesian Air
Air Littorial	Duo	Goodjet	Skynet Airlines
Air Luxor	EastJet	Hellas Jet	Spirit of Balkan
Air Madrid	EU Jet	Hop	Sterling Airlines
Air Polonia	Europe Air	Jet Magic	Swedline Express
Air Polonia	Fairline Austria	Jetgreen	V Bird
Air Scotland	Fly Eco	JetsSky	Virgin Express
Air Wales	Fly West	JetX	White Eagle
Airlib Express	Flyglobespan	Low Fare Jet	Windjet

TAB 2.4: European low-cost carriers that ceased to exists
Source: Adapted from Button, K., J. 2012

2.4 Airline breakeven point analysis

The breakeven point represents that point where the number of units or revenue is equal to the firm's costs. The breakeven analysis focuses on finding the number of units or revenue required in order for the firm's costs to be recovered.

Starting from the basic formula for calculating profits — revenue minus costs, thanks to the breakeven analysis we can derive several useless indices to understand the limits that the company's cost structure imposes in order not to incur a loss. Specifically it is possibile to obtain the breakeven turnover, the margin of safety, and the breakeven quantity.

Breakeven turnover indicates the amount of revenue that the company must realise in order to achieve the breakeven point. *Safety margin* refers to the difference between breakeven sales and expected or actual sales. It shows how much sales

can decrease before reaching the breakeven point. Knowing this, the safety margin allows you to know how much sales can drop before incurring a loss. The breakeven analysis gives the "quantities" to be sold and the minimum turnover to be registered to guarantee at least the coverage of the costs. The basic formula for determining the quantity to be sold is calculated by comparing the fixed costs for the difference between the price and variable costs — the *contribution margin*. The break even analysis for passengers and cargo airlines is based on specific data and calculation methods. This distinction is based on two aspects: one concerns the fact that an airline is a service provider, the latter is based on the particular pricing strategy applied by them - the revenue management.

Breakeven analysis - General basic formulas
$\mathbf{Profit} = Revenue - Costs$
At Breakeven point:
$Fixed\ Costs + Variable\ Costs = Revenue$
$FC + VC \cdot Q = P \cdot Q$
$\mathbf{FC} = (P - VC) \cdot Q$
$\mathbf{Q_{B-E}} = \frac{FC}{P - VC}$

Breakeven analysis - Airline basic formulas
$\mathbf{Profit} = OP - OC$
At Breakeven point:
$\mathbf{Profit} = 0$
$RPK \cdot RRPK - ASK \cdot CASK = 0$
$\mathbf{Load\ Factor} = RPK\ /\ ASK$
$\mathbf{Load\ Factor_{B-E}} = \frac{CASK}{RRPK}$

Where:

$\mathbf{OP} = RPK \cdot RRPM$ and $\mathbf{OC} = ASK \cdot CASK$

Focusing on airlines, breakeven analysis is based on the calculation of the load factor and the breakeven load factor. As previously specified, the load factor is the percentage of capacity that has been matched with passengers or cargo demand. Consequently, the breakeven load factor is that percentage of capacity an aircraft must achieve to cover costs and not incur a loss.

The final obvious result is the following one: if the actual load factor is greater than the Breakeven load factor, then the airline is making enough money to cover the fixed costs, at least. On the contrary, if the breakeven load factor is higher, then the airline is losing money.

4. Costs and Revenue drivers schema

The drivers that guarantee costs and revenues to airline companies are presented below through a simple scheme that includes most of them. The most important and perhaps less familiar voices will be briefly analysed below.

Starting from cost drivers, it has been taken in consideration the research of some authors (Särndal & Statton - 1975, Banker & Johnston - 1993, Seristö, H., Vepsäläinen, A. P. J. - 1997, Eller & Moreira - 2014); and some report coming from ICAO[41], McKinsey&Company[42], and CarTrawler company[43].

The route type is one of the most important one. Basically, the longer the route is, the lower the unit costs the company will have to cover with revenue. This category may include the fuel cost of the fuel, personnel cost, the type of aircraft and the accumulated flight hours that lead to maintenance. In addition to this one, aircrafts costs are linked, for example, to purchase costs and insurance. The airport related fees refer to airport slot[44] cost, handling services costs, parking costs, and all other airport services attributable to the aircraft management while it is on the ground. This is linked to the operation of the planes and to the strategic planning and the

[41] ICAO. Airline Operating Costs and Productivity. Tehran, 20-23 February 2017. Retrieved from: https://www.icao.int/MID/Documents/2017/Aviation%20Data%20and%20Analysis%20Seminar/PPT3%20-%20Airlines%20Operating%20costs%20and%20productivity.pdf

[42] Saxon, S., Weber, M. (July 2017). A better approach to airline costs. McKinsey&Company. https://www.mckinsey.com/industries/travel-transport-and-logistics/our-insights/a-better-approach-to-airline-costs

[43] Source: http://www.ideaworkscompany.com/wp-content/uploads/2015/11/Press-Release-103-Global-Estimate.pdf

[44] ICAO defines an airport slot as “specific time periods allotted for an aircraft to land or take off at an airport”.

network, ie the density of the operation managed by the airline. For example, low-cost airlines, aiming for operational efficiency, do not want that they aircrafts spend too much time grounded at the airport between one flight and the next. An airline, in fact, makes money when the airplanes are flying up in the air not when they are on the ground. The same reasoning can be applied to the traditional airlines, although their aircrafts the average time spent parked at the airport wanting for the next departure is much longer. Finally we find the costs related to marketing, promotions and additional services such as commissions.

On March 17th, 2017, Justin Bachman, an aviation and travel reporter and a Bloomberg businessweek journalist, stated that "the golden goose is not your ticket or bag fee — it is the credit card you use to collect frequent flier miles". This is an ancillary revenue that has had an impressive growth trend. Henry H. Harteveldt, in the IATA the future of airline distribution 2016 - 2021[45], stated that "[…]the airline distribution community will need to invest adequate attention on product merchandising, because ancillary products". Ancillary revenue is that type of revenue coming from non-ticket sources, such as baggage fees, on-board food, priority boarding, booking commission (from hotel and car rental agency, for example), and other services. The other item (capacity, load factor, cargo, and passenger yield) it is strictly to the main airline activity. Larger fleet and greater passenger and cargo load factor percentage usually means more income possibility. Passenger yield is nothing more than the RPK, which is also a measure of average fare paid per kilometre.

[45] Source: https://www.iata.org/whatwedo/airline-distribution/ndc/Documents/ndc-future-airline-distribution-report.pdf

CHAPTER THREE

Market Analysis and Business Strategy

Most manufacturing and service industry are oligopolies. Industry are dominated by a small number of major companies, and the whole aviation industry (from aircraft manufacturers to airlines one) is one of the greatest and most important example. That is why this chapter is dedicated to the analysis of the airline industry based on the model developed by Porter. Although not without defects it is a fundamental starting point for a comprehensive analysis of the industry and the market itself. This model is based on the research for competitive advantage that can be exploited by the company to compete not just for being the best but rather for being unique. In the course of this chapter the explanation will broaden or completely separate itself from Porter's model to provide a view as accurate as possible, through the use of updated data coming from governmental and private institutions. Firstly, it will be analysed what can be defined as the outside environment of the company, the macro-environment in which a company operates — in this case an airline operates. Secondly, it will focus on the details, thus the strengths and weaknesses of the company itself. Indeed, the goal of a market analysis is to determine the attractiveness of a market and to understand its evolving opportunities and threats as they relate to the strengths and weaknesses of the firm.

1. Market size: its value and growth rate

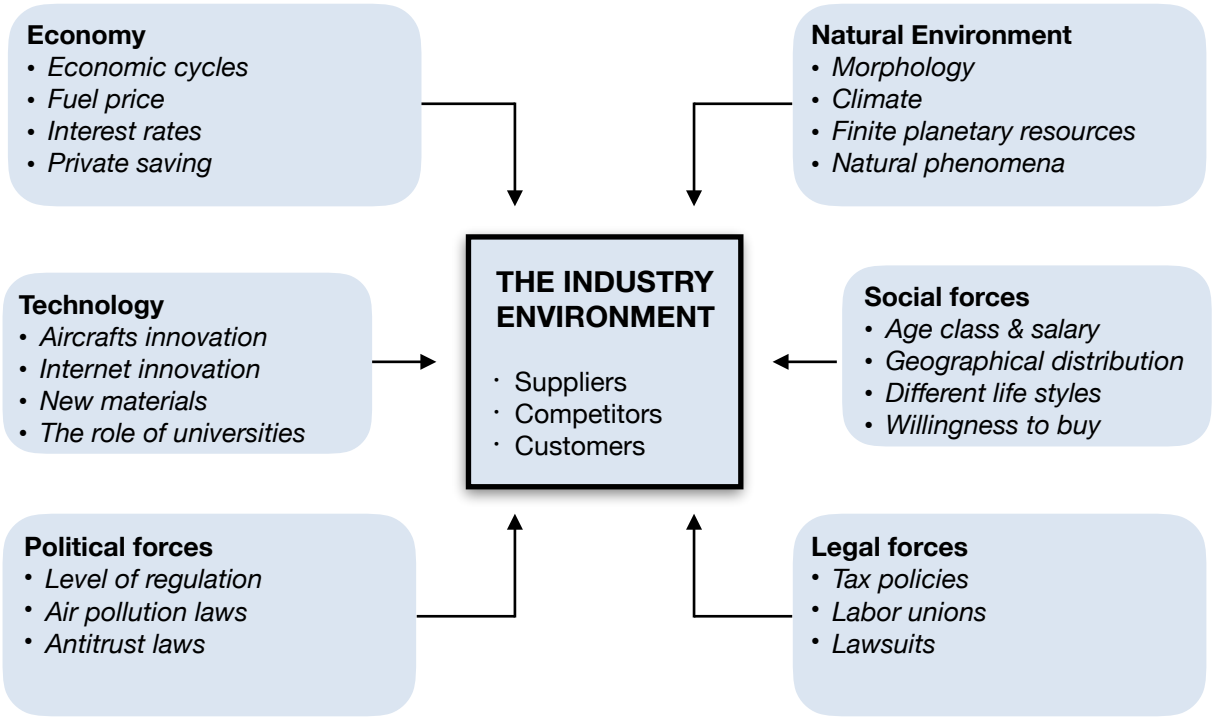
This is the first step in a comprehensive analysis of the aviation industry. The analysis will follow a logical thread that will start after these few introductory remarks with the environmental analysis which will be gradually set aside to make way for a more focused analysis of the specific industry that more directly influences the results of the company.

1.1 Macro-environment analysis

More than others, the air transport sector is positively and negatively influenced by a rather diverse range of factors outside the sector itself. In this section only the fundamental ones will be considered. A proper analysis usually requires several books to be deepened with all the care needed. In these pages we will deal only with scratching the surface of this topic which is crucial to analyse the market and the consequent business strategies.

1.1.1 PESTEL analysis

PESTEL analysis highlights sources outside the industry that can affect business operations. The PESTEL acronym is the sum of the following factors: Political, Economic, Social, Technological, Environmental, and Legal (Grant, R., M. 2015; Baroncelli and Serio 2013). In other words, this study identifies which variables can be more or less relevant in a company's decision-making process. As Baroncelli and Serio (2013) pointed out, events such as a national or international economy recession, political turbulence, or the technological standards imposed by law, automatically impact on the companies activities.



TAB 3.1: From environmental analysis to industry analysis. Airlines case study
Source: Adapted from Grant, R., M. (2015), and Baroncelli and Serio (2013)

A correct analysis will lead to an accurate prospectus of the industry environment and therefore to the expected results of the firm itself, in this case an airline company.

The table above clarifies the factors to be analysed. As Grant (2015) explains, the heart of the model is the industry environment, than one in the middle. To make profits a company must create value for its consumers, thus it is essential to understand the needs of them.

Secondly, to create that value the company must support relationships with suppliers. It has to maintain dialogue with them. Finally, the ability to produce profits depends on the competition in the market, therefore the number of companies included in it. This is the core of the firm's business environment, that is, the relationships formed by the company with these three players. What has been written so far does not undermine the importance of external factors, those of the macro-environment. The table above includes a list of factors for each macro-area, specific to the air transport industry. A list that is certainly effective, but not exhaustive. In the following pages these lists will be broken down and analysed in more detail, referring to the Italian and European market, thus to Alitalia and the most important European competitors' markets.

Economy

The entire aviation industry are heavily influenced by economic cycles. In other words, the nature of the industry makes it vulnerable to global economic developments (Goyal & Negi, 2014). Corporates' managers stop flying in first-class, people cut the holiday expenses, and moreover, people lose their jobs. High unemployment means fewer people making airline trips. Demand falls both for leisure and business trips. According to IATA, fall of the Lehman Brothers, the sub-prime financial crisis, was the deepest downturn experienced by the commercial airline industry since the 1930s. "Early 2009 marked the low point for international air travel markets. From the early-2008 peak to the early-2009 trough, premium travel fell 25%. Economy travel fell 9%, the decline softened by a shift to cheaper

seats."[46] According to IATA Director General and CEO, Giovanni Bisignani, the global economic crisis has "cost the industry two years of growth"[47].

Fluctuation in fuel price is another major issue that can be included in the economic factors. Its share of total airline operating costs jumped from 13% in 2001 to 18.8% in the end of 2017, far from the 2008 peak of 35.6%[48]. According to IATA the global airline industry's fuel bill is estimated to total US$ 130 billion in 2017. In 2004 the total fuel cost was half of last year amount. In 2013, it reached its peak at US$ 230 billion. With regard to air freight business, in 2015, aviation carried 51.2 million tonnes of freight. Daily value of goods sent by air is now US$ 17.5 billion[4950].

Natural Environment

Climate change is an issue that is increasingly international relevant. According to Eurocontrol, aviation contributes less than 4% of man-made atmospheric emissions, but aviation's emissions are emitted in the upper atmosphere and may have a more direct effect[51]. Pollution undermines the Earth's ecosystem and passengers are increasingly more conscious of the natural environment health. "Demand for air transport is continually growing and […] society must also accept the costs (noise, pollution, climate change, risk, resource use, etc)"[52].

Because of the climate change warning, the finite nature of the resources and the raising consciousness, airlines have begun to see the low environmental impact they have as a competitive advantage to be exploited against competitors. Thinking green, however, costs in terms of increasingly efficient aircrafts[53], as well as in terms of research for an increasingly eco-friendly fuel. But climate change has an indirect impact on the productivity of an airline. On the contrary, natural phenomena can inflict heavy direct damage on airlines' revenues. Considering European airspace,

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[46] IATA - Annual Report 2010

[47] CAPA (Centre for Aviation). Retrieved from: https://centreforaviation.com/insights/analysis/global-economic-crisis-has-cost-the-aviation-industry-two-years-of-growth-iata-15921

[48] IATA - Fact Sheet, Industry Statistics (December 2017 and September 2009)

[49] Number are accurate for 2014, unless otherwise expressed.

[50] IATA - Fact Sheet. Aviation Benefits Beyond Borders. December 2017. Retrieved from: https://www.iata.org/pressroom/facts_figures/fact_sheets/Documents/fact-sheet-economic-and-social-benefits-of-air-transport.pdf

[51] Eurocontrol. Retrieved from: http://www.eurocontrol.int/articles/environmental-issues-aviation

[52] Eurocontrol. Environmental issues for aviation. Retrieved from: http://www.eurocontrol.int/articles/environmental-issues-aviation

[53] In terms of fuel consumption, noise and pollution reduction.

the eruption of the Icelandic volcano Eyjafjnallajokull is a clear example. The Telegraph, citing important sources such as: IATA, Eurocontrol, the European Commission and Reuters, reported all the facts and figures of this volcano crisis[54]. From April 15th to 21st, most European airspace closed progressively. According to IATA, the volcano ashes caused over 100,000 flights to be cancelled for US$ 1.7 billion in missed revenues. Finally, on April 18th and 19th around 19,000 flights per day were cancelled, grounding just under 30% of worldwide scheduled passenger capacity or 4,899 million available seat kilometres (ASK)[55]. In January 2016, Alitalia was forced to cancel, like many other airlines, flights to and from New York tomorrow due to the passage of the Jonas snowstorm that will cause severe restrictions on the operation of airports on the east coast of the United States[56]. In different ways, Hurricanes Irma and Maria caused the cancellation of thousands of flights to and from the United States, as well as national US flights. On September 9th and 10th 2017, Alitalia had to cancel flights between Rome and Miami[57]. The latter was one of the airports, together with Orlando and Atlanta, affected by Irma and Maria — the two Category 5 hurricanes occurred in second half of 2017[58]. It should be considered that, especially for a traditional airline, long-haul flights are the most profitable and therefore have a strong impact on its profitability.

Social and Demographic forces

People are the main revenue driver for an airline. Capacity (ASK), load factor, and passenger yield, all of these major indexes require people to have positive results. As Sammut-Bonnici and Galea (2015) stated “social trends dictate work patterns and attitudes, consumer tastes and preferences, and the particular type, form, and volume of demand for a product or service.” However, it is possible to see aviation industry from another, different perspective. In fact, it is one on the major employer

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[54] Source: http://www.telegraph.co.uk/finance/newsbysector/transport/8531152/How-the-2010-ash-cloud-caused-chaos-facts-and-figures.html

[55] IATA Economic Briefing, May 2010. The impact of Eyjafjnallajokull's volcanic ash plume. Retrieved from: https://www.iata.org/whatwedo/Documents/economics/Volcanic-Ash-Plume-May2010.pdf

[56] Press release January 22nd, 2016 - Snowstorm “Jonas” in USA, Alitalia cancels Rome-New York-Rome flights. Retrieved from: http://corporate.alitalia.it/en/media/press-releases-sai/2016-01-22.html

[57] Press release September 8th, 2017 - Uragano Irma: Alitalia cancella voli Roma-Miami sabato e domenica. Retrieved from: http://corporate.alitalia.it/it/media/comunicati-sai/2017-09-08.html

[58] IATA. Assessment of Hurricane Irma and Maria’s impacts on aviation. November 2017. Retrieved from: https://www.iata.org/publications/economics/Reports/Impact-of-Hurricanes-Irma-and-Maria.pdf

of the modern economy. In 2016, ATAG (Air Transport Action Group) published the “Aviation benefits beyond borders” where it is stated that “if aviation were a country, it would rank 21st in size by GDP[59] (similar in size to 11 Sweden or Switzerland)”[60]. In 2016, according to Eurostat[61], the total number of passengers travelling by air in the European Union could be established at 973 million, an increase of 5.9 % compared to 2015.

Finally, it should not be forgotten that the airline industry can be negatively affected by global socio-cultural factors such as diseases and terrorist attacks. Some of these are SARS, the attacks in city centres. Everyone remember the attacks in Paris and at Brussels Airport in Zaventem, and one at Maalbeek metro station in central Brussels. Other socio-cultural aspects should not be underestimated: trends, social structure, culture, income and, consequently, private savings. For example, each individual will act in accordance with his social and geographical space and will travel where friends will travel or where is the best option for that season. Just as society changes, so must the airline industry be if it is to succeed. In this sense, social networks have made the world more "flat". Now with a click it's easy to find the most visited places, the most advantageous rates, the reviews for the best restaurants, hotels, and the airlines themselves. Aviation industry improves alleviates poverty through tourism, and serves as the only means of transportation to remote areas promoting social inclusion and facilitates the delivery of emergency and humanitarian aid relief

Technology

It is clear to everyone that the use of technology in aviation cannot be disputed. It has allowed significant steps forward in the industry. Whether it is air traffic control, passenger safety and comfort, and airline efficiency, the role of technology is predominant. Technological innovations have boosted the growth of aviation to

[59] Numbers are accurate for 2014

[60] ATAG: Aviation benefits beyond borders. July 2016. Retrieved from: https://aviationbenefits.org/media/149668/abbb2016_full_a4_web.pdf

[61] Eurostat. Air Transport Statistics. Retrieved from: http://ec.europa.eu/eurostat/statistics-explained/index.php/Air_transport_statistics

incessant rhythms, from the radar, to the internet, from the fly-by-wire technology[62], to the ability to make phone-calls and search the internet during the flight[63]. To date, most bookings take place online on computers or smartphones, thanks to website and mobile apps. The companies remain in close contact with consumers thanks to social networks and social media marketing. The aircrafts are more efficient and light thanks to the composite materials they are made of. Computers and microchips fly the latest generation aircraft. Both Boeing and Airbus are focused on the use of innovative technologies to make air travel safer and cheaper for airlines and, therefore, for passengers. Do not follow innovation, and support a technology that changes and evolves, leads an airline to failure.

Political forces

Airlines operate in a political environment that's very regulated and restricted. Government intervention can be necessary to protect passengers' interests and airline operations' safety measures. In Europe, air transport is regulated thanks to a series of EC Regulations, which are available online on the European Commission website. With the creation of a single aviation market within the European Union a European Civil Aviation handbook has been developed[64]. It is composed by the EC Regulations, thus it is divided into 3 parts: I) Regulations and Directives, II) Decisions and Case Law, and III) International Agreements.

At the moment the European Union has signed bilateral agreements with the Swiss Confederation, Morocco, USA and Canada, horizontal agreements with several governments only on certain aspects of air service, and, finally, multilateral agreements between EU Member States and other external ones.

Finally, nowadays, it is in force the Open Sky Agreement between the United States of America and the European Community and its Member States.

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[62] Fly-by-wire system has replaced the conventional manual flight controls of an aircraft. The movements performed by the pilot, for example, are converted into electronic signals transmitted by wires, and flight computers determine how to move each control surface to provide the ordered command. The fly-by-wire system allows functions to be performed without pilot input, to ensure aircraft stability and flight safety.

[63] The Economist (2017). More airlines are offering free Wi-Fi for messaging services. Fully-fledged internet access may be next. Retrieved from: https://www.economist.com/blogs/gulliver/2017/10/net-setting

[64] Source: https://ec.europa.eu/transport/modes/air/internal_market/handbook_en

EASA European Union - The European Aviation Safety Agency (**EASA**)					
ENAC *Italy*	**DGAC** *France*	**LBA** *Germany*	**CAA** *UK*	**AESA** *Spain*	**ICAO** *United Nation*
Ente Nazionale per l'Aviazione Civile	Direction Générale de l'Aviation Civile	Luftfahrt-Bundesamt	Civil Aviation Authority	Agencia Estatal de Seguridad Aérea	

TAB 3.2: The Civil Aviation Authorities in Europe (Some examples)
Source: Adapted from Grant, R., M. (2015), and Baroncelli and Serio (2013)

There is a protocol to amend it but the date of entry into force unknown (pending notification) or not yet in force. More important every Member States has its own Civil Aviation authority. The table above exemplifies the European approach. Henceforth, for the purposes set in this dissertation, the examples will be focus on the European Community an, in particular, on Italian, French, German and Spanish case studies. In fact, they represent the most important and valuable market for the aviation industry. In each of them it is headquartered one or more major European airlines as outlined below[65]. Apart from these purely legal specifications, after 9/11 the industry experienced a significant increase in security controls which led to new laws, new security measures at airports and on board the aircraft themselves. Anyway, people have not lost their enthusiasm for flying and, apart from terrorist attacks, they have continued to travel and the number increases year by year as we will see shortly.

[65] For a more detailed explanation see the APPENDIX 3.1

The airlines, in addition to the laws for flight safety and aircraft, are also bound by strict laws on environmental pollution and noise pollution produced by aircraft engines. For this reasons, aircraft manufacturers are committed to designing more efficient and environmentally friendly aircraft, companies have been experimenting with jet fuel from renewable and low pollutant sources, airports are being expanded to accommodate more and more passengers in a more energy efficient way. At Italian level, the "Marco Polo Domani" project (Masterplan 2021) is project of primary importance. It includes an extension and restructuring plan for the Venice-Marco Polo airport started in 2015 and which will see the implementation of several projects until 2021. In numbers, this project will provide more than 3.000 jobs, and it will support more than 11.000 new flights and more than 3,2 million passengers[66].

Legal forces

Political and legal forces are somehow strictly related. Passengers safety, airline crashes, airport security, labor unions, and taxes. Moreover, law protect passengers' and airlines' rights. For example, between 2007 and 2015 IATA reports over 49,084 unruly passenger incidents on aircrafts in-flight[67]. All these elements are related with all the external environment factors thanks to each country's legislation. As a response to the 9/11 attacks the President of the United States, George W. Bush, founded the Transportation Security Administration (TSA)[68] with one mission: protect the nation's transportation systems to ensure freedom of movement for people and commerce. By taking Italy as another example, we have the Directorate General for the Airports and the Air Transport, which belongs to the Transport, Navigation and General Affair Department of the Italian Ministry of Infrastructures

[66] Source: http://www.marcopolodomani.it/en/the-project/the-project-in-numbers.html

[67] Source: http://www.iata.org/policy/consumer-pax-rights/Pages/unruly-passengers.aspx

[68] A specialised agency of the U.S. Department of Homeland Security.

and Transport[69]. In addition to them there is other major association such as IATA and ICAO, but also some regional ones. In Europe it possibile to look at the Association of European Airlines (AEA), the European Regions Airline Association (ERA), and the European Low Fares Airline Association (ELFAA).

1.2 Market segmentation and demographics analysis

The objective of market segmentation is to divide a broad target market of customers into smaller, more similar groups and then design products, services and even strategies specifically for each group. As Peelen and Beltman (2013) pointed out, "[…] those within the group react in the same manner to marketing stimuli provided by the supplier. Customers within a segment have communication or purchasing behaviour and/or needs and wants in common. Differences exist between the groups". Understanding the characteristics of each segment ha a property importance for forecasting demand and, consequently, for product and service planning, such as: flights scheduling, network management, aircraft selection for each route and pricing.

It is clear that the market in which airlines operates is not homogeneous, that is, customers do not have similar needs. Because of the nature of it, airlines use to follow a segmented market approach.

The latter is based on three basic principles:

- airlines have to compete in a heterogeneous market, in which customers have different requirements and needs;
- they have to look for groups of like minded customers and develop products and services that can be offered directly to the segment;
- each segment has a marketing mix aimed at the similar needs and wants of it.

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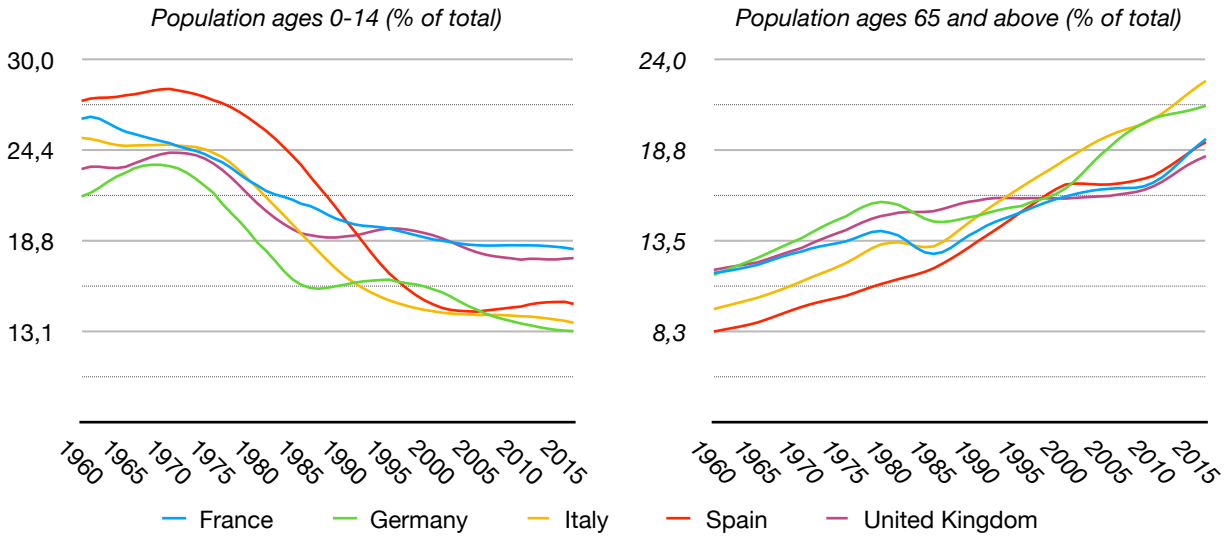
[69] Competencies laid down in the D.P.C.M. 11 febbraio 2014, n. 72.
a) civil aviation regulation, community legislation and international agreements;
b) supervision and control of industry entities;
c) program and service contracts with supervised entities;
d) address and surveillance in aeronautics, aviation and airport security and air transport quality;
e) jurisdiction measures in the field of civil aeronautical properties;
(f) planning airports and airport systems, evaluation of investment plans and infrastructure works conciliation;
g) analysis of the civil aviation market, support the protection of competition and tariff dynamics;;
h) actions in the civil aviation field to support mobility;
i) provisions on tariffs for airspace management;
j) preliminary investigations for the approval of the contracts between ENAC and operators.
Retrieved from: http://trasparenza.mit.gov.it/index.php?id_oggetto=13&id_cat=-1&id_doc=14311

The market segmentation strategy applied to the civil aviation sector developed after deregulation. In fact, after the liberalisation, passengers faced an increasingly wide choice of airlines. For this reason, carriers must attract passengers based on the characteristics of the service and the correct balancing of the variables that make up the marketing mix that are attractive for those passengers. In other words, the segmentation of the market brings various benefits, useful for providing useful information to the company, such as:

- gain an understanding of the customers;
- develop products and services that meet customer demands;
- allocate the company's resources based on the needs imposed by the market;
- it provides a starting point for promoting these products;
- facilitates the development of the company strategic plan.

Basically, a market segmentation process starts from the demographics analysis as a first crucial segmentation base. The latter use some statistical data. For the purposes of this dissertation it has been used data coming from the World Bank open data database, available online[70], describing the European Union market and, in particular, Italian, French, German, British and Spanish markets[71]. In other words, at the beginning, it's important that the airlines' management know and understand data such as: income level, population age, employment rate, social status. Nowadays this traditional segmentation, essentially based on travel purposes, is no longer enough (Doganis, 2010).



[70] Source: https://data.worldbank.org

[71] See pg. 47 for details

In fact , airline companies have started to segment their customer on geographic, and behavioural aspects, and travel attitude and needs, as well. Population is getting older and older. This new trend is explained by the graphs above. It means new opportunities but also new issues for airline companies. They are facing new revenue sources but, in the mean while, young staff shortage.

1.3 Market profitability

It is possibile to summarise this paragraph thanks to a few words spoken by Sir Richard Branson, the founder of Virgin Group “If you want to be a Millionaire, start with a billion dollars and launch a new airline”. It is confirmed by scholars, analysts and entrepreneurs, that air transport is not a synonymous of profitability. This statement is true if we take the whole companies operating in the airline industry, but it is not fair to say that all airlines are not profitable. Taking the individual cases (the following analysis will be based on the European market, unless otherwise stated), there are certainly profitable companies, and companies that have never recorded dazzling returns on the investments or on the invested capital. This is the paradox of this economic sector. For years, since its inception, it has experienced a brilliant growth and development under every point of view.

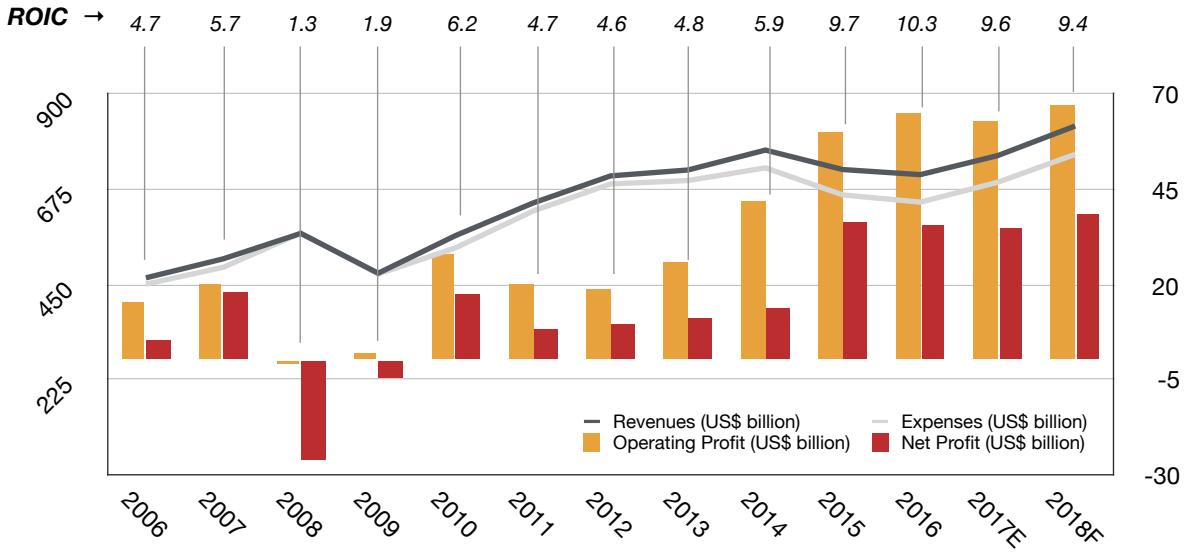


FIG. 3.1 *Airline Industry Profitability.*
On the left axis: Revenues (US$ billion); Expenses (US$ billion).
On the right axis: Operating Profit (US$ billion); Net Profit (US$ billion); Return on Invested capital (%).
Source: IATA. Fact Sheet. Industry Statistics - December 2017

As previously analysed, the aviation industry brings crucial social and economic benefits to every country in the world. But growth has never shone from the profits point of view. First of all, since the airline industry is strictly related and influenced by the worldwide economic situation and macroeconomic cycles, its profitability is cyclical as well. Secondly, a study commissioned by IATA to McKinsey&Company that all other parts of the aviation industry value chain make higher returns than airlines. The latter generated an average return on invested capital (ROIC)[72] of 5.4% between the 2006 to 2016 business cycle[73][74]. Moreover, between 1965 and 2007, airlines have one of the lowest levels of ROIC of any industry. According to McKinsey & Company for IATA study the most profitable sector, the pharmaceutical one, registered and average ROIC of 25%, 20 points above the airlines one[75].

2. Supply and demand

Air travel demand is characterised by factors such as fluctuations, market heterogeneity, and general uncertainty. On the other side, airline supply is limited by air- craft capacity and has a very perishable nature (Cento, 2008; Zatta, 2007). The latter factor is crucial because, as seen previously, an unsold seat causes a loss in the airline's income statement due to the fact that an airline has operating costs to cover although load factor is equal to 0%.

Like any company active on the market, even an airline has the primary objective of making its businesses profitable, thus it has to maximise the company's value for shareholders. The main activity of an airline, although certainly not the only one, is the sale of aircraft seats. Its offer will therefore be the seats on board its aircrafts for a limited period of time that runs between a take-off and a landing at a different airport. This step can take a few tens of minutes to several hours[76]. The offer is equivalent to the sum of the seats aboard an aircraft multiplied by the kilometres

[72] The general equation for ROIC is: (Net income - Dividends) / (Debt + Equity). Also commonly know as "Return on Capital".

[73] See FIG 3.1, pg. 51

[74] Based on IATA Fact Sheet - Industry Statistics Data. December 2017

[75] Source: Profitability and the air transport value chain. IATA economics Briefing No. 10. June 2013. Retrieved from: https://www.iata.org/whatwedo/Documents/economics/profitability-and-the-air-transport-value%20chain.pdf

[76] The longest route of 2017 was between Doha and Auckland, New Zealand, operated by Qatar Airways. It reaches 14,500 kilometres for over 16 hours, which become 17 and a half on the way back

that the same must spend in the air, that is, it will be equal to the available seat kilometre (ASK) which is the capacity made available by the airline. Likewise, the demand is equivalent to another index met at the beginning of chapter two, the revenue passenger kilometre (RPK), which is the traffic carried.

As IATA reports on February 1st, 2018, the 2017 data are quite encouraging, and fully justify the growth trend that the sector is experiencing in recent years. Passengers number is deadly increasing, even if passengers are getting older and older. IATA has announced that demand (RPK) has risen by 7.6% compared to 2016, above the average of the last 10 years equals to 5.5%. In 2017 capacity increased by 6.3% compared to 2016 and this led to an increase in the average load factor of 0.9%, thus reaching 81.4%[77].

2.1 Factors affecting supply and demand

It has been seen that over the years there have been three phenomena connected to each other which, in general, have influenced supply and demand. Three phenomena related to three elements. Firstly, the growth of the world economy has led to the significant increase in average income per capita[78]. Secondly, thanks mainly to technological innovation and the liberalisation of the aviation industry, the airline companies' costs item in their income statements have dropped dramatically. Finally, this decrease was reflected in the significant reduction in the price of tickets, contributing to the general constant increase in demand.

Some other important factors will be listed and analysed below. Only those factors that most affect the final purpose of this dissertation are taken into consideration[79].

- Population within the catchment area of an airport. The more people an airport can attract, the greater the demand and supply will be. This reasoning applies especially when we combine two airports, thus speaking of "origin-destination market" (O-D). It is clear that the Milan-Rome or Milan-London route will be much

[77] IATA. Press Release No. 5. (February 2018). 2017 Marked by Strong Passenger Demand, Record Load Factor. Retrieved from: http://www.iata.org/pressroom/pr/Pages/2018-02-01-01.aspx

[78] It should be understood that, on a aviation industry level, the growth of the economy has been supported by the development of the BRICS countries. In particular, Chinese and Indian economic development have brought world demand to levels never experienced before. In fact, these two countries account for almost 26% of the world's population.

[79] It has been taken into consideration studies carried out by many authors such as: Belobaba et al. (2015), Vasigh et al. (2013), Doganis (2010).

more important, from every point of view, if compared with the Milan-Pescara route.

- Quantity and type of industries that link two cities and / or the catchment area of two airports. In other words, as the first point, the demand will be much higher if many companies have subsidiaries or different working relationships between two cities. Also in this case, the Milan-Rome section will be much more important than the Milan-Pescara route.
- The type and characteristics of the trip. The demand for business trips will be less significant from a quantitative point of view, but more expensive and remunerative than the demand for leisure travel or travel foe visiting friends and relatives (VFR), boosted by job mobility and migration flows[80], certainly much higher in terms of passengers but subject to significant seasonal variations.
- The ticket price. A company can guarantee lower prices on the same route or incentivise the demand with exclusive offers. Price planning plays a very important role in this sector in calculating supply and demand. All this is addressed and explained by the revenue management, which this dissertation does not deal with. Not only that, the air transport sector in general, by definition, is an oligopoly. Relatively few airlines are sharing a large amount of demand.

  On routes, this is not always the case, especially in the short range an airline can have a monopoly and apply higher prices operating as a monopolist (Krugman et al., 2012). But even in this case there may be a factor to the detriment, namely competition from other means of transport, the train in particular.

  On the Milan-Rome route, by now train is the direct competitor of the plane and the higher the speed will develop, the more the demand will fall for the airlines in favour of rail transport. Nowadays, the Milan-Palermo route is almost 100% owned by airlines such as Alitalia (although it will make passengers perform a stopover at Rome's Fiumicino airport, the company's hub).

[80] Eurocontrol. (2007). Evolution of Demand for Leisure Air Transport in 2025 - Synthesis Report

3. Distribution channels: brief review

In 1953, the then president of American Airlines, Cyrus R. Smith and a senior sales representative at IBM, Blair R. Smith met to discuss the feasibility of designing a data processing computerised system that could create and manage the seat reservation and make the data available in real time to any sales agent. Six years later, from the agreement between American Airlines and IBM, the SABRE (Semi-Automated Business Research Environment) system was born, founding the SABRE company that, to date, is a leader in the sector. It was builded out the specifications for the industry's first Passenger Name Record (PNR) system. The actual use by American Airline came only in 1968 when, through it, the company create and manage airline seat reservations and instantly make that data available electronically to any agent at any location. Without the latter, American Airlines estimated that 15% of the seats on a sold out flights would remain unused (Smith et al. 1992). Basically, it was a primitive system of demand (booking and overbooking) management, the first piece of the mosaic that today composes the revenue management. In other words, SABRE by American Airlines was the first attempt of what today we are calling Global Distribution System (GDS)[81][82][83]. It is the traditional sales channel for airlines. With technological advances and the advent of the world wide web as we know it today, GDS systems have been joined by other types of distribution channels. The so-called direct distribution channels, once constituted by the call centres and the offices of the company located in the territory, have seen the birth and development of the official websites of the air companies, to date the most used reservation system. For a long time the Global Distribution Systems had a dominant position in the travel industry but, thanks to internet and website evolution, airlines found a way to bypass them and consequently avoid GDS fees, distributing flights directly from their websites.. Shortly, this is a computerised

[81] It must be emphasised that the story behind GDSs is more complicated. Between the first SABRE system and today's GDS, IBM, seeing the success of SABRE, replicated the system bringing it on the market to airlines. A further innovations had been made by the creation of Computer Reservation System (CRS). A revolutionary computerised system that could match passengers to seats, permit speedy communications among airlines, contain information about seat availability, and print passengers itineraries and boarding passes directly in the travel agent office. Finally, CRS was leveraged into Global Distribution Systems (GDS).

[82] Source: https://www.sabre.com/files/Sabre-History.pdf

[83] Nowadays, SABRE is the second most important GDS in the world, after Amadeus (founded by Air France, Iberia, Lufthansa and SAS). The third one is Travelport, the umbrella company for the Apollo, Galileo, and Worldspan GDS.

system used as an inventory electronic system to store and retrieve passenger informations related to air travel, as well as hotels and rail.

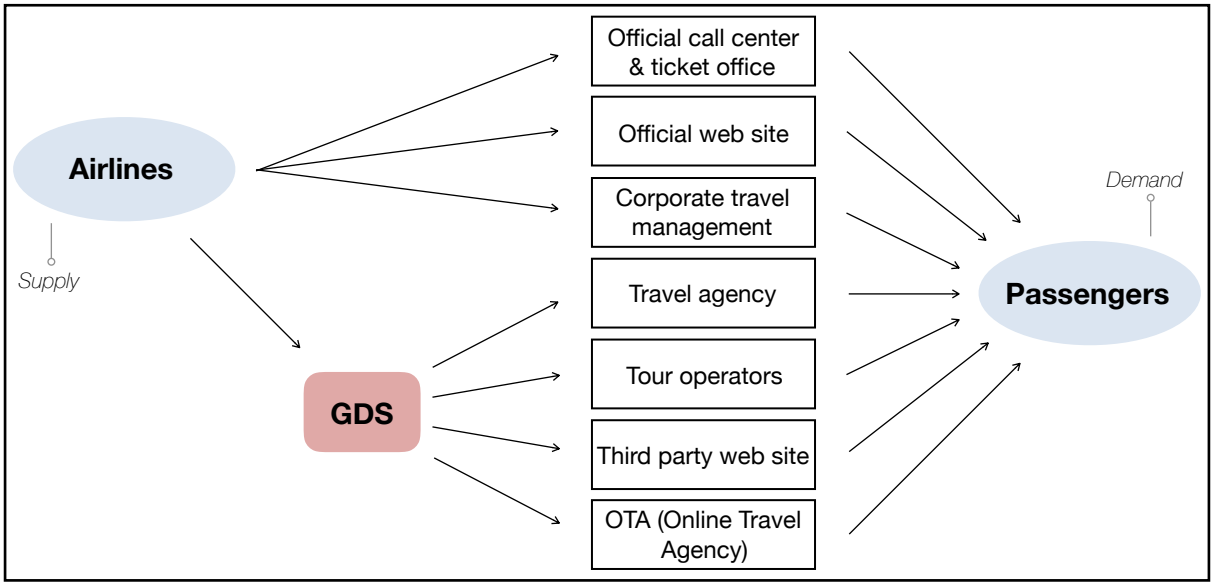


FIG 3.2 *Airline Distribution Channels*

Global Distribution System is nothing more than another cost that airlines try to bypass, and a partial step on this direction was made thanks to internet innovation. That is why most of the low cost use only their website as distribution channel and, moreover, some of them have never considered to start using a GDS. However, in the recent years, the most important low cost carrier embraced global distribution system platforms to distribute their services just because it represents a low-cost strategy for penetrating the high-yield business travel market and competing with the full service carrier.

4. Markets trends

As already stated before, the aviation industry and international market are constantly evolving because it is inevitably linked to many fundamentals of the world economy, whose influence has visible repercussions in every other aspect of our modern society. Especially for this dynamic industry, understanding how the market will evolve is a fundamental activity.

In recent years, the consolidation of the market[84], a trend that began after the deregulation and continued more and more strongly to curb the bankruptcy phenomenon of new and historic airline companies, saw the emergence of large groups of airlines. In Europe, Lufthansa Group and IAG are the groups that share the largest share of the market, followed a short distance by Air France-KLM, not to mention the low cost carriers such as Ryanair and easyJet.

During a CNBC interview in February 2017, Warren Buffet, the oracle of Ohama or, more simply, the number one investor in Wall Street and the second richest man in the world according to Forbes[85], admitted to investing in air transport sector[86]. Back in May 2013, during the annual shareholder meeting, he dismissed airlines sector stating that it has "been a death trap for investors."[87] Moreover, he had never took in consideration to invest in this sector because he thought that "[…] there have been almost 100 airline bankruptcies. I mean, that is a lot […] It's been a disaster for capital."

Berkshire Hathaway, the holding company run by Mr. Buffet, revealed in an late 2016 SEC filing it had taken a stake in American Airlines, United Continental Holdings, and Southwest Airlines, became one of the largest investors in those airlines'. Andando contro a quando affermato qualche anno prima. Warren Buffet, through a Berkshire Hathaway regulatory filing, said that he holds: 49.3 million American Airlines' shares worth US$ 2.08 billion, 47.7 million Southwest Airlines' shares worth US$ 2.57 billion, 55 million Delta Air Lines' shares worth US$ 2.53 billion, and 28.2 million shares in United, worth US$ 1.72 billion[8889].

A part from these financial data, Boeing Company identifies three aspects of the macro environment that influence the aircrafts demand trends:

- The demand fro air travel by passengers;
- The legislative and technological environment, and their evolutions;

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[84] See Appendix 1.1 for details

[85] Source: (Forbes) https://www.forbes.com/sites/kerryadolan/2017/03/20/forbes-2017-billionaires-list-meet-the-richest-people-on-the-planet/#14e814f462ff

[86] Source: (CNBC) https://www.cnbc.com/2017/02/27/warren-buffett-investing-why-i-jumped-into-airline-stocks.html

[87] Source: (Forbes) https://www.forbes.com/sites/antoinegara/2016/11/14/warren-buffett-comes-around-on-airlines-after-calling-them-a-death-trap-for-investors/#402fcda6513f

[88] Source: (NCBC) https://www.cnbc.com/2017/11/14/warren-buffett-tktk-airline-investment-.html

[89] Source: (Thomson Reuters) https://www.reuters.com/article/us-investment-funds-buffett/buffetts-berkshire-boosts-american-southwest-airline-bets-sheds-fox-idUSKCN18B2LH

· The airlines' strategies and service offer planning to the market.

Every year Boeing updates its forecasts and makes them public through the "Current Market Outlook 2017-2036" report[90]. According to the company, passenger traffic in the last five years has grown to an average of 6.2% per year. One of the factors that has driven this growth is the decrease in airlines' fare. The report speaks of an average annual decrease of 0.9%; a trend that has seen low cost and ultra low cost airlines as protagonists. Especially the latter, thanks to a rigorous research of cost efficiency, have gained consensus and market share, and undermining the position of traditional airlines and their low cost cousins at the same time (Bachwich & Wittman, 2017). This phenomenon is clearly visible in the American market and a little less in Europe. History explains it. In Europe, low cost airlines have studied and rebuilt the business model of the first low cost airlines, such as Southwest Airlines, born in the United States. Born as an ultra low-cost airline (ULCC), to date it has moved its business model to a decidedly lower cost orientation (one of the many possible examples of this variance from the ULCC model was the decision to remove the on-board toilets for payment, making them usable for free). Examples of ultra low-cost US carrier are: Frontier, Spirit and Allegiant. A valuable example is Wizz Air, the largest low-cost airline in Central and Eastern Europe and one of Europe's leading ultra low-cost airlines[91].

Always referring to the reduction in fares and the contrasts in the growth of LLC, a new business model was officially born in Europe. A new category of airline: the low-cost long-haul (LCLH). The first example is Norwegian Air. It first brought the transoceanic flights to the United States on the market at low cost prices. Even here Boeing Company is an accomplice, its Boeing B-787 Dreamliner has a level of efficiency today unmatched even considering the operating range that the same can guarantee. The 787 Dreamliner took a step forward in current network systems

[90] Boeing. Current market outlook 2017-2036. Retrieved from; http://www.boeing.com/resources/boeingdotcom/commercial/market/current-market-outlook-2017/assets/downloads/2017-cmo-6-19.pdf

[91] Source: (Wizz Air website) http://corporate.wizzair.com/en-GB/investor_relations/main

management[92]. Thanks to this aircraft, long-haul direct flights with a relatively low capacity have returned to profitability. Norwegian Airline in mid-2017 started to advertise its direct flights from Rome to New York, Los Angeles and San Francisco from € 179 or less. A tariff proposal that can be less than half the cost of an average ticket. Norwegian is not alone[93], the match is also Air Asia, LEVEL[94] and JOON[95], a wholly owned subsidiary of the multinational airline holding company International Airlines Group, IAG. According to the experts this new business model will shake up market and will be the trend that will push the sector in the near future[96] [97] [98], assisted by a general and continuous growth of the demand, carried again by passengers from emerging countries. In fact, the World Bank currently estimates that GDP will grow faster in the "Emerging Markets and Developing Economies" (EMDE) than in high-income countries.

In its "Global Economic Prospects" forecasts global economic growth to edge up to 3.1 percent in 2018. In particular, growth in advanced economies is expected to moderate slightly to 2.2 percent in 2018, while it is projected to strengthen to 4.5 percent in 2018 in emerging market and developing economies[99].

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[92] According to the author new aircrafts like the Boening B-787 Dreamliner could give to the airlines the possibility to make a step forward towards a new, hybrid network system management. A mix, somehow, between the hub and spoke system and the point to point one. The A-380, the airbus flagship unit, clearly focus on hub and spoke system. Its gigantic aircrafts, which could carry up to 868 passengers (544 on a typical cabin arrangement basis) focus on hub and spoke system. Huge aircraft for massive airport. Boeing strategy has been a little bit different. They have focused on efficiency rather than passenger number. The Boeing B-787 can carry up to 330, it has exceptional fuel efficiency, lower fees, lower maintenance costs, faster cruise speed, more cargo revenue and an average more flying days. Basically it is a smaller long-haul iper-efficient aircraft for new nonstop routes. It goes beyond the hub and spoke idea.
Source: Boeing B-787 website page. http://www.boeing.com/commercial/787/#/technical-specs
Source: iflya380.com website. https://www.iflya380.com/a380-specifications.html

[93] Source: http://www.independent.co.uk/travel/news-and-advice/level-british-airways-sister-airline-transatlantic-flight-fares-prices-norwegian-lower-rivals-a7639771.html

[94] It is a subsidiary of International Airlines Group (IAG). It operates in low-cost long-haul routes market to compete with Norwegian and JOON.
Why fly Level? Official website. https://www.flylevel.com/en/why-level/overview

[95] It is a subsidiary of Air France and it is aimed at young people. Joon, based in Paris' Charles de Gaulle Airport, serves destination which face heavy competition from low-cost carriers in the medium haul route. In summer 2018, it will start operating in some long-haul route, as new trends want. It will obviously compete with Norwegian and LEVEL.

[96] Source: (Thomson Reuters) https://www.reuters.com/article/us-airlines-iata-longhaul/low-cost-airlines-shake-up-market-for-long-haul-flights-idUSKBN18Y2S7

[97] Source: (Forbes) https://www.forbes.com/sites/mikeboyd/2017/07/10/the-airline-industry-a-new-disruptive-economic-model-is-emerging/#686536cd412a

[98] IATA. The Future of Airline Distribution, 2016-2021. Retrieved from: https://www.iata.org/whatwedo/airline-distribution/ndc/Documents/ndc-future-airline-distribution-report.pdf

[99] The World Bank Global Economic Prospects. (January 2018). Retrieved from http://www.worldbank.org/en/publication/global-economic-prospects

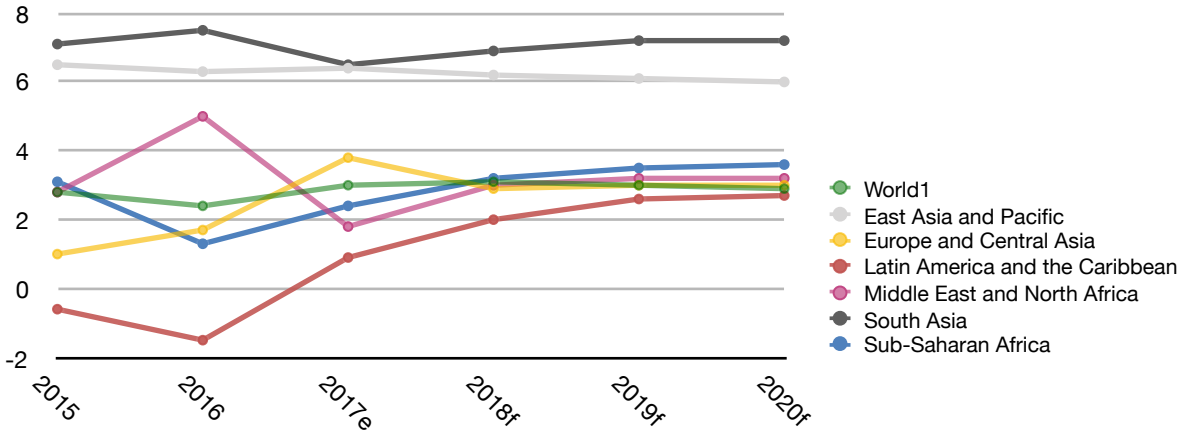

FIG 3.3 *Global Economic Prospects (January 2018)*
Source: World Bank

According to PWC "2017 Commercial Aviation Trends", these are countries where airlines should invest in "[…] making equity investments to give airlines a seat at the table in growth markets with high barriers to entry and position them as preferred partners in the expansion plans of the airlines in which they invest"[100].

For details appendix 3.2 where are displayed a comprehensive analysis of latest economic and financial overview and world bank future forecast.

5. The European market case

The European market sees the succession of three different trends. Traditional, or full-service, companies are focused on long-haul routes which are the most profitable market for them at the moment. Low-cost airlines continue to focus on short and medium-range routes and, as seen before, some of them are shyly facing the long haul ones. The third trend is the combination of these two from a strategic fleet planning point of view. A research by Cattaneo et al (2017), conducted on the evolution of the so-called "passenger self-connections" in the intra-European air transport market between 2006 and 2016, found that the number of flights fell by 0.8% while the number of onboard seats has increased by almost 23%. This is the consequence of the trends described above. The traditional companies aim at a reorganisation and downsizing of the fleet in favour of larger aircraft, with a higher

[100] Kletzel, J. & Terry, B. 2017 Commercial Aviation Trends. PWC
Retrieved from: https://www.strategyand.pwc.com/trend/2017-commercial-aviation-trends

load capacity. At the same time almost all the LCCs aim at the efficiency brought by the use of a large number of aircraft, all of the same model (Ryanair uses only Boeing B-737 while the direct competitor, easyJet, operates with A320 aircraft of the European consortium - Airbus). With the strengthening of low-cost companies, the number of direct connections between two airports in the European market has increased from 5790 in 2006 to 5982 in 2016. Another possible explanation derives from the increase in the average density of seats inside the aircraft cabins (Cattaneo et al. 2017). The results found by Cattaneo and his colleagues show the increase in the LCCs' market share, in terms of available seats, from 31.7% in 2006 to 45% in 2016. On the contrary, it is possible to note the decline among traditional companies. In this regard, among the alliances on the market (Star Alliance, One world and Sky Team), the record is up to Sky Team, showing a 5% drop in terms of available seats (from 16.7% in 2006 to 11.7% ten years later). The main reasons for this reorganisation are two: 1) the crisis of Alitalia and its management strategies of disempowerment of the company and its choice to de-hubbing from Milano-Malpensa airport, and 2) the Air France-KLM strategy to focus more on its long-haul flights. The data found also clarify the percentage of direct connections guaranteed by both types of companies. On the one hand, airline alliances lost 6.7 points between 2006 and 2016 (from 38.7% to 32%) while there was an increase on the low-cost side. Specifically, Ryanair and easyJet reached 28.6% from 14.3% in 2006. The connections with an intermediate stopover, therefore a strategy that embraces the hub and poke network system of the full-service companies, has risen from 25.2% to 26.2% . Even in this case, this trend was followed by the number of daily connections. The research by Cattaneo et al (2017) and by Malighetti et al (2008) confirmed the reduction in the number of daily flights from 9532 to 9004.

A research conducted by Dobruszkes et al. (2017) aims instead to review the classic idea that sees a low-cost company take possession of smaller or regional airports. Also in 2013 Dobruszkes found that two different trends were taking place in Europe. On the one hand there was Ryanair's strategy to take advantage of smaller airports (in London, served by as many as six airports, the choice fell on Stansted) and regional (in Veneto the choice fell on Treviso and not on Venice). On the other hand, easyJet has concentrated a part of its network management towards the

main airports (it has chosen Venice Marco Polo and not Treviso). To serve the city of London, it has instead opted for London Gatwick and London Luton (respectively second and fourth most congested airport in the city and second and fifth in the United Kingdom). In 2013, Ison and Budd also noticed that, among the most important LCCs, only Ryanair was continuing to focus on the strategy of channeling its air traffic to regional airports to keep airline's costs as low as possibile. To date, the strategy of the main LCC has been revised. In Europe, as well as in the United States, the LCCs are starting to look towards more important airports. Thank to AirTran acquisition[101], the American low-cost carrier Southwest Airlines has acquired important slots at the Atlanta airport, the most congested airport in the world, and historical hub of the full-service airline Delta Air Lines. Ryanair, in Italy, has officially landed in Rome Fiumicino and Venice Marco Polo (first and fifth most congested airport in Italy in 2017[102]. As already mentioned, the European market is treading the footsteps left by the US market in terms of merger and acquisitions operations. In the United States, these operations have given rise to a strongly gathered market around five major airlines, three full service and two low-cost airlines: American Airlines, Delta Air Lines, United, Southwest Airlines and Jetblue. These five together hold 90% of the market. Also in Europe there are 5 companies or strong groups, Lufthansa, IAG, Air France-KLM, Ryanair and easyJet but, together, they do not reach 50% market share (OAG data). The consolidation of the European market is likely to travel at a slower pace than that sustained by the US but is having the same effects. In 2017, three of the most important airline companies, Air Berlin, Monarch Airlines and Alitalia (all ranked second in their respective country of origin - in order: Germany, United Kingdom and Italy) declared bankruptcy. Alitalia, which will be analysed in the next chapter, is perhaps the most serious and emblematic case. Developed as one of the best companies in Europe and in the world, over the years has lost ground going bankrupt for the three time in its recent history and risen from its ashes, with the wonder of all. As previously stated, air transport is renowned not to be as profitable as many other sectors, but, in return, it is a fairly stable market that does not know considerable volatility. Airline companies went into bankruptcy are often absorbed by larger firms to which

[101] Source: CAPA - https://centreforaviation.com/insights/analysis/southwest-airlines-closes-the-chapter-on-airtran-whats-next-for-the-middle-aged-lcc-205437

[102] Source: ASSAEROPORTI - http://www.assaeroporti.com/statistiche_201712/

airplanes and airport slots are certainly convenient for expanding their market shares. It can be said, somehow, that the big groups are "too big too fail". Concentration is beneficial to an airline's operations because it manages to reach an higher degree of economies of scale and, in some cases, economies of scope.

CHAPTER FOUR

The Ali-Italia situation

Let's start from the basics. Numbers are not enough to evaluate the health of a company. It is not enough to scour the year-end financial statements to understand how well, or badly, a certain company has operated.

This dissertation has a precise lineup, follows a very specific order and linked, in this case, to all the factors that influence an airline. We have first analysed the sector as widely as possible and then started to channel more and more the discourse towards details.

In the second chapter the costs and revenues were analysed, entering into the specifics of some particular items, which can not be found in the balance sheet of many other companies in high sectors. In the third chapter we talked about the air transport market, its external and internal aspects.

The fourth chapter will go into even more detail with regard to factors within the sector, going to analyse the budgets and strategies of the major airlines in Europe, comparing them with the situation of Alitalia.

As the last chapter requires, even the precedents have in any case respected the rule of carrying a large number of examples to improve understanding and make this dissertation the most possible.

1. Competitors

1.1 Italian registered airlines

Registered in Italy there are nine airlines that hold Air Transport Operating License and COA according to the European JAR-OPS legislation (authorised to use aircraft with more than 19 seats). Starting from the most important Alitalia Società Aerea Italiana and its subsidiary Alitalia Cityliner, it is possible to find six main carriers:

Air Dolomiti[103], Blue Panorama Airlines[104], Ernest[105], Meridiana Fly[106], Mistral Air[107], and Neos[108].

Airlines	Revenue *('16)* *in million €*	Passengers *('16)* *in million*	Destinations	Aircrafts
Alitalia **Alitalia Cityliner**	-	22,6	*Europe, Alghero, Ancona, Bari, Bologna, Brindisi, Cagliari, Catania, Florence, Genoa, Lamezia Terme, Milan, Naples, Pescara, Rome, Turin, Trieste, Palermo, Venice, Verona, New York, Miami, Los Angeles, Havana , Mexico City, Sao Paulo, Santiago, Tokyo, Seoul, Beijing, Malé, Tel Aviv, Cairo, Tenerife, Casablanca, Oran, Tunis, Algiers*	20 Embraer 175/95 22 Airbus 319 44 Airbus 320 13 Airbus 321 14 Airbus 330 11 Boeing 777
Air Dolomiti	132 (2015)	1,7	*Feeding to Munich Airport (Lufthansa Group HUB) from the main Italian airports*	11 Embraer 195
Blue Panorama	240	~1	*Jamaica, Mexico, Dominican Republic, Cuba, Albania, Greece, Pantelleria, Lampedusa*	3 Boeing 767 8 Boeing 737
Ernest	-	-	*Tirana, Kiev, Lviv, Bergamo, Bologna, Cuneo, Florence, Malpensa, Naples, Pisa, Venice, Verona*	1 Airbus 319 1 Airbus 320
Meridiana	410 (2015)	2,8 (2015)	*Sardinia, Canary Islands, Balearic Islands, Greece, Red Sea, New York, Miami, Moscow, Cairo, Mauritius, Kenya, Zanzibar, Senegal, Madagascar, Nigeria, Ghana, Cuba, Brazil, Cape Verde, Dominican Republic*	1 MD82 8 Boeing 737 4 Boeing 767
Mistral Air	81,5	300 ~400 *(thousand)*	*Pescara, Catania, Palermo, Cagliari, Tirana, Bari, Naples, Brindisi, Lampedusa, Trapani*	1 Boeing 737 5 ATR 72 2 ATR 72 Cargo
Neos SpA	274	1,1	*Cagliari, Lamezia Terme, Lampedusa, Catania, Olbia, Brindisi, Skiathos, Kos, Rhodes, Karpathos, Crete, Mykonos, Santorini, Thessaloniki, Ibiza, Palma de Mallorca, Menorca, Malaga, Sal, Boavista, Sharm El Sheikh, Marsa Alam, Marsa Matrouh, Tenerife, Lanzarote, Las Palmas, Fuerteventura, Tel Aviv, Havana, Cayo Largo, Holguin, Varadero, Camaguey, Montego Bay, Mombasa, Nosy Be, Malè, Cancun, La Romana, Samaná, Pointe à Pitre, Zanzibar, Salalah , Freeport, Antigua, Nanjing, Phuket, Phu Quoc*	6 Boeing 737 3 Boeing 767 1 Boeing 787

[103] Subsidiary company 100% controlled by the Lufthansa group since 2003.

[104] Acquired by UVET group at the end of 2017.

[105] Operations started on June 1, 2017

[106] Owned by Qatar Airways for 49% and for the remaining 51% by Alisarda - the historic airline that then changed its name to Meridiana. The company recently acquired Eurofly and Air Italy. It also has a partnership with British Airways and the Romanian company Blue Air founded in 2004.

[107] Born from the passion for the flight of Bud Spencer, he founded it in 1974 until the free transfer to TNT in the 90s. Poste Italiane took over 100% of the property in two tranches, in 2002 and 2005. It is one of the leading Italian aircraft operators in the charter and short and medium-haul lines sector, it also operates in freight and mail transport.
Net loss 2016: € -4 million

[108] Owned by the Aliptour group

1.2 Foreign airlines in the Italian market

The commitment of foreign airlines operating on routes within the Italian market is still marginal. Only the low-cost carriers easyJet, Ryanair, and Volotea remain to remove percentage of market share to the Italians. A commitment that seems to be on the increase seen in the situation in which Alitalia is neglecting the difficulties of Ryanair in the last quarter of 2017[109]. easyJet aims to increase its market share in Italy expecting to close 2018 with an increase in passengers transported to 9 %. Among the new features announced there is also the opening of the company to two new airports, Genoa and Ancona and the dispatch of three new aircraft based in Italy, two in Venice and one in Naples[110]. It is then up to David O'Brien, Ryanair's chief commercial officer, to take stock of the company's situation in Italy. Interviewed by the “Corriere della Sera", O'Brien said: "The results are very good and we will grow further by 10% in Bergamo and Malpensa, opening new routes. We have good relations with the leaders of both airports.

In Orio al Serio we will have 86 routes next summer, Heathrow has 88 in Europe: this is to say how much we are investing. In the period April 2018-March 2019, we will transport 39 million passengers to and from Italy, a record. For next summer there will be 48 new routes from your country for a total of 430”[111]. All this after having already invested one billion euros in the Italian market during the 2017.

A summary of what has just been said can be had by looking at the chart below. The highest line shows how many passengers have been trapped inside the Italian borders. The lower one, instead, shows the continuous collapse of the companies registered in Italy in the intra-market transponder. A growth due in part to the deregulation but, without a shadow of doubt, the failure to affirm the airlines marked by our flag (excluding Air Dolomiti) and, in particular, Alitalia.

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[109] In September, Ryanair's press release announces the cancellation, for an initial 2-month period of 2,100 flights, when fully operational. Immediately after another release announced the cut of 34 European routes, of which 11 Italian (7 on the airport of Trapani). In September, however, the news that easyJet decided to definitively cancel its services on the Milan Malpensa-Rome Fiumicino route, a route no longer profitable given the high-speed competition proposed by the Ferrovie dello Stato and by Italo, an Italian company that saw in the market liberalization launched in 2012 a good source of growth and profit. In some ways a road known years before by the air transport industry.

[110] Source: http://www.ilsole24ore.com/art/finanza-e-mercati/2017-12-19/easyjet-investe-italia-e-punta-alitalia--141258.shtml?uuid=AEAuWjUD

[111] Source: http://www.corriere.it/cronache/17_novembre_21/ryanair-investe-italia-lufthansa-23483324-cefd-11e7-bf2a-292d3c6f067f.shtml

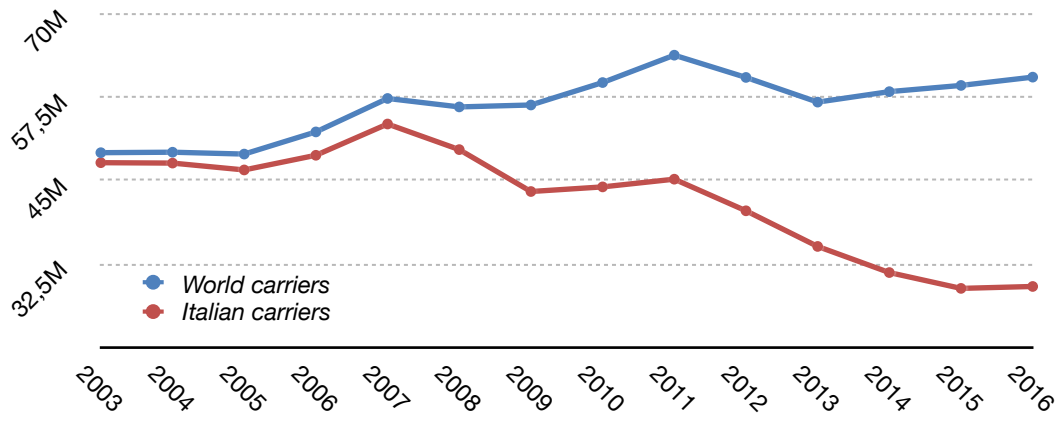

FIG 4.1 - *Passengers carried in the Italian market.*
Source: ISTAT

At international level, thus based on the incidence of Italian airlines in a context outside the national borders, we are witnessing a situation that has remained almost stable in recent years. No growth, if not a slight decrease, in the number of passengers transported by our national carriers.

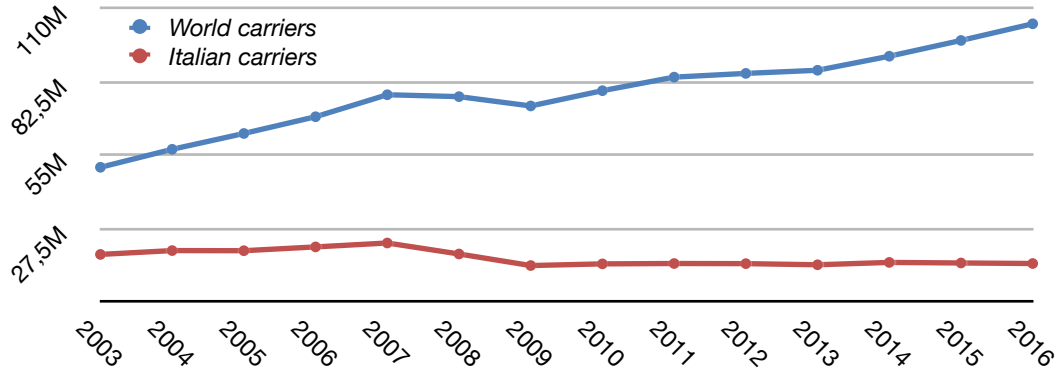

FIG 4.2 - *Passengers carried outside the Italian country borders.*
Source: ISTAT

1.3 European major airlines

The five busiest airports in Europe in 2015[112] — London Heathrow, Paris' Charles de Gaulle, Frankfurt am Main, Amsterdam's Schiphol and Madrid-Barajas — confirm which are the most important full-service airlines in the old continent[113]. All the airports mentioned above are, in fact, the respective hubs of: British Airways, Air

[112] Source: Eurostat

[113] The Economist reports that, in 2016, Istanbul airport has moved to fifth place, going to undermine the Madrid airport dropped to sixth place. Retrieved from: https://www.economist.com/blogs/gulliver/2017/02/lure-london

France, Lufthansa, KLM and Iberia. Specifically, British Airways and Iberia are part of IAG (International Airlines Group), Air France and KLM form the homonymous group, and finally Lufthansa the forefather of Lufthansa Group - the number one group in Europe and among the first in the world.

Immediately below we find Turkish Airlines and Aeroflot (CAPA estimate) in fifth position. But, as it is now understood, we must come to terms with low-cost companies. In 2017 Ryanair is second place off just from Lufthansa. easyJet, however, stops at the fifth position between the Franco-Belgian group and the Turkish national airline. According to CAPA estimates, Alitalia will place only in the thirteenth position[114].

As we have already analysed in the third chapter, the intercontinental routes - the most profitable for traditional companies like Alitalia - have started to attract the attention of low-cost companies in two different ways. On the one hand, Norwegian, for example, which is investing in long-haul aircraft of the latest generation (see Boeing Dreamliner 787), on the other Ryanair and easyJet, which at least initially aim at partnerships with airlines with aircraft for the routes longer.

Specifically, both have made available the possibility to book on their websites low cost intercontinental flights operated by Air Europa for Ryanair. For easyJet, although to date it is already possible to book on the site of the same this kind of flights operated by the company parter Loganair, the situation is more complex. Intercontinental flights are not the only ones.

In September 2017, easyJet, Norwegian, WestJet and Loganair teaming up with Gatwick airport to offer a sort-of network that, they hope, will rival the network carriers and their hubs[115] [116]. The idea behind this initiative, the "easyJet worldwide", aims at coordinating the booking through a unified website, that is, the creation of a physical hub, the London Gatwick airport, and a hub "in the clouds": the website[117].

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[114] CAPA. Europe's Top 20 airline groups by passengers 2017; Lufthansa wrests top spot from Ryanair. Retrieved from: https://centreforaviation.com/insights/analysis/europes-top-20-airline-groups-by-passengers-2017-lufthansa-wrests-top-spot-from-ryanair-394211

[115] The Independent. (September 2017). easyJet worldwide: budget airlines' idea to team up at gatwick airport is revolutionising the aviation industry. Retrieved from: http://www.independent.co.uk/travel/news-and-advice/easyjet-worldwide-flights-gatwick-airport-norwegian-westjet-loganair-budget-airlines-long-haul-a7948841.html

[116] easyJet worldwide official web page on easyJet website: http://www.easyjet.com/en/worldwide

[117] Official website: https://worldwide.easyjet.com

What should be of more concern to Alitalia's management and commissioners, and beyond, is the desire to set up a second hub at Milan Malpensa airport. In other words, easyJet will act as a feeder for low-cost long-haul companies (LCLH) partners' traffic at the London Gatwick and Milan Malpensa airports. Alitalia, now out of Malpensa, will be held in a tight grip by several fronts, from which it will be difficult to get out.

It should be emphasised that appendix 3.1 clarifies how the groups we have spoken about have been formed and will be analysed. It clarifies most of the merger, acquisition and spin-off operations (rare cases) that have affected dozens of European airlines over the years. It should be remembered that this phenomenon has intensified, if not even started, by the regulation of the sector starting from the late 90s.

1.4 A financial perspective

The analysis will now focus on Alitalia, Lufthansa Group, IAG, Air France-KLM, and Ryanair. So far we have talked about the strategies put in place by the respective management and how the market is not static but also dynamic in the face of new possibilities. Immediately below you will enter the specific going to represent - through the use of simple but effective tables - the financial situation. The data emerged from the analysis of the balance sheets of the last two years have been joined together to allow the results collected to be analysed more easily and intuitively.

The data with which the following tables were compiled were collected from the official financial statements of the companies under study, except Alitalia. The latter, not being listed on the stock exchange, is not obliged to publicly provide its financial statements. The data were then taken from the AIDA database, guaranteed for use by the Ca 'Foscari students, and by the official press release dated 29 April 2016[118].

[118] Alitalia official press release. Alitalia riduce sensibilmente di € 381milioni le perdite nel 2015 Confermata profittabilità entro il 2017 grazie a rilevanti performance del 2015. Retrieved from: http://corporate.alitalia.it/static/upload/ec1/ec1e8b22853050dcdc4f01630c6ad19f.pdf

It should also be noted that Alitalia has not published the financial statements for the fiscal year 2016, a decision taken by the extraordinary commissioners in office since May 2017.

In the continuation of this chapter, the data filtered by the previous top management will be analysed. The empty cells are such because no precise and reliable data has been found valid for implementation in the analysis.

For this reason they have not been included in these tables but are still available in Appendix 4.1

EBITDA/EBITDAR [2]	*-328*		*3,395*	*4,065*	*3,414*	*3,787*	*4,581*	*4,301*	*1,887*	*2,031*
[2] EBITDAR stands for Earnings Before Interest, Taxation, Depreciation, Amortization and Rent.										
This is used over EBITDA when the firm in question has extremely high rental expenditure (ex. Aircrafts)										

AMORTISATION, DEPRECIATION (€ million)										
	Alitalia		**LH Group**		**AF-KLM**		**IAG**		**Ryanair**	
	2015	2016	2015	2016	2015	2016	2015	2016	2016	2017
AMORTISATION & DEPRECIATION	**91.4**		**1.715**	**1.769**	**1.632**	**1.665**	**1,307**	**1,287**	**427,3**	**497,5**

Operating profit (EBIT)	*-419*		*1,676*	*2,275*	*1,08*	*1,116*	*2,484*	*2,318*	*1,460*	*1,534*

FINANCIAL POSITION, EXTRAORDINARY ITEMS & TAXES (€ million)										
	Alitalia		**LH Group**		**AF-KLM**		**IAG**		**Ryanair**	
	2015	2016	2015	2016	2015	2016	2015	2016	2016	2017
FINANCIAL RESULTS	**-35.9**		**471**	**58**	**-914**	**-293**	**-517**	**-122**	**261.8**	**-63.7**
EXTRAORDINARY ITEMS	**43**		**1,777**	**1,476**	**888**	**1,415**	**509**	**-1,698**		
TAXES	**-4.4**		**-304**	**-445**	**-30**	**-294**	**-285**	**-410**	**-162.8**	**-154.4**

END OF THE YEAR - PROFIT / LOSS (€ million)										
	Alitalia		**LH Group**		**AF-KLM**		**IAG**		**Ryanair**	
	2015	2016	2015	2016	2015	2016	2015	2016	2016	2017
NET PROFIT/LOSS OF THE YEAR	***-199**		**1,698**	**1,776**	**127**	**792**	**2,025**	**254**	**1.559**	**1.316**

CONSOLIDATED INCOME STATEMENT ANALYSIS

REVENUE (€ million)

	Alitalia		LH Group		AF-KLM		IAG		Ryanair	
	2015	2016	2015	2016	2015	2016	2015	2016	2016	2017
Passenger revenue	2,821		22,795	22,256	19,707	19,682	20,330	19,924	4,967	4,868
Cargo revenue	-	-	2,711	2,405	2,263	2,069	1,094	1,022	-	-
Ancillary revenue	-	-	-	-	-	-	-	-	1,568	1,779
Other income	401		6,550	6,999	3,719*	3,093*	1,434	1,621	-	-
END OF THE YEAR - TOTAL REVENUE (€ million)										
TOTAL REVENUE OF THE YEAR	***3,312**		**32,056**	**31,660**	**25,689**	**24,844**	**22,858**	**22,567**	**6,535**	**6,647**

* Including total revenue from Transavia, ,maintenence segment, and other.

EXPENDITURE (€ million)

	Alitalia		LH Group		AF-KLM		IAG		Ryanair	
	2015	2016	2015	2016	2015	2016	2015	2016	2016	2017
TOTAL OPERATING COST OF THE YEAR	**3,601**		**17,640**	**17,109**	**15,768**	**14,263**	**14,328**	**13,972**	**5,075**	**5,113**
of which										
Fuel and oil	-	-	*5,784*	*4,885*	*6,183*	*4,597*	*6,031*	*4,831*	*2,071*	*1,913*
Fees and charges	-	-	*5,651*	*5,736*	*1,947*	*1,900*	*1,882*	*2,151*	*1,520*	*1,453*
MRO services	-	-	*1,342*	*1,335*	*2,372*	*2,469*	*1,395*	*1,701*	*130*	*141*
Other expenses [1]	-	-	*778*	*846*	*5,266*	5,297	*5,020*	*5,289*	*1,35*	*1,61*

[1] Handling, in-flight services, lease payments sales and promotion, currency differences, IT services, etc

EMPLOYEES SITUATION

	Alitalia		LH Group		AF-KLM		IAG		Ryanair	
	2015	2016	2015	2016	2015	2016	2015	2016	2016	2017
Average employees number	***9791***		***119559***	***123287***	***86457***	***84602***	***60862***	***63387***	***10926***	***12438***
TOTAL EMPLOYEES COST (€ million)	**592,9**		**9.116**	**8.432**	**7.464**	**7.474**	**4,905**	**4,824**	**585,4**	**633**
of which										
Wages and salaries	*474,5*		*6.353*	*6.478*	*5.295*	*5.234*	*3,277*	*3,136*	*551,9*	*599,5*
Social contribution	*79,7*		*854*	*849*	*1.080*	*1.056*	*485*	*491*	*23,1*	*23*
Other expenses [1]	*38,7*		1,909	*1,105*	*1,606*	*1,660*	*1,143*	*1,197*	*10,4*	10,5

[1] Pension plansm, other benefits, travel and training costs, cost of outside staff

OPERATIONAL & STAFF RATIOS										
	Alitalia		**LH Group**		**AF-KLM**		**IAG**		**Ryanair**	
	2015	2016	2015	2016	2015	2016	2015	2016	2016	2017
ROE [1]	-78%		29,5%	25,2%	46,5%	61%	37%	4%	43,3%	29,7%
ROS [2]	-13,31%		6,3%	7,1%	0,6%	4,3%	8%	10%	26,3%	22,1%
ROA [3]	-15%		5,1%	6,5%	4,6%	4,8%	8,8%	8,4%	13%	16,9%
Equity ratio [4]	12,6%		18,0%	20,6%	1,1%	5,6%	19,5%	20,6%	32%	36,8%
Gearing [5]	342%		57,2%	37,7%	1577%	282%	50,1%	36,8%	-	5,5%
Leverage [6]	64,7%		10,3%	7,8%	18,4%	15,9%	9,8%	7,6%	-	2%
Revenue efficiency [7]	4,1%		10,6%	10,3%	0,8%	3,4%	5,7%	2,6%	1,15%	-
Revenue/employees	322.160		268.119	256.799	297.153	293.681	375.570	356.019	598.114	534.410
Staff cost/revenue	18,6%		25,2%	23,3%	29%	30%	21,4%	21,3%	8,9%	9,5%
Staff cost/employees	60.555		76.246	68.393	86.331	88.343	80.592	76.103	58.578	50.892

[1] *Net profit/loss / equity*

[2] *Profit/loss before income taxes / revenue*

[3] *Operating profit / total assets*

[4] *Equity / total assets*

[5] *Net debts / equity*

[6] *Net debts / total assets*

[7] *Cash flow / revenue*

CONSOLIDATED BALANCE SHEET ANALYSIS (€ million - *not applicable to Alitalia equity and cash data*)										
	Alitalia		**LH Group**		**AF-KLM**		**IAG**		**Ryanair**	
	2015	2016	2015	2016	2015	2016	2015	2016	2016	2017
Current assets	*1,104*		8,936	10,193	*7,545*	*7,607*	*9,089*	*9,785*	*4,821*	*4,706*
Non-current assets	*1,655*		*23,526*	*24,504*	*15,790*	*15,325*	*19,147*	*17,588*	*6,396*	*7,283*
TOTAL ASSETS	**2,759**		**32,462**	**34,697**	**23,335**	**22,932**	**28,236**	**27,373**	**11,218**	**11,989**
Current liabilites	*1,460*		*11,009*	*12,437*	*11,999*	*10,141*	*11,366*	*9,336*	*3,369*	*3,011*
Non-current liabilities	*778*		*14,180*	*16,539*	*11,063*	*11,495*	*11,336*	*12,373*	*4,252*	*4,554*
TOTAL LIABILITIES	**2,238**		**26,617**	**27,548**	**23,062**	**21,636**	**22,702**	**21,709**	**7,622**	**7,566**
TOTAL EQUITY	**521.214**		**5,845**	**7,149**	**273**	**1,296**	**5,534**	**5,664**	**3,596**	**4,423**
CASH, EQUIVALENT, INT. BEARING	451.728		996	1,138	3,104	3,938	5,856	6,428	1,259	1,224
NET DEBT	1,786		3,347	2,701	4,307	3,655	2,774	2,087	-	244,2

CONSOLIDATED TRAFFIC & GENERAL FIGURES										
	Alitalia		**LH Group**		**AF-KLM**		**IAG**		**Ryanair**	
	2015	2016	2015	2016	2015	2016	2015	2016	2016	2017
Passengers	22.100.000	22.600.000	107.679.000	109.670.000	89.900.000	93.400.000	88.333.000	100.675.000	106.400.000	120.000.000
Flights number			1.003.660	1.021.919						
ASK (in million)			273,975	286,555	276,899		272,702	298,431	87451	97909
RPK (in milliion)			220,396	226,633	235,715		221,996	243,474	81146	92383
CASK [1] (€ cent)			8,9	8,0	6,81		7,53	6,71	5,84	5,50
RRPK [2] (€ cent)			8,3	7,8	8,36		9,16	8,18	8,05	7,19
Passengers Load Factor	*76,2%		80,4%	79,1%	85,1%		81,4%	81,5%	93%	94%
Aircraft number			600	617	534	534	529	548	341	383

[1] Operating costs / ASK

[2] Operating revenue / RPK

2. A crisis written in the accounts

What are the reasons for the failure? Why has the company gone so badly in such a favourable period for the air market and for all the other carriers? Part of the answers could be found in the 2016 financial statements, which, to date, the extraordinary commissioners responsible for guiding the company to the sale or liquidation have not published.

Alitalia, writes Ugo Arrigo (professor and researcher at the Bicocca University of Milan and several times a consultant of several Italian governments), is a patient whose "[...] diagnosis has not been elaborated and the solution we are trying to implement is to definitively transfer the patient to Germany (Lufthansa Group) to be treated by the good doctors"[119]. But it is not that easy. The managing director of Lufthansa, Carsten Spohr, wrote to the Minister of Economic Development on Thursday 11 January saying that "Alitalia would need a significant restructuring before the acquisition by Lufthansa"[120]. Reliable sources close to Reuters say that Lufthansa has offered an amount close to € 300 million to acquire a good part of the fleet and half personal. The German carrier would therefore keep in operation 90-100 aircraft instead of the current 123 units.

A majestic symbol of the boom of the Italian economy after the Second World War, Alitalia has not been able to keep up with the competition for years because of a heavy cost structure compared, in particular, to low cost competitors present on the Italian territory and in the international market. In 1969 he received his first Boeing 747, becoming the first European airline to adopt a whole jet-propelled fleet[121].

These memories of a glorious past contrast with the present and the recent occurrences, no longer punctuated by innovation but by crises, by failures and by forced and poorly defined redistributions: 2009, 2015 and 2017.

From Alitalia - Linee Aeree Italiane, the historic company founded in 1947 , to Alitalia - Compagnia Aerea Italiana (a company that started operating on 13 January 2009 having acquired assets and infrastructure from the previous one company and after the absorption of Air One), ending, finally, with Alitalia - Società Aerea Italiana

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[119] Source: http://www.lavoce.info/archives/50463/alitalia-la-crisi-scritta-nei-conti/

[120] Source: REUTERS. Retrieved from: https://www.reuters.com/article/us-alitalia-m-a-lufthansa-exclusive/exclusive-lufthansa-ceo-calls-for-significant-alitalia-cuts-letter-idUSKBN1F01RW

[121] Alitalia. Corporate history. http://corporate.alitalia.it/en/history/history/index.html

(founded in 2014 with the injection of capital from Etihad which acquired the 49% of the company, and beginning to operate on January 1, 2015, only three years ago).

Although the 2016 income statement has never been made public by the extraordinary commissioners[122] — Luigi Gubitosi, Enrico Laghi and Stefano Paleari —who took the reins of the company to ferry it to the next step thanks to a bridge loan of 600 million guaranteed by the State, Ugo Arrigo writes of the existence of a document drawn up by the old management, illustrated to the labour unions on March 22nd, 2017, which shows a non-definitive version of the 2016 income statement in which it is possible to verify the essential data of the 2016 management. The data are clear.

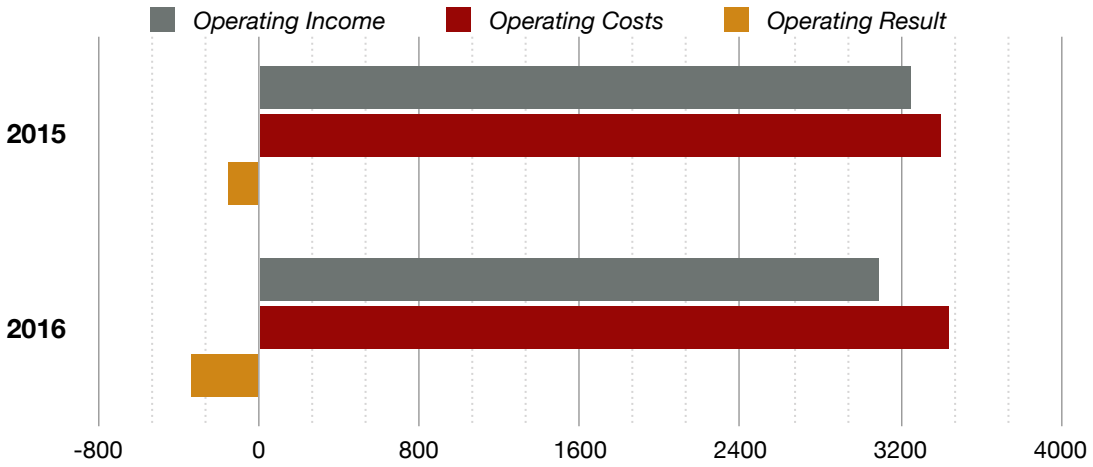

FIG 4.3 - Alitalia operating activities
Sources: Annual report 2015 & Ugo Arrigo - 2018

The net operating loss in the fiscal year 2016 amounted to 337 million euros against 149 million euros in 2015 operations.

Essentially, Alitalia's main problem lies in its inability to reduce costs. Let it be clear that it is not only a problem of the airline but, as we will see in the SWOT analysis below, there are other factors of economic importance that are absolutely

[122] The meetings ended in nothingness due to the dry negative vote given by Alitalia employees to the plan agreed between the company, and the representatives of the labour union and the Italian government. Thus it was obligatory the passage to the company's extraordinary commissioners.
The request preceded was completed on 2 May by decree of the Minister of Economic Development. The company will be declared insolvent only 9 days later.
Source: Alitalia official press release. Retrieved from: http://corporate.alitalia.it/static/upload/ali/alitalia---notice.pdf

paramount. It should also be clarified that the last few years have represented a boom in growth for the air transport sector.

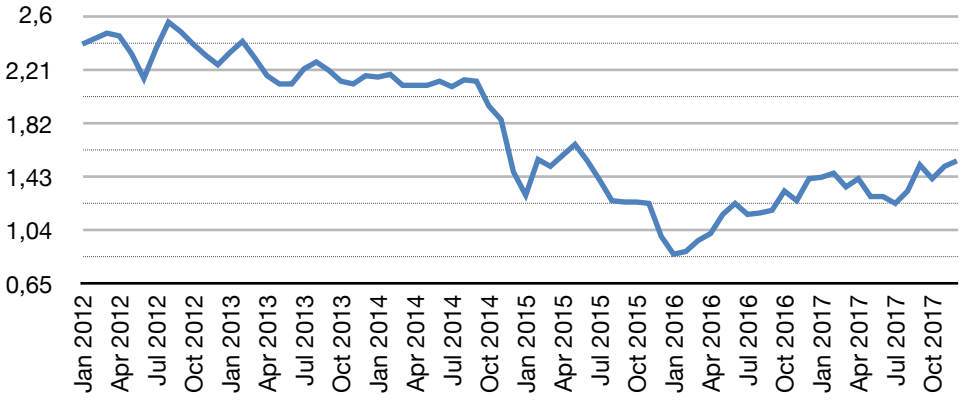

FIG 4.4 - U.S. Gulf Coast Kerosene-Type Jet Fuel Spot Price FOB (Euro per Gallon)
Source: Indexmundi

The data for 2017 have not yet been made official but IATA talks about another year of profits for the airlines and those related to 2016 will be adjusted positively.

As has already been pointed out, this trend has been guaranteed by greater combined efficiency, as can be seen in the graph above (FIG, to the significant reduction in the price of kerosene, which has ensured a more flexible cost structure.

As it is possibile to understand from the analysis carried out on the companies' balance sheets, all airlines, excluding Ryanair, which still brought the best result after Lufthansa, were able to significantly reduce operating costs, and not only, ensuring continuity of profit also in 2017.

Alitalia was not able to follow this path as shown by the document shown to the trade unions on March 22, 2017, the day on which the technical tables were opened with the same to redefine the contracts with the staff. In this regard, an official note published by the Board of Directors reports the following: "The Alitalia Board of Directors convened today and took note with regret of the decision of the workforce to not approve the pre-agreement signed on April 14th between the Company and the unions. The approval of the agreement would have unlocked € 2 billion of recapitalisation including more than € 900 million of new finance. Given the impossibility to proceed with the recapitalisation the board has decided to start

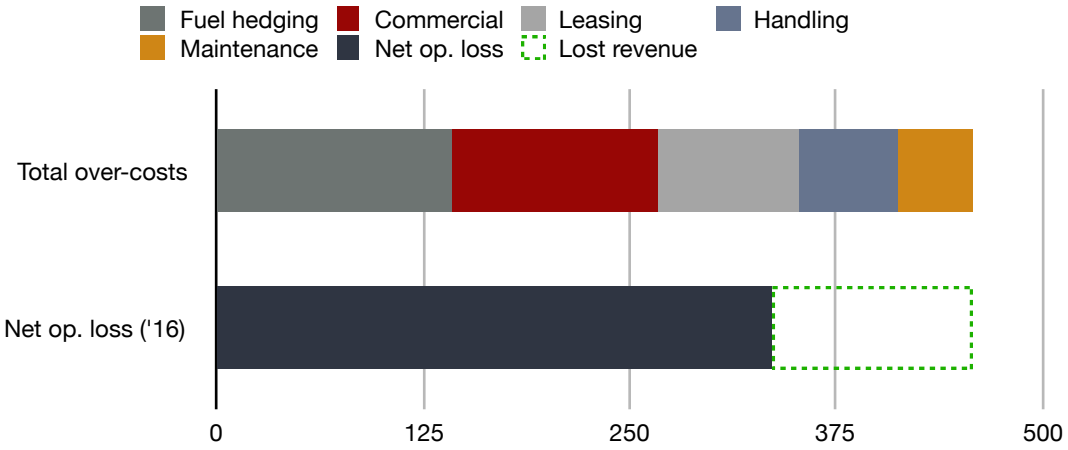

FIG 4.3 - Alitalia operating loss explained
Sources: Draft of annual report 2016
Adapted from: Ugo Arrigo - 2018

preparing the procedures provided by the law, and has convened a shareholders meeting on April 27th to deliberate on their implementation"[123].

Tightened in the grip of competitors, signatory of unfavourable contracts, a state policy that has not encouraged development and innovation for years, ditched by the same political powers that have still wanted it in business without a serious recovery strategy, ending with a old fleet (+ 19% of costs spent on maintenance) mostly leased (with an average over-cost of 36%, around € 86 million). In this situation, however, the company had to lower prices to not collapse under its own weight, worsening the deficit year by year.

Again Professor Arrigo writes: "in 2015 Alitalia spent € 721 million for fuel, of which € 52 million from losses on fuel hedging contracts that more prudent choices would have avoided. If the remaining € 669 million were reduced to the same extent as Lufthansa in 2016, Alitalia would have recorded a cost of 551 million, with a saving of € 142 million on actual expenditure of € 693 million".

Other significant operating expenses concern the commercial affairs department within the company. Comparing the data with the benchmark percentage produced by the competition, or 3.3% of the costs, the former Italian flagship carrier would have come to 7.8% in 2016 and then to an excess of € 125 million.

[123] Source: Alitalia official press release. Retrieved from: http://corporate.alitalia.it/en/media/press-releases-sai/2017-04-25.html

Worldwide airline industry	2012	2013	2014	2015	2016
Spend on air transport (US$ billion)	679	710	785	752	737
Unique city pairs	15.412	15.782	17.370	17.711	18.691
Value of tourism spend, $billion	559	590	672	665	651
Tax revenues, $billion	106	113	112	113	117
ROIC, % invested capital	3,7%	4,4%	5,9%	9,9%	9,9%
Net post-tax profits, $billion	6,1	10,6	13,7	35,9	34,8
Aircraft fleet	24.494	25.268	25.860	26.608	27.585
Passenger load factor	79%	80%	79,9%	80,3%	80,3%
Average aircraft size, seats	131	134	137	140	143

TAB 4.2 - Major economic performance of airline industry
Source: IATA reports

Going to sum all the components of over-cost it comes to an estimated amount of about € 450 - 460 million. This figure is certainly not accurate as the data, even if coming from a prominent figure within Alitalia, come from unofficial sources although reliable. As already analysed, this information can be deduced with certainty from a document presented by the old Alitalia management to the trade unions on March 22, 2017, during the negotiations that would have unexpectedly ended with the referendum rejection at the end of the following April. This document includes a non-definitive version consolidated income statement of Alitalia for 2016.

3. The Alitalia personnel: the good but mistreated side

Going straight to the point it is not a staff issue. This is what the numbers say (see page 1 for details). The average salary in 2015 just exceeded € 60 thousand per person. According to the words of the then president, Luca Cordero di Montezemolo, in July the company lost 500 thousand euro a day. According to the data provided by the AIDA database, Alitalia employees at the end of 2015 were about 9800. A brief calculation shows that the costs related to Alitalia staff are strictly in line with competitors if not even lower.

To this, it must be added that even Lufthansa, due to cost-cutting plans, had several issues coming from labour union activities during the last two years[124] [125] thanks to which its employees gain new benefits and incentives. In the 2016 income statement, Lufthansa reduced staff costs by around 7,5%, and recently it has reached an agreement with 30,000 ground staff who signed a 6% increase in salary over two years (2018 and 2019)[126], to avoid new strikes.

This has not forbidden her to stay from year to year the most important and strong European company, among the top ten in the world. It should also be emphasised that Ryanair shows the best results from this point of view in line with the low-cost business model that distinguishes the Irish company.

It should also be added that the latter also had considerable problems in the last months of 2017, the results on the budget that will close soon will show how Ryanair has faced the situation and how much the victories brought home by his employees have affected the economic results year-end. This can be seen in appendix 4.1.

4. SWOT Analysis

The SWOT analysis clarifies the situation of Alitalia and of the national market in which it operates. Italy is a small market, and a traditional airline certainly can not count on a solid market base. It is enough then to examine the economic-political situation and, in some respects, the social situation in which the country itself is involved. It certainly does not help. Besides, it can't be otherwise at the moment. In 2009, Lufthansa tried to enter in our market opening a subsidiary called "Lufthansa Italy". It only lasted two years. According to the ex company's CEO, Christoph Franz: “[…] the drop in tariffs in Europe and the high competition was not possible to create a profitable network with a different brand”.

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[124] BBC. Does Germany have a trade union problem? Retrieved from: http://www.bbc.com/news/world-europe-32733603

[125] Reuters. cancels 1,700 flights due to pilots' strike. November 2016. Retrieved from: https://www.reuters.com/article/us-lufthansa-unions/lufthansa-cancels-1700-flights-due-to-pilots-strike-idUSKBN13M0AX

[126] Reuters. Lufthansa, union agree wage deal for ground staff. February 2018. Retrieved from: https://uk.reuters.com/article/uk-lufthansa-unions/lufthansa-union-agree-wage-deal-for-ground-staff-idUKKBN1FR14Q

ALITALIA - SWOT ANALYSIS	
Strength	**Weakness**
Robust operational network base *Strong fleet base* *Highly qualified staff* *Rome Fiumicino airport* *Young regional fleet (Embraer)* *Above average quality*	*Private ownership* *Weak Italian economy* *Incompetent management* *Strong labour unions* *Focus on short-medium haul* *Low bargaining power* *High percentage of leased aircraft* *High fares compared to the competitors*
Network expansion *Positive outlook of Italian airlines industry* *Positive trend of income tourism* *Made in Italy exploitation* *Italian airport expansion (Venice)* *Long-haul fleet expansion and renovation*	*Intense regulatory conditions* *Low-cost competition* *Volatility of jet fuel prices* *European market concentration* *Low cost domestic direct flights (in Italy)* *High speed train competition*
Opportunity	**Threat**

That is the reality. Italy, especially in recent years, has experienced a strong downsizing of the economy and an increasingly burdensome taxation both for individuals and for legal entities, thus going to undermine profit and innovation. Most Italians seem to pay particular attention to the cost of the ticket. Overall, the means of transport and the quality of the service offered seem to be of little importance. This is demonstrated by the data we have analysed throughout this dissertation. In recent years, Ryanair and easyJet have successfully demonstrated that they can attract the business component of demand, and not just leisure one. Both have dedicated offers, including extra services such as fast track security checks, priority boarding, a guaranteed seat in the front rows and a check-in luggage. In addition, they have activated their own frequent flyer program. All this has not affected the true strength of these airlines. In fact, they are able to exploit the low-cost model also in these cases, proposing lower prices of the competition (the full-service carriers). For example, Ryanair is the first airline in terms of passengers in Italy and Spain. Firstly, the traditional companies tried to compete by launching their low-cost companies on the market, which have proved to be a failure (both in Europe and in America). One of the causes is the cost of personnel. Given the ties they have with the Government, traditional companies can not cut staff costs like the LCC ones. After learning the lesson, and seeing the Asian

companies (especially those coming from the Arabian Gulf) attracting more and more demand for intercontinental flights, full-service carriers have shifted their attention to long-haul routes, more profitable than domestic ones. They have improved in efficiency both from a fleet point of view and from a network management point of view.

Alitalia has remained watching, stuck between a failure and another, in the hands of incompetent managers. The so-called "courageous captains" who, according to them and former ex Prime Minister Silvio Berlusconi, saved Alitalia from sale to the French cousins of Air France-KLM, were totally inexperienced in the sector. In fact, did not last long. Etihad for its part has entered the shareholding Alitalia with 49%. An investment that has not repaid. An investment wanted by Etihad also with regard to Air Berlin, another failed airline in 2017.

SURVEY ANALYSIS

How Italians fly. Their experiences

The survey, of which it will be shown the questions and the possible answers below, had the purpose of collecting information regarding the air travels made by a group of Italians in 2017. The simple and non-formal structure has had broad consensus to reach 453 responses in one week, between February 1st and February 8th, 2018. The survey was disseminated using word of mouth and online uploads on the following Facebook groups and pages:

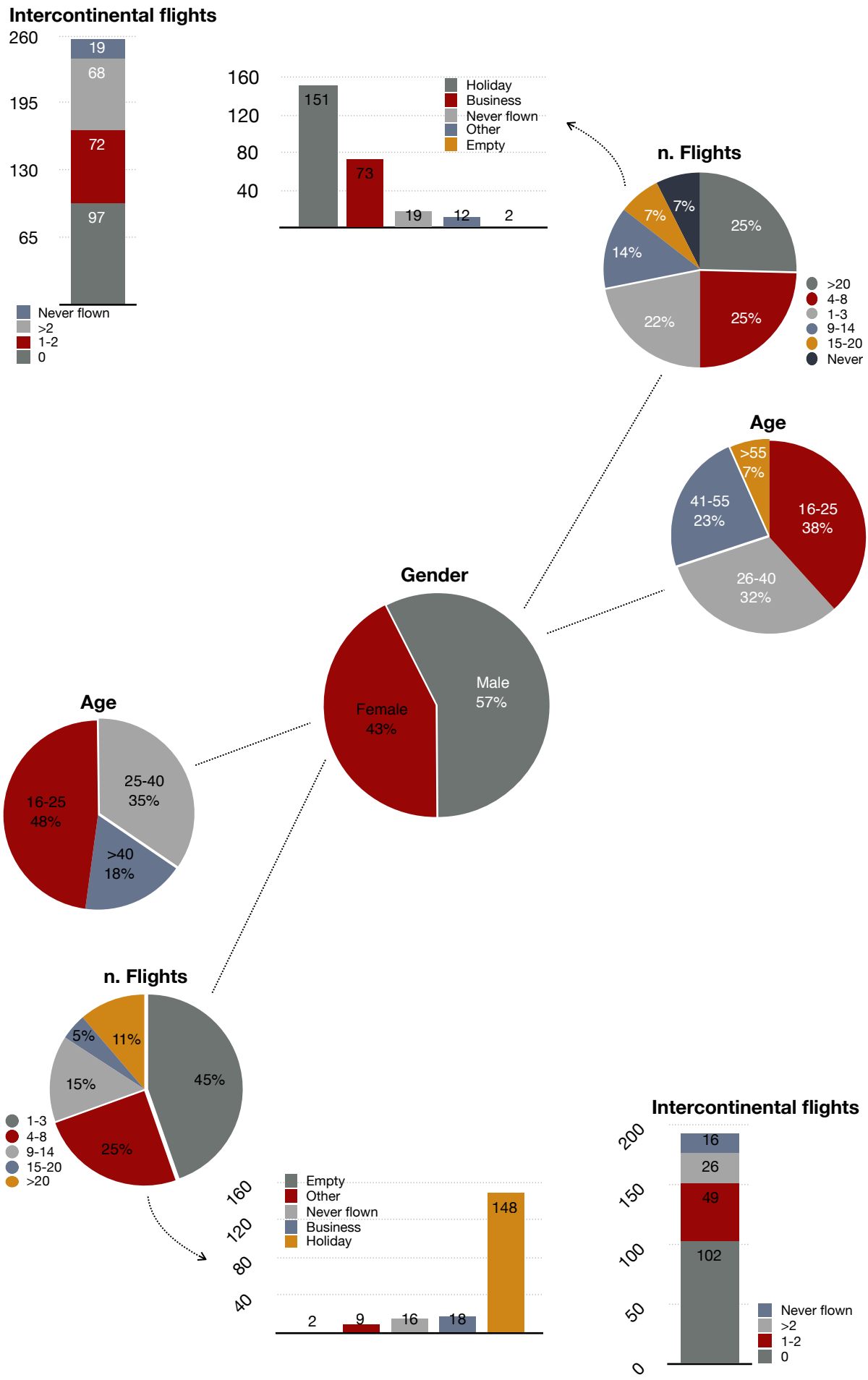
- Group: “Mondo aeroporto”
- Group: “Viaggiare in solitaria”
- Group: “Viaggi di Lusso per Poveri”
- Group: “Ca’ Foscari”
- Page: “RitardoAereo”
- Page: “AEREI”
- Page: “Ca’ Foscari - Dipartimento di Economia & Management”

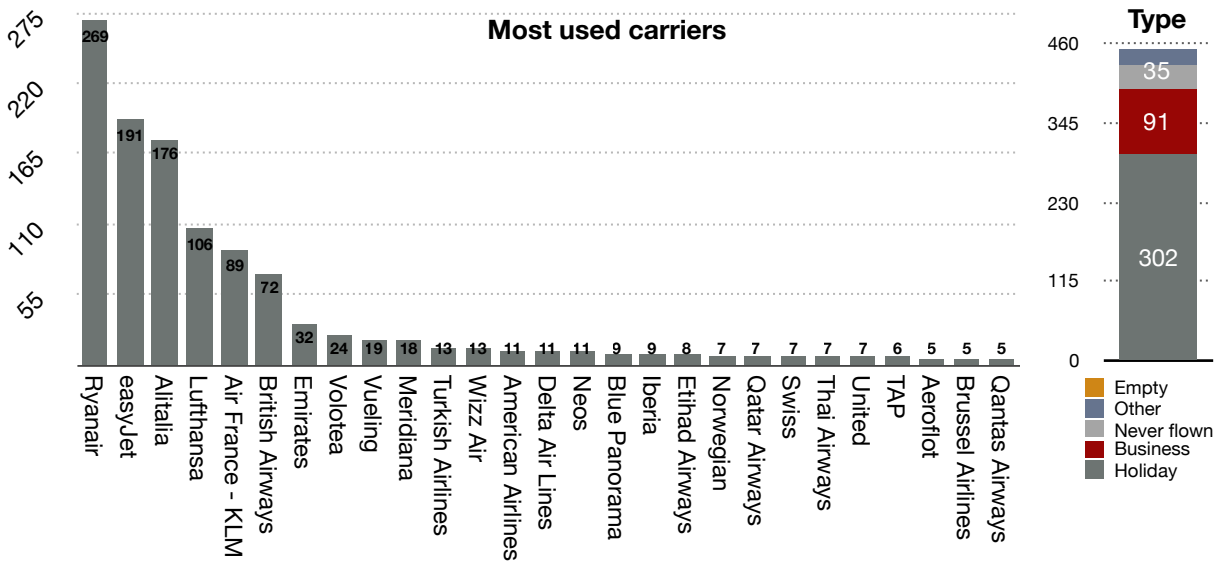
The results, which will be analysed below, have highlighted the airlines used (including Alitalia), the level of general satisfaction and, more important, how often they had chosen Alitalia. In addition, we wanted to clarify the methods of booking (so if Italians love or not the digitalisation process), what do they think about Italian airports compared with foreign ones, what they think about the whole Alitalia case, and, not to be underestimated, the percentage of the sample that thinks an Italian flag carrier is needed.

1. Questions and possible answers

Gender	
Age	
How many times did you take an airplane? (in 2017)	Never
	1-3
	4-8
	9-15
	15-20
	>20
Why did you take an airplane? (in 2017)	Business
	Holiday
	Other
How many intercontinental flights did you take? (in 2017)	
Which carrier did you take? (in 2017)	Alitalia
	Lufthansa
	British Airways
	Air France-KLM
	Ryanair
	Easyjet
	Other
Did you buy extra-services?	Yes
	No
How did you take your decision booking a flight? (in 2017)	Ticket price
	Services included in the ticket price
	It was a no-stop flight
	I do not travel low cost
	Distance between airport and city centre
	Other
Why did you not take any airplane? (in 2017)	I didn't need it
	I prefer other transportation means
	Fear
	I have never flown out of UE
	No links between cities
	Other
What types of extra-services did you buy?	

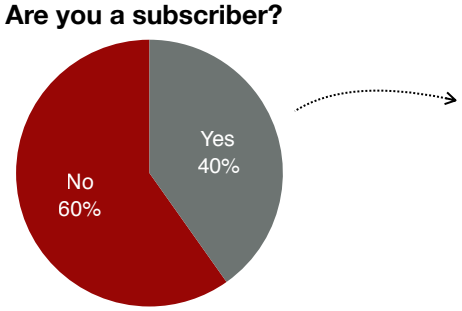
Are you a frequent flyer programs subscriber?	Yes	Which airline/airlines did you chose?	
		Do you have a "frequent flyer" credit card link to your bank account?	
		Have you ever spent your frequent flyer miles?	How?
	No		
Where did you book your flights? (in 2017)	Official website		
	Third party website		
	Travel agency		
	Official mobile app		
	Official call centre		
	Other		
How did you take with you the boarding pass?	On paper		
	Ticket printed at the airport		
	Digital solutions		
Booking (1- not satisfied, 5- completely satisfied)			
Online check-in (1- not satisfied, 5- completely satisfied)			
Check-in in aeroporto al desk (1- not satisfied, 5- completely satisfied)			
Check-in at airport with interactive display (1- not satisfied, 5- completely satisfied)			
Luggage drop at desks (1- not satisfied, 5- completely satisfied)			
Self-service luggage drop (1- not satisfied, 5- completely satisfied)			
Security checks (1- not satisfied, 5- completely satisfied)			
Boarding (1- not satisfied, 5- completely satisfied)			
Flight personnel kindness (1- not satisfied, 5- completely satisfied)			
Servizio di bordo (es. pasto, intrattenimento) (1- poco, 5- pienamente soddisfatto)			
Comfort of the seats (1- not satisfied, 5- completely satisfied)			
Luggages claim (1- not satisfied, 5- completely satisfied)			
Overall, did you feel satisfied? (1- not satisfied, 5- completely satisfied)			
Would you recognises the aircraft model and, therefore, its pros and cons?	Yes		
	No		
How many times did you chose Alitalia? (nel 2017)	Never		
	1-4 5-10 11-15 >15	Where did you book your flights? (in 2017)	
		What type of flight did you take? (in 2017)	
		How do you rate the Alitalia staff kindness? (1- low; 5 - very high)	
		How do you rate the Alitalia aircraft? (1- old; 5 - up-to-date)	
		How do you rate the aircraft cleanliness? (1- low; 5 - very high)	
		Overall, did you feel satisfied? (1- not satisfied, 5- completely satisfied)	
How do you assess the Italian airports compared to the foreign ones? (1- old; 5 - futuristic)			
Should Italy hava its own flag carrier?			
What was missing in Alitalia's strategy to compete? What would you improve?			

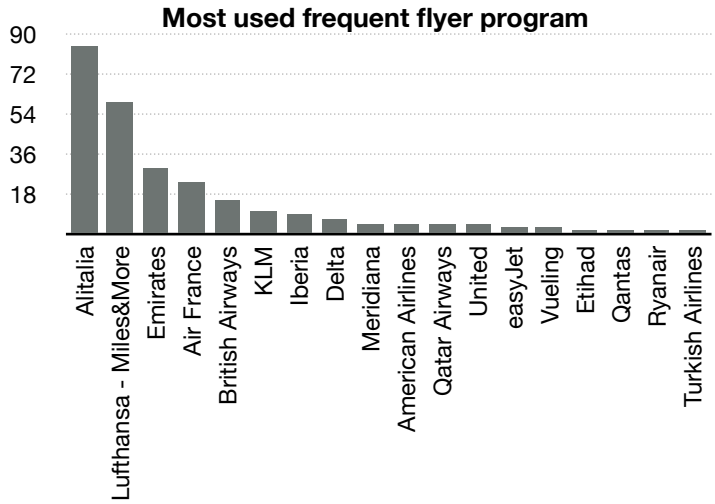

Intercontinental flights
260
195
130
65
19
68
72
97
Never flown
>2
1-2
0
160
120
80
40
151
73
19
12
2
Holiday
Business
Never flown
Other
Empty
n. Flights
25%
25%
22%
14%
7%
7%
>20
4-8
1-3
9-14
15-20
Never
Age
16-25
38%
26-40
32%
41-55
23%
>55
7%
Gender
Male
57%
Female
43%
Age
16-25
48%
25-40
35%
>40
18%
n. Flights
45%
25%
15%
5%
11%
1-3
4-8
9-14
15-20
>20
160
120
80
40
2
9
16
18
148
Empty
Other
Never flown
Business
Holiday
Intercontinental flights
200
150
100
50
0
16
26
49
102
Never flown
>2
1-2
0



SAS	4	Virgin Australia	2	AirOne	1	Jordan Air	1
Singapore Airlines	4	Aerolineas Argentinas	1	AlbaStar	1	Kenya Airways	1
Air Canada	3	Aeroméxico	1	ANA	1	Lithuanian Airlines	1
Air Lingus	3	Air Arabia	1	Avianca	1	Livingston	1
Blue Air	3	Air Asia	1	Azul	1	Malaysia Airlines	1
Eurowings	3	Air Berlin	1	Bulgaria Air	1	Mistral Air	1
Jetstar Airways	3	Air China	1	Canadian Airlines	1	Niki Air	1
LATAM	3	Air Dolomiti	1	China airlines	1	Olympic airways	1
Tigerair	3	Air Europa	1	Condor	1	Oman Air	1
Air India	2	Air Malta	1	Egyptair	1	Peach Aviation	1
Austrian Airlines	2	Air Memphis	1	Ernest	1	Pegasus Airlines	1
Garuda	2	Air Tahiti	1	Finnair	1	Spanair	1
Germanwings	2	Air Transat	1	Flybe	1	Transavia	1
LOT	2	AirAsia	1	GOL	1	Ukraine International	1
Royal Air Maroc	2	airBaltic	1	Jet Airways	1	Virgin Atlantic	1
Saudia	2	Airberlin	1	Jet2	1	VivaColombia	1
Tunisair	2	Airchina	1	Jetblue	1	WOW air	1

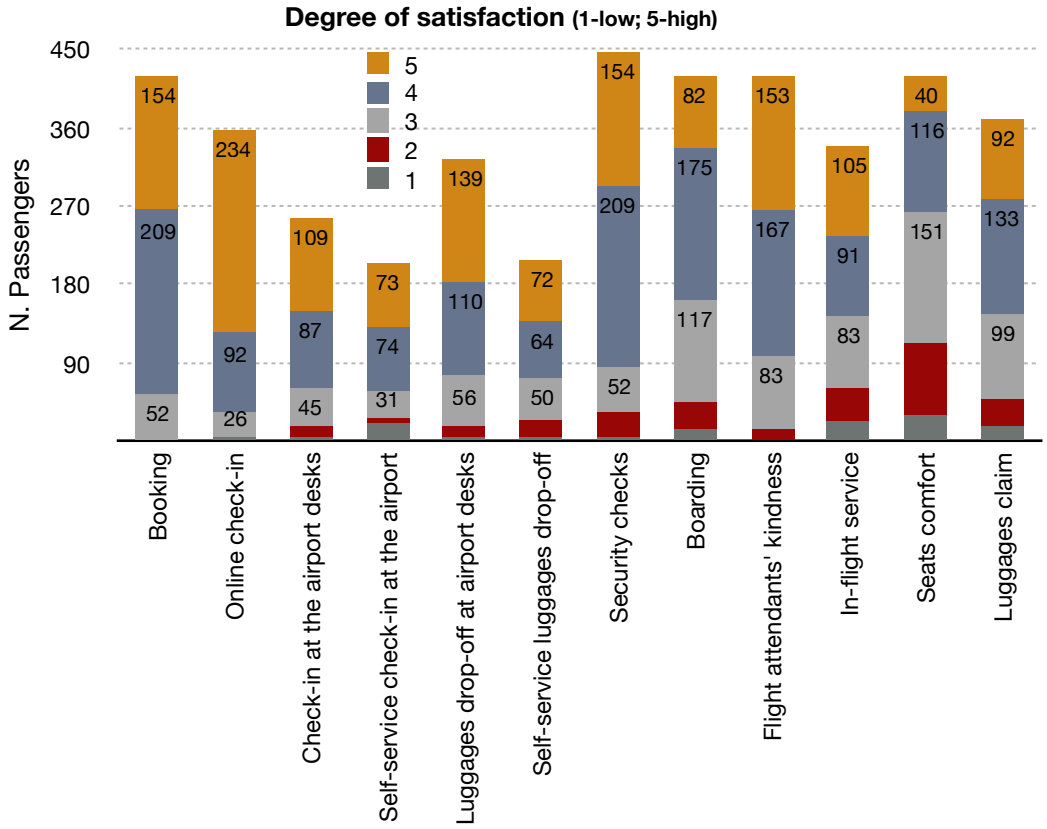
2. Frequent Flyer data analysis





MILES SPENT, WHY?	
Flight award	53
Shopping online	28
Other	13

3. Satisfaction data analysis



4. Alitalia experience data analysis

This survey continued with specific questions about the experience with Alitalia. In 2017, of the sample interviewed (453 Italians), 418 took at least once the plane. Of these latter 245 people have never taken an Alitalia plane, while, of the remaining 173 passengers, 123 have flown with Alitalia from 1 to 4 times over the course of 2017.

It should therefore be specified that 80% were short-haul flights (of which 64% were domestic flights). Only the remaining 20% of the total is reserved for intercontinental flights, the most profitable segment for a full-service airline.

On the other hand, the idea that Alitalia passengers have of the company itself is crucially important. In 2017, almost all of them (more than 84%) are convinced that Italy should have a flag carrier. Italy is one of the most important economies in the

world and a member of the G7. An economic system can truly benefit from an adequate air transport system.

The two tables below illustrate the experience of Alitalia passengers and show the comments they left on the situation of the company.

ALI-ITALIA EXPERIENCE	
Factors	**Average (min 1 - max 5)**
Alitalia staff kindness	3,82
Overall aircrafts conditions	3,53
Aircraft cleanliness	3,67
Overall experience	3,69
Italian airport compared to foreign ones	2,97

The comments on the Alitalia situation were the following:

Incompetent management	Strong political influence	Excessively high prices
Excessively high costs	Old aircrafts	Bad network management
More domestic direct flights	More intercontinental routes	Fewer employees
More humility	Two hub strategies	Too strong labour unions

CONCLUSIONS

The conclusions could be left to two statements, two sentences. The first one it was said by the CEO of Etihad, James Hogan, the second one by Luca Cordero di Montezemolo the former president of the new Alitalia born less than two years later the words pronounced by Hogan. The latter stated: “It (Alitalia) will be the sexiest airline in the world". Montezemolo, on the other hand, during the hearing in front of the Transport Commission of the Chamber in mid-2016, came up with this sentence: "Alitalia loses 500 thousand euros a day".

Alitalia managers, but especially those of Etihad — who saw the investments in both Alitalia and Air Berlin thrown to the wind — were clamouring for a cut in personnel costs, and its benefits. The problems were and still are very different.

The staff costs cutting is the easier strategic move that could be attributes to the bad results of a company and, usually, the main factor to be taken into consideration. In this case it would not be enough and probably it had to be one of the last budget items to be taken into account.

Alitalia has not managed to take advantage of two situations: the oil price at historic lows and the crisis of Meridiana, the subsequent Italian company operating in the area. To date, we have seen that Meridiana has a new strong partner, Qatar airways, thanks to which huge investment plans have been launched. Air Italy will be the new brand of the company to recall that Italy which does not have a flag carrier anymore. Let's not forget that Ryanair and easyJet are increasingly concentrated on our market and even the Italian NEOS is growing fast. It owns a plane that Alitalia would have taken advantage of, the Boeing B-787 Dreamliner, which it certainly cannot afford. Gaetano Intrieri, professor of management control at the University of Tor Vergata (Rome) and former manager of several national and international companies, has defined Alitalia as an absolutely redundant company.

This analysis agrees with the Professors Intrieri and Arrigo in saying that there has not been adequate and prepared management taking care of all foreign factors that may affect the airline operations. From the coverage of risk factors, from oil to the

exchange rate, to fleet and network management, they have not been taken into account with all the necessary precautions.

As can be seen from the analysis, the average yield of Lufthansa has decreased in the last year. However, this decline did not have a remarkable negative effect on the income statement since the unit costs per passenger kilometre were symmetrically reduced by more or less the same percentage. Basically, Lufthansa simply transferred its cost savings to its customers through lower prices. Alitalia did what no wise man would say to do. It has incredibly increased costs, instead of reducing them, and at the same time decreased rates, that is, more costs and less revenues. A situation that leads to unsatisfactory dissatisfaction within the company, a reduction in quality and a continuous rush to a crumb of green color in the financial statement that can only aggravate the solution.

A strong first point is the lack of confidence in the policies adopted by management, inexperienced in the sector and in the Italian and European market, and too influenced by Italian politics. A second strong point concerns the quality / price ratio. Alitalia is too expensive for the service it is able to offer compared to its direct competitors, low cost or not. The company should focus on cost reduction, a fair and justified cut of the staff that will have to be more productive and not exploited. Alitalia must rediscover a solid contractual position to negotiate with new suppliers. The fleet must be renewed. It is a huge expense but necessary and dilatable over time. The old airbuses must make seats for new and efficient aircraft in the medium and long haul. On the other hand, the Embraers are absolutely good enough to meet national demand. These are small and efficient aircraft, therefore perfect for the domestic market and for feeder operations of the company hub that will have to remain Rome Fiumicino, in the center of the national territory, at least in the beginning. Rates are an important part of corporate restructuring There is a desire to fly Alitalia at prices even a little higher than low-cost airlines. The Embraer can guarantee efficiency in the longer national routes (Venice - Palermo, for example), while a few selected Airbus models will have to operate in medium and long routes, which will necessarily have to be extended.

Alitalia could avoid at least one of the three bankruptcies with the direct and indirect concrete help of the State, thanks to a privatisation better developed and diluted over several years, a strong and capable management, detached from politics, and

public investments in tourism and infrastructure. Alitalia remains another example of a country that fights and does not trust globalisation. Think about the taxi drivers' strike against Uber. In the rest of the world, like in New York, the taxi drivers were concentrated on creating a similar mobile application, to offer better service to their clients. It should be recalled that the 17,58% of Air France is still owned by the French State, and it is not a tragedy. Privatisation is right when there are all the prerequisites for putting it into practice. Italy is full of examples of bad management from this point of view. In this specific case, Italy is one of the most important economies in the world, perhaps no longer one of the most influential. Transport has always made it an indisputable service during all industrial and non-industrial revolutions. Our country must equip itself with innovative and efficient infrastructures. In fact, having a national carrier is necessary to have on its territory an airport hub, an extra weapon to compete, to attract visitors, consumers, investments, and keep exports high, in a country like ours that practically lives manufacture and tourism.

Alitalia is the symptom of an Italy not able to compete, not able to find its market position due to a productivity not in line with international competitors. The sale, not to mention the closure of Alitalia, would produce an economic-social disaster..

For those who say that Alitalia has cost too much, just look at some data. To save the Monte dei Paschi di Siena bank, the State intervened with a fund of € 20 billion in relatively short time. Alitalia has cost € 7.4 billion between 1974 and 2014. An expense more than dilatable and disposable during those forty years. It should also be remembered that Turkey encourages its national carrier, Turkish Airlines, on tourist routes with US$ 6,000 per flight.

The crisis is attributable to the Italian management poorly prepared on the one hand to open up to global sector full of environmental uncertainties, on the other hand a foreign management not prepared to operate on the Italian and European market, as Alitalia also Air Berlin was a failure and a huge loss of money for the emirs of Etihad.

The analysis carried out completely contradicts three assumptions made. The validity of the strategy of resizing the company in order to seek balance sheet balance is completely wrong. The substantial investments in the short term would never have brought Alitalia to the desired reorganisation, it had to be placed a lower limit to the short range, giving international visibility to the company, with more

efficient aircraft and a more careful risk management. The downsizing of personnel in the last phase of Alitalia could wait, giving space to the reorganisation of other cost items out of control.

The sale of Alitalia is a major international failure in which even our politics has its faults, it is not just the Italian management failure. In fact, Luca Cordero di Montezemolo and Intesa San Paolo bank — respectively a founding member and president, and a partner in financing the NTV project, are to be applauded. The company has been sold for almost 2 billion euros to the American group Global Infrastructure Partners (Gip). Furthermore, Italo's current shareholders are expected to receive the € 30 million dividend resolved by the company's shareholders' meeting. They had agreed to sell the company, right or wrong, this shows that in the transport sector, even in a small country and sometimes "tight" like Italy, something good can be done.

	2000	2001	2002	2003	2004	2005	2006	2007	2008
1	ATLANTA (ATL)	ATLANTA (ATL)	ATLANTA (ATL)	ATLANTA (ATL)	ATLANTA (ATL)	ATLANTA (ATL)	ATLANTA (ATL)	ATLANTA (ATL)	ATLANTA (ATL)
2	CHICAGO (ORD)	CHICAGO (ORD)	CHICAGO (ORD)	CHICAGO (ORD)	CHICAGO (ORD)	CHICAGO (ORD)	CHICAGO (ORD)	CHICAGO (ORD)	CHICAGO (ORD)
3	LOS ANGELES (LAX)	LOS ANGELES (LAX)	LONDON (LHR)	LONDON (LHR)	LONDON (LHR)	LONDON (LHR)	LONDON (LHR)	LONDON (LHR)	LONDON (LHR)
4	LONDON (LHR)	LONDON (LHR)	TOKYO (HND)	TOKYO (HND)	TOKYO (HND)	TOKYO (HND)	TOKYO (HND)	TOKYO (HND)	TOKYO (HND)
5	DALLAS (DFW)	TOKYO (HND)	LOS ANGELES (LAX)	LOS ANGELES (LAX)	LOS ANGELES (LAX)	LOS ANGELES (LAX)	LOS ANGELES (LAX)	LOS ANGELES (LAX)	PARIS (CDG)
6	TOKYO (HND)	DALLAS (DFW)	DALLAS (DFW)	DALLAS (DFW)	DALLAS (DFW)	DALLAS (DFW)	DALLAS (DFW)	PARIS (CDG)	LOS ANGELES (LAX)
7	FRANKFURT (FRA)	FRANKFURT (FRA)	FRANKFURT (FRA)	FRANKFURT (FRA)	PARIS (CDG)	PARIS (CDG)	PARIS (CDG)	DALLAS (DFW)	DALLAS (DFW)
8	PARIS (CDG)	PARIS (CDG)	PARIS (CDG)	PARIS (CDG)	FRANKFURT (FRA)	FRANKFURT (FRA)	FRANKFURT (FRA)	FRANKFURT (FRA)	BEIJING (PEK)
9	SAN FRANCISCO (SFO)	AMSTERDAM (AMS)	AMSTERDAM (AMS)	AMSTERDAM (AMS)	AMSTERDAM (AMS)	AMSTERDAM (AMS)	BEIJING (PEK)	BEIJING (PEK)	FRANKFURT (FRA)
10	AMSTERDAM (AMS)	DENVER (DEN)	DENVER (DEN)	DENVER (DEN)	DENVER (DEN)	LAS VEGAS (LAS)	DENVER (DEN)	MADRID (MAD)	DENVER (DEN)
11	DENVER (DEN)	PHOENIX (PHX)	PHOENIX (PHX)	PHOENIX (PHX)	LAS VEGAS (LAS)	DENVER (DEN)	AMSTERDAM (AMS)	DENVER (DEN)	MADRID (MAD)
12	LAS VEGAS (LAS)	LAS VEGAS (LAS)	LAS VEGAS (LAS)	LAS VEGAS (LAS)	PHOENIX (PHX)	MADRID (MAD)	MADRID (MAD)	AMSTERDAM (AMS)	HONG KONG (HKG)
13	MINNEAPOLIS (MSP)	HOUSTON (IAH)	MADRID (MAD)	MADRID (MAD)	MADRID (MAD)	NEW YORK (JFK)	LAS VEGAS (LAS)	NEW YORK (JFK)	NEW YORK (JFK)
14	SEOUL (SEL)	SAN FRANCISCO (SFO)	HOUSTON (IAH)	HOUSTON (IAH)	BANGKOK (BKK)	PHOENIX (PHX)	HONG KONG (HKG)	HONG KONG (HKG)	AMSTERDAM (AMS)
15	PHOENIX (PHX)	MINNEAPOLIS (MSP)	HONG KONG (HKG)	MINNEAPOLIS (MSP)	NEW YORK (JFK)	BEIJING (PEK)	BANGKOK (BKK)	LAS VEGAS (LAS)	LAS VEGAS (LAS)
16	DETROIT (DTW)	MADRID (MAD)	MINNEAPOLIS (MSP)	DETROIT (DTW)	MINNEAPOLIS (MSP)	HONG KONG (HKG)	NEW YORK (JFK)	HOUSTON (IAH)	HOUSTON (IAH)
17	HOUSTON (IAH)	HONG KONG (HKG)	DETROIT (DTW)	NEW YORK (JFK)	HONG KONG (HKG)	HOUSTON (IAH)	HOUSTON (IAH)	PHOENIX (PHX)	PHOENIX (PHX)
18	NEWARK (EWR)	DETROIT (DTW)	BANGKOK (BKK)	BANGKOK (BKK)	HOUSTON (IAH)	BANGKOK (BKK)	PHOENIX (PHX)	BANGKOK (BKK)	BANGKOK (BKK)
19	MIAMI (MIA)	MIAMI (MIA)	SAN FRANCISCO (SFO)	LONDON (LGW)	DETROIT (DTW)	MINNEAPOLIS (MSP)	DETROIT (DTW)	SINGAPORE (SIN)	SINGAPORE (SIN)
20	MADRID (MAD)	LONDON (LGW)	MIAMI (MIA)	MIAMI (MIA)	BEIJING (PEK)	DETROIT (DTW)	NEWARK (EWR)	ORLANDO (MCO)	DUBAI (DXB)
21	NEW YORK (JFK)	BANGKOK (BKK)	NEW YORK (JFK)	NEWARK (EWR)	SAN FRANCISCO (SFO)	ORLANDO (MCO)	MINNEAPOLIS (MSP)	NEWARK (EWR)	SAN FRANCISCO (SFO)
22	HONG KONG (HKG)	NEWARK (EWR)	LONDON (LGW)	SAN FRANCISCO (SFO)	NEWARK (EWR)	NEWARK (EWR)	SINGAPORE (SIN)	DETROIT (DTW)	ORLANDO (MCO)
23	LONDON (LGW)	NEW YORK (JFK)	NEWARK (EWR)	ORLANDO (MCO)	LONDON (LGW)	SAN FRANCISCO (SFO)	TOKYO (NRT)	SAN FRANCISCO (SFO)	NEWARK (EWR)
24	ORLANDO (MCO)	ORLANDO (MCO)	SINGAPORE (SIN)	HONG KONG (HKG)	ORLANDO (MCO)	LONDON (LGW)	ORLANDO (MCO)	TOKYO (NRT)	DETROIT (DTW)
25	ST LOUIS (STL)	SINGAPORE (SIN)	TOKYO (NRT)	SEATTLE (SEA)	TOKYO (NRT)	SINGAPORE (SIN)	LONDON (LGW)	LONDON (LGW)	ROME (FCO)
26	BANGKOK (BKK)	TORONTO (YYZ)	BEIJING (PEK)	TOKYO (NRT)	SINGAPORE (SIN)	PHILADELPHIA (PHL)	SAN FRANCISCO (SFO)	MINNEAPOLIS (MSP)	CHARLOTTE (CLT)
27	TORONTO (YYZ)	SEATTLE (SEA)	SEATTLE (SEA)	ROME (FCO)	MIAMI (MIA)	TOKYO (NRT)	MIAMI (MIA)	DUBAI (DXB)	MUNICH (MUC)
28	SINGAPORE (SIN)	ST LOUIS (STL)	ORLANDO (MCO)	SYDNEY (SYD)	SEATTLE (SEA)	MIAMI (MIA)	PHILADELPHIA (PHL)	MUNICH (MUC)	LONDON (LGW)
29	SEATTLE (SEA)	ROME (FCO)	TORONTO (YYZ)	TORONTO (YYZ)	TORONTO (YYZ)	TORONTO (YYZ)	TORONTO ON (YYZ)	MIAMI (MIA)	MIAMI (MIA)
30	BOSTON (BOS)	TOKYO (NRT)	ST LOUIS (STL)	PHILADELPHIA (PHL)	PHILADELPHIA (PHL)	SEATTLE, WA (SEA)	MUNICH (MUC)	CHARLOTTE (CLT)	MINNEAPOLIS (MSP)

	2009	2010	2011	2012	2013	2014	2015	2016
1	ATLANTA (ATL)	ATLANTA (ATL)	ATLANTA (ATL)	ATLANTA (ATL)	ATLANTA (ATL)	ATLANTA (ATL)	ATLANTA (ATL)	ATLANTA (ATL)
2	LONDON (LHR)	BEIJING (PEK)	BEIJING (PEK)	BEIJING (PEK)	BEIJING (PEK)	BEIJING (PEK)	BEIJING (PEK)	BEIJING (PEK)
3	BEIJING (PEK)	CHICAGO (ORD)	LONDON (LHR)	LONDON (LHR)	LONDON (LHR)	LONDON (LHR)	DUBAI (DXB)	DUBAI (DXB)
4	CHICAGO (ORD)	LONDON (LHR)	CHICAGO (ORD)	TOKYO (HND)	TOKYO (HND)	TOKYO (HND)	CHICAGO (ORD)	LOS ANGELES (LAX)
5	TOKYO (HND)	TOKYO (HND)	TOKYO (HND)	CHICAGO (ORD)	CHICAGO (ORD)	LOS ANGELES (LAX)	TOKYO (HND)	TOKYO (HND)
6	PARIS (CDG)	LOS ANGELES (LAX)	LOS ANGELES (LAX)	LOS ANGELES (LAX)	LOS ANGELES (LAX)	DUBAI (DXB)	LONDON (LHR)	CHICAGO (ORD)
7	LOS ANGELES (LAX)	PARIS (CDG)	PARIS (CDG)	PARIS (CDG)	DUBAI (DXB)	CHICAGO (ORD)	LOS ANGELES (LAX)	LONDON (LHR)
8	DALLAS (DFW)	DALLAS (DFW)	DALLAS (DFW)	DALLAS (DFW)	PARIS (CDG)	PARIS (CDG)	HONG KONG (HKG)	HONG KONG (HKG)
9	FRANKFURT (FRA)	FRANKFURT (FRA)	FRANKFURT (FRA)	JAKARTA (CGK)	DALLAS (DFW)	DALLAS (DFW)	PARIS (CDG)	SHANGHAI (PVG)
10	DENVER (DEN)	DENVER (DEN)	HONG KONG (HKG)	DUBAI (DXB)	JAKARTA (CGK)	HONG KONG (HKG)	DALLAS (DFW)	PARIS (CDG)
11	MADRID (MAD)	HONG KONG (HKG)	DENVER (DEN)	FRANKFURT (FRA)	HONG KONG (HKG)	FRANKFURT (FRA)	ISTANBUL (IST)	DALLAS (DFW)
12	NEW YORK (JFK)	MADRID (MAD)	JAKARTA (CGK)	HONG KONG (HKG)	FRANKFURT (FRA)	JAKARTA (CGK)	FRANKFURT (FRA)	AMSTERDAM (AMS)
13	HONG KONG (HKG)	DUBAI (DXB)	DUBAI (DXB)	DENVER (DEN)	SINGAPORE (SIN)	ISTANBUL (IST)	SHANGHAI (PVG)	FRANKFURT (FRA)
14	AMSTERDAM (AMS)	NEW YORK (JFK)	AMSTERDAM (AMS)	BANGKOK (BKK)	AMSTERDAM (AMS)	AMSTERDAM (AMS)	AMSTERDAM (AMS)	ISTANBUL (IST)
15	DUBAI (DXB)	AMSTERDAM (AMS)	MADRID (MAD)	SINGAPORE (SIN)	DENVER (DEN)	GUANGZHOU (CAN)	NEW YORK (JFK)	GUANGZHOU (CAN)
16	BANGKOK (BKK)	JAKARTA (CGK)	BANGKOK (BKK)	AMSTERDAM (AMS)	GUANGZHOU (CAN)	SINGAPORE (SIN)	SINGAPORE (SIN)	NEW YORK (JFK)
17	LAS VEGAS (LAS)	BANGKOK (BKK)	NEW YORK (JFK)	NEW YORK (JFK)	BANGKOK (BKK)	DENVER (DEN)	GUANGZHOU (CAN)	SINGAPORE (SIN)
18	HOUSTON (IAH)	SINGAPORE (SIN)	SINGAPORE (SIN)	GUANGZHOU (CAN)	ISTANBUL (IST)	NEW YORK (JFK)	JAKARTA (CGK)	DENVER (DEN)
19	PHOENIX (PHX)	GUANGZHOU (CAN)	GUANGZHOU (CAN)	MADRID (MAD)	NEW YORK (JFK)	SHANGHAI (PVG)	DENVER (DEN)	INCHEON (ICN)
20	SAN FRANCISCO (SFO)	SHANGHAI (PVG)	SHANGHAI (PVG)	ISTANBUL (IST)	KUALA LUMPUR (KUL)	KUALA LUMPUR (KUL)	BANGKOK (BKK)	BANGKOK (BKK)
21	SINGAPORE (SIN)	HOUSTON (IAH)	SAN FRANCISCO (SFO)	SHANGHAI (PVG)	SHANGHAI (PVG)	SAN FRANCISCO (SFO)	SAN FRANCISCO (SFO)	NEW DELHI (DEL)
22	JAKARTA (CGK)	LAS VEGAS (LAS)	PHOENIX (PHX)	SAN FRANCISCO (SFO)	SAN FRANCISCO (SFO)	BANGKOK (BKK)	INCHEON (ICN)	JAKARTA (CGK)
23	GUANGZHOU (CAN)	SAN FRANCISCO (SFO)	LAS VEGAS (LAS)	CHARLOTTE (CLT)	CHARLOTTE (CLT)	INCHEON (ICN)	KUALA LUMPUR (KUL)	SAN FRANCISCO (SFO)
24	CHARLOTTE (CLT)	PHOENIX (PHX)	HOUSTON (IAH)	LAS VEGAS (LAS)	INCHEON (ICN)	CHARLOTTE (CLT)	MADRID (MAD)	KUALA LUMPUR (KUL)
25	MIAMI (MIA)	CHARLOTTE (CLT)	CHARLOTTE (CLT)	PHOENIX (PHX)	LAS VEGAS (LAS)	LAS VEGAS (LAS)	NEW DELHI (DEL)	MADRID (MAD)
26	ROME, IT (FCO)	ROME, IT(FCO)	MIAMI (MIA)	HOUSTON (IAH)	MIAMI (MIA)	PHOENIX (PHX)	LAS VEGAS (LAS)	LAS VEGAS (LAS)
27	ORLANDO (MCO)	SYDNEY (SYD)	MUNICH (MUC)	KUALA LUMPUR (KUL)	PHOENIX (PHX)	MADRID (MAD)	CHARLOTTE (CLT)	CHENGDU (CTU)
28	SYDNEY, AU (SYD)	MIAMI (MIA)	KUALA LUMPUR (KUL)	MIAMI (MIA)	HOUSTON (IAH)	HOUSTON (IAH)	MIAMI (MIA)	WASHINGTON (SEA)
29	NEWARK (EWR)	ORLANDO (MCO)	ROME (FCO)	INCHEON (ICN)	MADRID (MAD)	MIAMI (MIA)	PHOENIX (PHX)	MUMBAI (BOM)
30	MUNICH (MUC)	MUNICH (MUC)	ISTANBUL (IST)	MUNICH (MUC)	MUNICH (MUC)	SAO PAULO (GRU)	HOUSTON (IAH)	MIAMI (MIA)

APPENDIX 2.1

Operating Expenses ('000)		1990	2000	2016
Salaries	General Management Personnel	275.353	663.119	950.760
	Flight Personnel	7.064.560	12.708.645	19.928.187
	Maintenance Labor	2.431.858	4.063.155	4.190.405
	Aircraft and Traffic Handling Personnel	5.506.801	8.163.549	7.769.058
	Other Personnel	3.143.353	5.089.989	7.930.974
	TOTAL	18.421.925	30.688.457	40.769.384
Related Fringe Benefits	Personnel Expense	1.483.679	2.518.680	3.554.333
	Employee Benefits and Pensions	3.322.180	5.585.891	10.114.911
	Payroll Taxes	1.363.641	2.145.353	2.709.452
	TOTAL	6.169.500	10.249.924	16.378.696
TOTAL SALARIES AND BENEFITS		24.591.425	40.938.381	57.148.080
Materials Purchased	Aircraft Fuel an Oil	13.008.371	16.997.291	26.045.913
	Maintenance Material	2.495.650	3.675.598	4.156.900
	Passenger Food	2.415.047	2.874.423	2.467.648
	Other Materials	959.431	1.277.958	1.229.836
	TOTAL	18.878.499	24.825.270	33.900.297
Services Purchased	Advertising and Promotions	1.452.270	1.363.785	1.167.470
	Communication	976.255	1.695.041	1.564.270
	Insurance	198.491	401.084	447.370
	Outside Flight Equipment Maintenance	1.819.199	4.164.658	7.359.102
	Traffic Commissions - Passenger	6.776.305	4.744.782	1.260.866
	Traffic Commissions - Cargo	282.657	166.023	70.739
	Other Services	4.912.308	9.631.510	14.152.282
	TOTAL	16.417.485	22.166.883	26.022.099
Landing Fees		1.338.370	2.150.397	3.470.242
Rental		5.502.306	10.956.960	10.863.235
Depreciation		3.336.351	5.868.652	9.132.247
Amortization		797.432	982.664	1.336.899
Other		1.200.585	2.424.733	5.386.540
Transport Related Expense		5.626.839	12.919.475	33.675.095
TOTAL OPERATING EXPENSE		77.689.292	123.233.415	180.934.734

Operating Expenses - Objective categorisation
Source: Adapted from US DOT Form 41

APPENDIX 2.2

INDIRECT COSTS	
Passenger Service Expense	Flight Attendant
	Food
	Other Inflight
Aircraft Serving Expense	Line Servicing
	Control
	Landing Fees
Traffic Servicing Expense	Directly Assignable To Passenger
	Directly Assignable To Baggage and Cargo
	Not Directly Assignable
Reservation And Sales Expense	Directly Assignable To Passenger
	Directly Assignable To Cargo
	Not Directly Assignable
Advertising and Publicity Expense	Directly Assignable To Passenger
	Directly Assignable To Cargo
	Not Directly Assignable
General And Administrative Expense	
Depreciation Expense - Maintenance Equipment	
Amortisation - Other Than Flight Equipment	
Transport Related Expense	

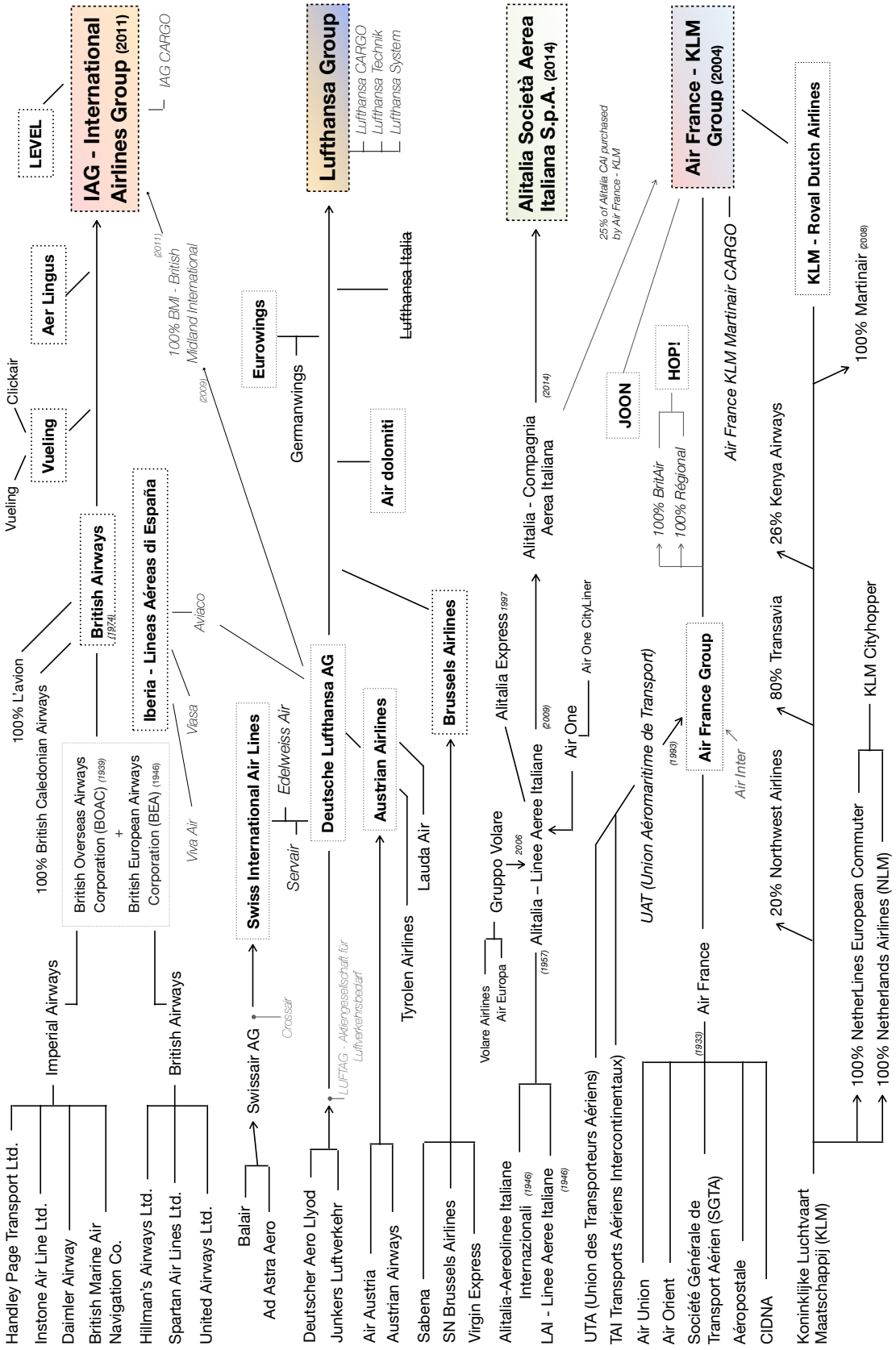
Indirect Operating Expenses - Functional Categorisation
Source: Adapted from US DOT Form 41

APPENDIX 2.3

DIRECT COSTS	
Flight Operations	Pilots and Copilots
	Other Flight Personnel
	Trainees And Instructors
	Personnel Expenses
	Professional and Technical Fees And Expenses
	Aircraft Interchange Changes
	Aircraft Fuel
	Aircraft Oil
	Rentals
	Other Supplies
	Insurance Purchased - General
	Employee Benefits and Pensions
	Injuries, Loss, And Damage
	Taxes - Payroll
	Taxes - Other Than Payroll
	Other Expenses
Flight Equipment	Labor - Airframes
	Labor - Aircraft Engines
	Airframe Repairs
	Aircraft Engine Repairs
	Aircraft Interchange Changes
	Materials - Airframes
	Materials - Aircraft Engines
	Airworthless Allowance Provisions - Airframes
	Airframe Overhauls Deferred, Credit
	Airworthless Allowance Provisions - Aircraft Engines
	Aircraft Engine Overhaul Deferred, Credit

DIRECT COSTS	
Depreciation - Flight Equipment	Airframes
	Aircraft Engines
	Airframe parts
	Aircraft Engine Parts
	Other Flight Equipment
Expense of Interchange Aircraft	Flying Operation
Amortisation Flight Equipment	Ex. Capital Leases - Flight Equipment
Applied Maintenance Burden - Flight Equipment	
Net Obsolescence And Deterioration - Expendable Parts	

Direct Operating Expenses - Functional Categorisation
Source: Adapted from US DOT Form 41



Merger & Acquisition Map - European Airline Industry
Drafted by Andrea Rizzetto

Global	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017e	2018f
Revenues *(US$ billion)*	465	510	570	476	565	642	706	720	767	721	709	754	824
Expenses *(US$ billion)*	450	490	571	474	536	623	687	695	725	661	644	691	757
Operating Profit *(US$ billion)*	15	19,9	-1,1	1,9	27,6	19,8	18,4	25,3	41,7	59,8	65,2	62,6	66,9
Net Profit *(US$ billion)*	5	17,7	-26,1	-4,6	17,3	8,3	9,2	10,7	13,7	35,9	35,3	34,5	38,4
Return on Invested capital *(%)*	4,7	5,7	1,3	1,9	6,2	4,7	4,6	4,8	5,9	9,7	10,3	9,6	9,4

Economic and Financial Airline Overview
Source: IATA

Real GDP growth (%)	2015	2016	2017e	2018f	2019f	2020f
World[1]	2,8	2,4	3,0	3,1	3,0	2,9
East Asia and Pacific (EAP)[1,2]	6,5	6,3	6,4	6,2	6,1	6,0
Europe and Central Asia (ECA)[1]	1,0	1,7	3,8	2,9	3,0	3,0
Latin America and the Caribbean (LAC)[1]	-0,6	-1,5	0,9	2,0	2,6	2,7
Middle East and North Africa (MNA)[1,3]	2,8	5,0	1,8	3,0	3,2	3,2
South Asia (SA)[1,4]	7,1	7,5	6,5	6,9	7,2	7,2
Sub-Saharan Africa (SSA)[1,5]	3,1	1,3	2,4	3,2	3,5	3,6

Source: World Bank
Notes: e = estimate; f = forecast.
1. Aggregate growth rates calculated using constant 2010 U.S. dollar GDP weights.
2. Excludes American Samoa and Democratic People's Republic of Korea.
3. Excludes Libya, the Syrian Arab Republic, and the Republic of Yemen.
4. National income and product account data refer to fiscal years (FY) for the South Asian countries, while aggregates are presented in calendar year (CY) terms.
The fiscal year runs from July 1 through June 30 in Bangladesh, Bhutan, and Pakistan, from July 16 through July 15 in Nepal, and April 1 through March 31 in India.
5. Excludes Central African Republic, São Tomé and Príncipe, Somalia, and South Sudan.

Global Economic Prospects (January 2018)
Source: World Bank

APPENDIX 3.2

ALITALIA — INCOME STATEMENT 2016		
	2016 *(in million €)*	**Change from 2015** *(in %)*
Operating income	**3,096**	**-4,9**
Passengers	2,436	-4,8
Other traffic income	466	4,3
Other operating income	194	-21,8
Operating costs	**3433**	**0,9**
Fuel	693	-3,9
Staff	685	5,4
Handling	383	4,1
Leasing	321	-7,5
Maintenance	287	-1,4
Flight assistance services	260	2,4
Commercial affairs	193	-1,5
Overheads	173	-2,8
Amortisation	161	25,3
Other variable costs	84	-8,7
In-flight services	72	0
Catering	53	29,3
Cargo	45	-4,3
Advertising	23	-14,8
EBIT	**-337**	**126**
Other extra costs	155	209,9
NET LOSS	**-492**	**147**

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