ISCTE ◈ Business School
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How much is worth a non-listed company?
SATA Group Valuation

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- Spine -

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Resumo

A SATA (Sociedade Açoriana de Transportes Aéreos) é uma companhia aérea açoriana fundada em 1941 por cinco açorianos que ambicionavam tornar os Açores independentes e, ao mesmo tempo, ligar o arquipélago ao resto do Mundo. A verdade é que hoje em dia é uma companhia que cumpriu os seus objetivos de longevidade. A SATA é atualmente constituída por 6 empresas e detém 12 aeronaves, sendo que a sua principal atividade é o transporte aéreo de passageiros.

A companhia aérea açoriana tem sofrido algumas alterações nos seus resultados principalmente entre os exercícios de 2013 a 2015. Estas alterações advêm de fatores externos como a crise e sazonalidade da indústria embora estas não sejam as principais causas. Para analisar o agravamento dos resultados da SATA é necessário ter em conta fatores internos (gestão interna), bem como gestão de rotas, de funcionários, de frota e, principalmente, de passageiros.

Com intuito de avaliar esta empresa e perceber as causas e consequências dos últimos resultados da empresa, foi decidido elaborar uma análise a partir de dois métodos distintos: Discounted Cash Flows (Free Cash Flows to the Firm e Free Cash Flows to the Equity) e Múltiplos.

É expectável que o Grupo SATA melhore os seus resultados a partir de 2015 e por aí em diante, embora seja necessário perceber o que levou a empresa à crise e que objetivos necessitam atingir para conseguirem obter os melhores resultados possíveis.

Abstract

SATA is an airline company founded in 1941 by five Azorean friends who desired to transform the Azores in an independent archipelago and, at the same time they want to expand the Azores and the Azoreans to the World. The fact is that nowadays SATA is a group of 6 companies owning 12 aircrafts and its main business is the transportation of passengers from and to the middle of the Atlantic (Azores archipelago).

Between 2013 and 2015 this company suffered some changes in their financial results, which, probably, some of the causes were due to external factors as the crises and the seasonality. However, the true/main factors that led SATA to a distress situation are related with internal management: routes, employees, fleet management and, as well, and mainly, the passengers.

Aiming to understand the causes and consequences of those results, we decided to evaluate this Azorean airline through two different methods: Discounted Cash Flows (Free Cash Flows to the Firm and Free Cash Flows to the Equity) and Multiples.

It is expectable that the SATA's results will get better, however it is necessary and urgent to understand what was wrong and how the company would do to get the best possible earnings.

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Executive summary

The airline industry is one of the industries with the biggest evolution through the years since its existence. While some decades ago only a limited niche of people could travel (it was very expensive, a luxury, and only people classified as the high society would be willing to pay that money), today everybody could go everywhere and for too many reasons: from a business trip or even to a weekend trip bought in one of the low cost companies. However, air transportation is one of the industries more affected by the seasonality's consequences. It is quite obvious that the majority of the travellers would more probably prefer and choose to travel at summer holidays, at Easter breaks, or even in Christmas and New Year's Eve than to travel in January, for example. This is one of the reasons pushing down some airline's results all over the world, even in the Azores.

SATA Group is an Azorean airline founded in 1941 and it was named as "*Sociedade Açoriana de Transportes Aéreos*" ("Azorean Society of Air Transports"), which means SATA. The Azorean company increased and nowadays owns 6 companies (SATA *Air Açores*, SATA *Internacional*, SATA Express, Azores Express, SATA SGPS and SATA G*estão de Aérodromos*) and also 12 aircrafts flying around the Azores (SATA *Air Açores*), Lisbon, Oporto, North America and some European cities, mainly. This company is extremely important for the Azorean people since it was created by five Azorean friends and during all the firm's lifetime (at least until 2015) the company was the only linking the Azores and their people to the World.

Unfortunately, in the last years SATA has been decreasing its results: its revenues have been continuously decreasing and since 2013 its operating expenses have been significantly increasing. Due to these facts, SATA's airlines earnings are negative from 2013 on. The true is that there are some influent factors for what happened to SATA. At least during 5 years (2010-2015) SATA made some unfortunate management decisions: while the number of passengers was decreasing they were increasing the number of destinations/flights per years and also the number of employees, causing some instability for the firm.

All the facts above briefly describe our big motivation in developing this work, strengthening the fact of the huge concerning that the Azorean people have with SATA's results, since their freedom and link to the World depends on this company.

1. Introduction

In 1899 Wilbur Wright wrote a letter affirming that the human flight was possible. From that moment on, he and his brother (Orville Wright), who developed very early their interest on aviation and possessed a great technical ability and, as well, solving problems in mechanical design, started working on this industry. They opened a bicycle store and built their own bicycles too, but the biggest brother's dream was to build their own airplane, which was accomplished. In 1900 they looked for a place to test their first glider, however it was not successful as they thought, furthermore in 1901 and 1902 Wilbur and Orville Wright tried over and over again and it was finally getting better. Lastly, in 1903 they designed a new aircraft, which was successfully tested in December of that year. In 1908 there was a public trip to France for the first time and by the following year Wilbur and Orville funded the Wright Company to build and sell their fleet.

The 20th century was a revolutionary year for the aviation market, because the most important events since they born happened in that millennium. After the first flight conducted by Wright brother, in 1920 the first transcontinental mail came from San Francisco, arriving in New York City 33 hours later. Since then on, even in the World War II period (between 1939 and 1945) the aviation development led to the creation of different types of aircrafts being designed and built, getting better, faster and flying all over the World. (http://www.history.com/this-day-in-history/first-airplane-flies)

We can affirm that the air transport is one of the industries that has been transforming the World by enabling the globalization that shapes the business world and the individual's experiences. Conversely, the majority of the airline companies, nowadays, are only able to pay their suppliers and service their debt, having nothing left to pay investors, who are a very important element nowadays in this industry since they link the implementation of new technologies and the customer's new experiences. However, there is a big issue around it, the high taxation and all the costs involved in the business, so a partnership between airlines and the government would be crucial to maximize their profit.

During all these years the demand for air transport services has been increasing much faster than the others services in the whole World, since this industry is the one responsible for increasingly linking more and more cities and creating value for all the customers, who usually

travel for their own experience or even for work, and, in order to make the airline a more competitive industry their prices have been declining a lot.

It was supposed that the investor's return in this type of companies rose (in consequence of their fast development and growing demand), however it has been difficult to make an adequate level of profit. What they really expect to earn and be paid for is the difference between the Return on Invested Capital (ROIC) and the Weighted of Average Cost of Capital (WACC), nonetheless at least in the last 20 years of this industry's life the WACC has been much higher than ROIC meaning that the investors, instead of gaining, are losing value. Conversely to this conclusion, it is expected that in the following years, in order to support the development of emerging economies, this business area triple or quadruple its services, consequently more aircrafts will be imperative that the capital increase in $4-5 trillion to improve the required ROIC. Since this represents what an investor gains for providing capital, to make a good investment, he ought to compare this value to what will he gain if he was investing in another asset with a similar risk, with the WACC. It is quite obvious that the higher the return, the higher will be the investor's capital injection, and vice-versa.

Nonetheless, there are some important factors that may be taken into account when analyzing the power of this kind of industry, and, in this case, there are two very important issues: fuel and labor. In one hand, even with better resources and technologic advances to reduce the quantity of fuel consumption, airlines generate a significant part of the profit of the fuel's companies as their prices are really high and they have a very high bargaining power relatively to the airlines and, on the other hand, the flight and cabin crew are another two major costs supported by this industry, since are the ones creating more value for each company. The 2008 global recession was devastating for the airline industry, since it affected negatively the air travel demand and, as well, pushes down the fuel prices (what is not necessarily adverse for the industry). Due to this crisis, new business models, in this area starts appearing, just like the low-costs, for example.

As far as passengers are concerned, some of them already prefer the low-cost companies and others are still loyal to the traditional ones. The loyalty is the highest level of commitment and it is based on some elements. To build a solid loyal affection between these two parties there are some qualifications to be worked on: satisfaction, trust and perceived level.

SATA is a non-listed Azorean airline that was created sixty years ago and nowadays is composed by six companies: SATA SGPS (integrated management), SATA Air Azores (flights between the nine Azorean Islands), SATA International (routes from Azores to Europe and North America), SATA Airfield (management of aircraft infrastructure in Graciosa, S.Jorge,

Pico and Corvo) SATA Express (tour operator in Canada) and SATA Azores Express (tour operator in USA). During the last years this group has been facing some difficulties, since their revenues have been continuously decreasing from 2010 until now. Despite this, the entrance of new (low-cost) companies in Azorean routes (more specifically in S. Miguel island) caused some impact in their results, since they were the only airline able to fly to the archipelago. Thus, in 2015 the monopoly finished.

Because of the facts described above, we think that it is important to study and analyze how much is worth this company, as well as the ways to realize it, by answering to some questions about this project, like "*Is SATA so unqualified as people think?*" or "*Did the low-cost competitors affect the company in some way?*" or even if "*Is SATA capable to handle the price competition?*". SATA Group has been appearing in several newspapers due to its bad results, because they are reducing their fleet, also because their employees are unsatisfied with its policies and, nonetheless, there are a lot of complaints from their customers. Thus, it is necessary to study and show the real value of SATA Group in order to get some conclusions.

Furthermore, all those issues described above - all of those company's problems - had also a big importance in my decision, since this evaluation can really answer to a lot of questions from all the community in touch with SATA and that are unhappy with its services, policies and, consequently, its results. On the other hand, my interest for Corporate Valuation and, as well, for Corporate Finance was another motivation to go ahead with this thesis, since the methods used to estimate company's values are essential issues in this subject and its first principle is to maximize the value of the business by investing in the right assets, investing in the right kind of debt or by returning the cash to owners if there is no great investments.

So, to tackle this Project it is extremely important to keep up with the company's history, website information, newspaper/magazine news, and, since it is a financial analysis, SATA's reports and accounts couldn't be out of margin. As it was mentioned before, the results, the policies and the strategy of the company during all these years are also very important for this work, as it provides us with an idea of business's development or decline, comparing with their competitors. Notwithstanding, the Corporate Finance methods and theories have to be applied - taking into account that SATA is a private company - to get the company's value and make our conclusions about this evaluation.

2. Review of Literature

2.1. Corporate Finance and Valuation

As we have already mentioned in this document, the first principle of corporate finance is to maximize the value of a business. Thus, at the same time that the firm value is maximized, it is necessary also to maximize the equity value, the stock price. In order to make it work, the managers have to be connected with stockholders, bondholders, financial markets and society, but it is not always easy to concretize, since, for example, manager's interests are above of stockholder's or even manager delay bad news to financial markets. Basically, corporate finance theory will not work as it was supposed if there's some kind of conflict between manager and stockholder's interests, if the markets are inefficient or even if there are significant social costs. Choosing a different mechanism for corporate governance or, as well, a different objective to the firm could really result in great recovery strategies.

According to Mota and Custódio (2008) the value creation has been declared as the greater financial management dimension, since it evaluates how the companies manage their resources in order to avoid the firm's damage, protecting its profitability or its survival. Thus, nowadays, what really makes the difference between a good company's financial decision from their competitor's is how they characterize and treat its problems, identifying suitable solutions and analyzing its impact. A big company must find more alternatives in an easily way than the little and medium ones but, anyway, their methodologies and the way that they get results should be the same to all companies. Finally, it is suitable to reach a conclusion: in corporate finance decisions, the manager is not the only responsible anymore. All those important deliberations have to include the stockholders and the other ones with interests in the company.

"There is nothing as dangerous as the pursuit of a rational investment policy in an irrational world"

John Maynard Keynes

Some investors have been arguing that their perceptions, instead of cash flows or earnings, are the main determinants for the market prices. Damodaran (1994) affirms that investor's perspective matters, however there are other necessary issues to take into account and also that knowing the value of an asset is imperative to make intelligent decisions.

It is obvious that different assets need different details of valuation, since the uncertainty associated with them varies, but the core procedures remain the same. However, some people keep arguing that the value depends on the investor's insight and it can be justified if some others were willing to pay that price, which is absurd since *"(…) the price paid for any asset should reflect the cash flows that asset is expected to generate"* (Damodaran, 2012: 8).

The maximization of firm value is the greatest motivation in corporate finance, thus the relation between decisions, strategy and firm value has to be studied, because, following Damodaran's perception, *"valuation is not an objective exercise, and any preconceptions and biases that an analyst brings to the process will find its way into the value"* (Damodaran, 2012: 9).

2.2. Private Firms

"The process of valuing private companies is not different from the process of valuing public companies"

Aswath Damodaran

Despite the fact that the principles of valuation remain the same, valuing a private firm could not always be as simple as valuing a public one, since its information available tends to be more limited. According Damodaran it is possible to *"estimate cash flows, attach a discount rate based upon the riskiness of the cash flows and compute a present value"*. Nonetheless, just like the public companies, it is possible to measure the entire firm value of a private one or even its equity value, by discovering the average cost of capital and the cost of equity, respectively.

However, there are some obstacles against the non-listed companies in order to value them. The first one is the fact that the majority of these types of companies (private ones) do not have accounting standards, so it can cause a big discrepancy between them. The second one is that, since those companies do not need to provide reports on revenues and earnings, there is less information available about them or, on contrary, if it exists it is likely not to be updated or detailed. Because of that, it is hard to find historical data and an updated price for equity, which is one of the biggest problems on valuing private firms.

Hence, Aswath Damodaran affirms that a good start for the process to value private firms is choosing the right model, then estimating the discount rates followed by the cash flows and, finally, complete the valuation (depending on the reason why the valuation is being done).

The owner of the firm does not usually hire managements to role the company; they are the ones who take care of this issue, investing their own wealth on it. All these issues lead to problems on estimating discount rates and cash flows.

Finally, we should find comparable firms – with similar structure and operations - to make this analysis. Sometimes it can cause different levels on business risk, on growth potential or even on margins, but it can be justified by the size or nature of these comparable firms.

2.3. Discounted Cash Flows (DCF)

According to Mota and Custódio (2008), in order to valuate a company, it should be considered, not only its internal business but, also the external environmental variables. Furthermore, a firm valuation needs to take into account its historical data and performance, since it is a fundamental item to any forecast.

DCF is an important model that estimates the value, or the potential value, of an investment, an asset or an enterprise by the present value of expected future cash flows. Its general approach is:

$$Present\ Value = \frac{CF_1}{(1+r)} + \frac{CF_2}{(1+r)^2} + \frac{CF_3}{(1+r)^3} + \cdots + \frac{CF_n}{(1+r)^n}$$

Where,

n = Life of the asset

CF = Future cash flows in multiple periods

r = Discount rate

According to Mota and Custódio (2008) the DCF model consists in valuate a company through its potential wealth generation, which only depends on its future potential cash flows.

Taking into account that this is just a general rule, it is important to consider the two ways of getting the present value, depending on what is more interesting for the investor. The first is to value just the equity stake, (FCFE – Free Cash Flow to Equity), which gives us the equity value directly and the second is to value the whole firm (FCFF – Free Cash Flow to Firm), which expresses the market value of operating capital.

The differences between these two approaches are essentially in the cash flows and in the discount rate. In the first one, FCFE, the expected cash flows are obtained after meeting all

expenses, tax obligations and principal payments, on the other hand, the appropriate discount rate is the cost of equity, as the next equation shows:

$$P_0 = \frac{CF_1}{(1+r_e)} + \frac{CF_2}{(1+r_e)^2} + \frac{CF_3}{(1+r_e)^3} + \cdots + \frac{CF_n}{(1+r_e)^n}$$

In the second one, FCFF, the expected cash flows of the business are independent of its financing and interests or dividends should not affect it. In this case, the appropriate discount rate is the Weighed Average Cost of Capital:

$$P_0 = \frac{CF_1}{(1+WACC)} + \frac{CF_2}{(1+WACC)^2} + \frac{CF_3}{(1+WACC)^3} + \cdots + \frac{CF_n}{(1+WACC)^n}$$

Using this model to evaluate a private company could be a problem, since the measurement of risk usually requires historical prices information, which does not exist in this case. A solution for this could be to use comparable publicly traded companies to measure risks.

2.4. CAPM (Capital Asset Pricing Model)

This is an important model, since it works in order to price an individual security or portfolio and help investors calculate risk and what will be their expected return from the investment. Investors should be compensated in two different ways: by time value and by risk. In other words, to make an investment (with the same profit) without risk ("risk free") is better than making one with a systematic risk. But, if the profit in this second investment increases, both will worth the same. What about an investment with an even bigger risk?

$$r_e = r_f + \beta(r_m - r_f),$$

Where:

r_e = cost of equity

r_f = risk free rate

β = Beta, a risk measure

$r_m - r_f$ = risk premium

Basically, this expression is the most acceptable way to calculate the cost of equity and represents, if we assume an investor well diversified, the risk added to the market risk on an investment, represented by the risk premium multiplied by the Beta, this is, the additional expected return demanded by the investors if they are exposed to additional risk. Beta represents the volatility of the investment compared to the movement of the market. In this case, as SATA is a non-listed company, it is not possible to compute the Beta, however a solution for it could be making an average of Betas of comparable companies.

In conclusion, if the expected return does not make the risk worth it, the investment should not be executed.

2.5. WACC

Companies, generally, finance its assets through debt or equity and WACC (weighted average cost of capital) measures their financings. Furthermore, this measure is used by firms to evaluate the profitability to finance new projects, and also by investors to value company's shares, but some of them prefer to appeal to other methods, since this is a complicated formula and requires a lot of company's information:

$$WACC = R_E \times \frac{E}{E+D} + R_D \times \frac{D}{E+D} \times (1-t),$$

Where:

R_E = cost of equity

R_D = cost of debt

E = Market value of the firm's equity

D = Market value of the firm's debt

t = corporate tax rate

The higher the WACC, the less likely it is that the company is creating value, because it is a signal that we face a risky company and indicates that they are spending a large amount of money with the borrowing costs.

2.6. Relative Valuation or Multiples

The value of multiples can be calculated by two ways: by Enterprise Value (EV) – the market value of operating/investing capital - or by Price (P) – market value of outstanding shares. For instance, according to Bernström (2014), equity could be calculated on a direct approach, by P multiples, or indirectly, by EV multiples, although one way or another must show the same result.

Some examples of the most frequently used EV multiples (firm approach) are:

- EV/Sales: relation between market value of invested capital and revenues
- EV/EBITDA: relation between market value of invested and earnings before interest, taxes and amortization
- EV/FCFF: relation between market value of invested and free cash flow to firm.

Bernström (2014) also refers that the numerator (EV) represents the market value of the capital structure and the denominator (Sales, EBITA, FCFF) represents the return for the investors.

The equity approach (P) also has some most frequently used multiples:

- P/EBT: relation between market value of equity and earnings before taxes
- P/FCFE: relation between market value of equity and free cash flow to equity.

In this case, *"as the numerator (i.e. P) represents the market value solely of the equity capital, the denominator (i.e. the earnings or the cash flow measure) should therefor exclude income belonging to other types of investors or financers"* (Bernström, 2014: 42).

3. Industry Overview

3.1. Airline Business Models

The airline industry is one of the whole industries that have been changing the most all over the years. From the 90's until now new kinds of airlines have emerged, like the Low-Cost carriers (LCC), and the number of mergers and different types of alliances have been increasing too.

The most traditional type of airlines is the "legacy" or, in other words, "full service network" carrier. These companies regularly provide "a wide range of pre-flight an on-board" services and they often work as hub-and-spoke[1] airlines Air France, Lufthansa, British Airways or others with domestic, European and worldwide routes (with a huge range of Origin and Destinations) are examples of this type of airline. Some characteristics points of the legacy carriers are:

- The load factor[2] of these companies often increase or decrease according to the number of O&D's (Origins and Destinations);
- There are economies of scale – if the demand increase, consequently larger equipment is requires, however the unit costs per seat decline;
- The higher the number of the incoming and outgoing passengers at the hub, the higher the possible O&D markets to serve;
- The complexity of the connecting flights, the hub busy hours (peaks of arriving and departing) or even their consequent delays are some of the weaknesses of the full service network carriers.

Regarding the LCC's, they are relatively new for the travellers, offering low fares to their clients and arranging strategic measures to reduce their unit costs. One of the most intriguing things for all travellers in general is when they think in what kind of measures the LCC's adopt to reach extremely low fares, since they still are an airline, which involves a lot of fixed costs. The "***Analysis of the European air transport market***" report lists some of them.

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[1] It is a distribution paradigm to airlines. It allows passengers of knowing what is the central airport and the strategic routes of some airline.

[2] It measures the passenger's capacity and how much of this capacity has been used.

- The use of young fleet of medium sized aircraft decreases the fuel, maintenance, staff and capital costs;

- The high-density seating (the fact that the LCC's do not provide the most commodious aircrafts) reduce the unit costs of all the referred categories;

- Low-cost companies only fly to small and uncongested airports, thus the delays are reduced;

- The smaller the airport, the smaller the fee;

- These types of companies only sell online tickets;

- LCC's earn extra revenues by selling other types of services and products on-board.

The truth is that, due to all of the advantages these types of companies have been bringing for their customers their competition is increasing and, instead of focusing all their services only on short-haul[3], they are extending it to medium-haul services also.

In addition, there are also other types of airlines comparable to the LCC's, however they are even smaller and only represent a market niche. Holiday carriers and Regional carriers are two examples of them. The first one focuses their services on the transportation of tourists and it was called "charter airline" in the past. The latter, "uses smaller aircrafts and restrict their flight routes to a geographically limited area" according to **"Analysis of the European air transport market"** report.

3.2. Market Supply in Seats Offered

	FSNC	Charter	Regional	LCC
1998	9,308,074	730,367	1,323,967	593,112
2003	9,988,495	1,095,370	1,231,063	1,668,011
2008	12,274,131	974,058	987,696	6,208,044
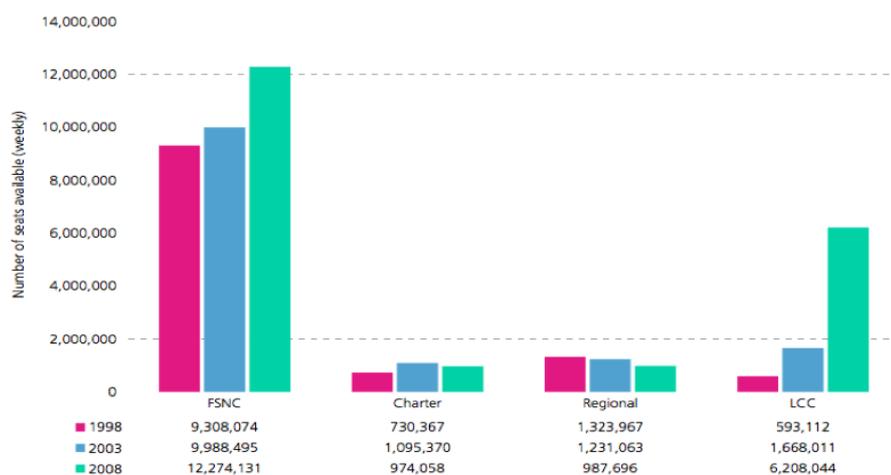
Figure 1 - Number of available seats per week within geographical Europe

(Source: Analysis of the European air transport market)

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[3] Short distances flights.

The image presented above shows us how obvious the growth of this industry, in general, is. More specifically, during that decade (between 1998 and 2008), the airline industry's growth was of 71%. This quick rise was mainly due to the second half of that decade or, in other words, between 2003 and 2005, since only during these years the airline sector rose 46%.

As far as the industry growth is concerned, the full service network carrier and the Low-cost carrier have been playing a good role in it, as it could be observed through the figure presented. Contrary, holiday and regional carriers show a decrease on their number of available seats per week, at lea least in the second half of that decade (-12% and -20%, respectively).

Regarding the LCC's boom, it is quite obvious, essentially from 2003 on. Ironically in the very beginning (counting from 1998) these companies were significantly below the holiday and the regional carriers. However, suddenly after the first five years it occurs their big boom. While between 1998 and 2003 the Low-cost airlines only grew 15%, between 2003 and 2008 it just boomed to 272%. In one hand, this sharp growth in the low-cost market was the mainly factor influencing positively the entire industry, on the other hand their success is an approach of the regional airlines services replacement. As for holiday carriers, it would lead to their decline in the market and, finally, for FSNC, they maintain their positive growth due to their long-haul services.
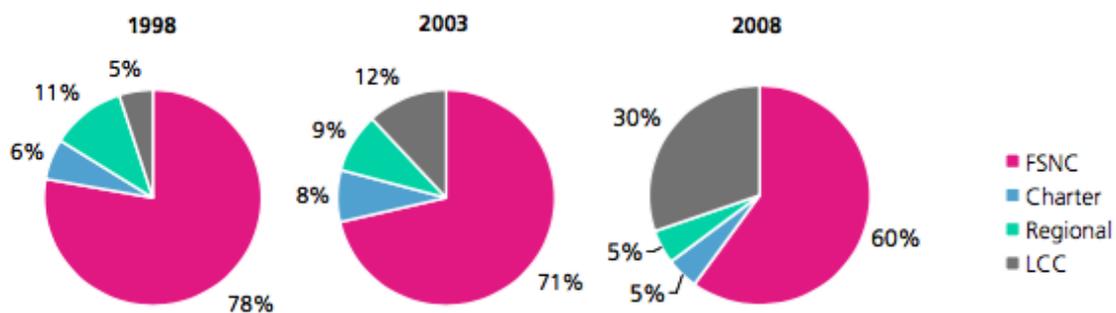
Figure 2 - Market share development

(Source: Analysis of the European air transport market)

The presented image demonstrates exactly what was explained previously – the boom of the LCC's, the maintenance of the FSNC and the decrease of holiday (charter) and regional carriers.

According to all the facts spoken until now, it is possible to affirm that this industry has been developing rapidly. Taking into account IATA Vision 2050, it is clear that, in the past 40 years, the revenue passenger kilometres (RPKs) expanded 10 times, which means an extension three times greater than the growth of the world's economies. Air travel has been one of the fastest growing sectors from since ever.

In the very beginning of air travel boom, this sector grew faster than the world trade. However, between 1999 and 2000, travel markets matured and from that time on the industry starts growing slowly, comparing to the world trade.
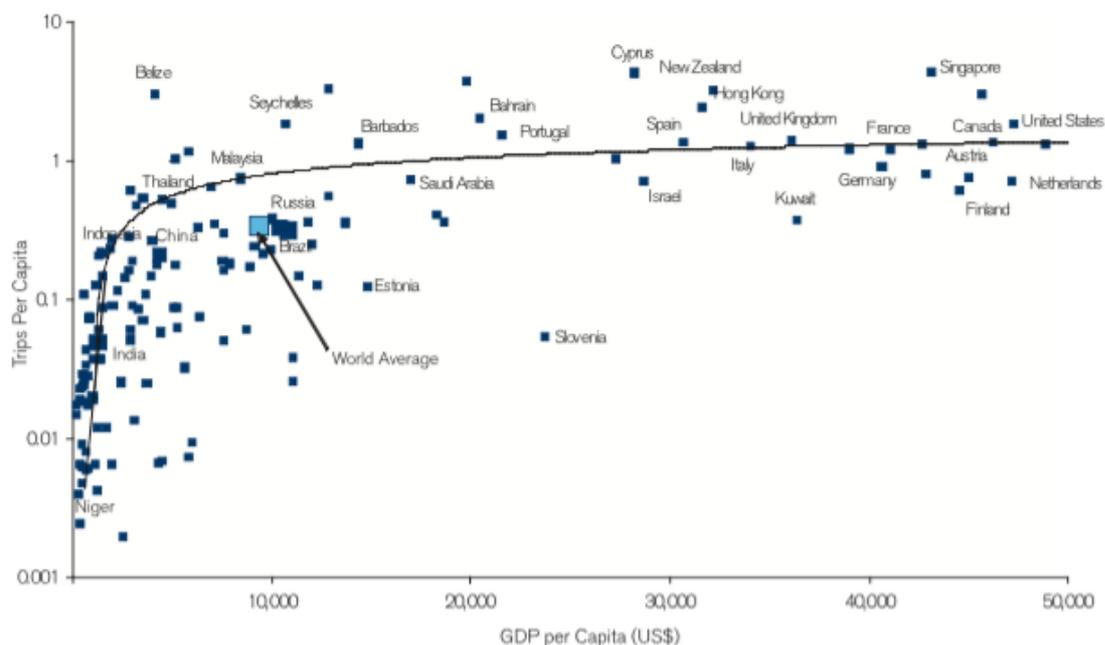
Figure 3 - Travel market at different stages of development

(Source: IATA Vision 2050)

What's more, through the figure 3 it is obvious to see that, initially, it happens the same as with the world trade - the air travel industry grew much faster than the GDP per capita. Though, while the GDP per capita achieved, approximately, between $10,000 and $15,000, the number of trips per capita, instead of growing faster than GDP, it simply levelled out. This stability was due to the air travel's market maturity.

When it comes to the air freight, initially, this factor also grew faster than the world trade, which reflects the globalization of the business and increase international trade.

As far as the air transport network is concerned, it is all about "linking cities and urban agglomerates", which, in consequence, contributes to the development of the industry.
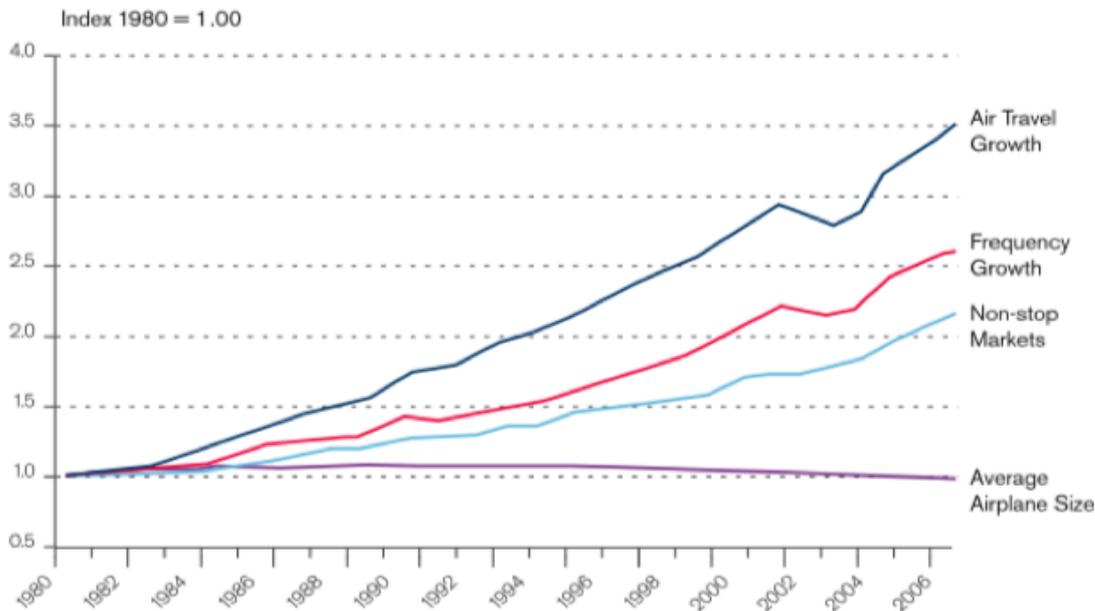
Figure 4 - Network development (city-pairs and frequencies)

(Source: IATA Vision 2050)

Regarding the consumers, they are the ones who have been benefiting from it, since over the past years the number of weekly frequencies increased more than twice, the service quality has improved and the "non-stop city-pair origin-destinations" doubled, as it is translated in the figure 4.

Moving on to the costs and flight prices, and succeeding the air travel development, since 1970 we have been assisting to an improvement of the new aircraft's efficiency, to a greater utilization and a better performance of airlines. Thus, during the past 40 years, the cost of offered air travel services has fallen more than 60% and, due to the inflation effect in the prices for consumers, it has fallen by a similar percentage, where it is proven by figure 5.
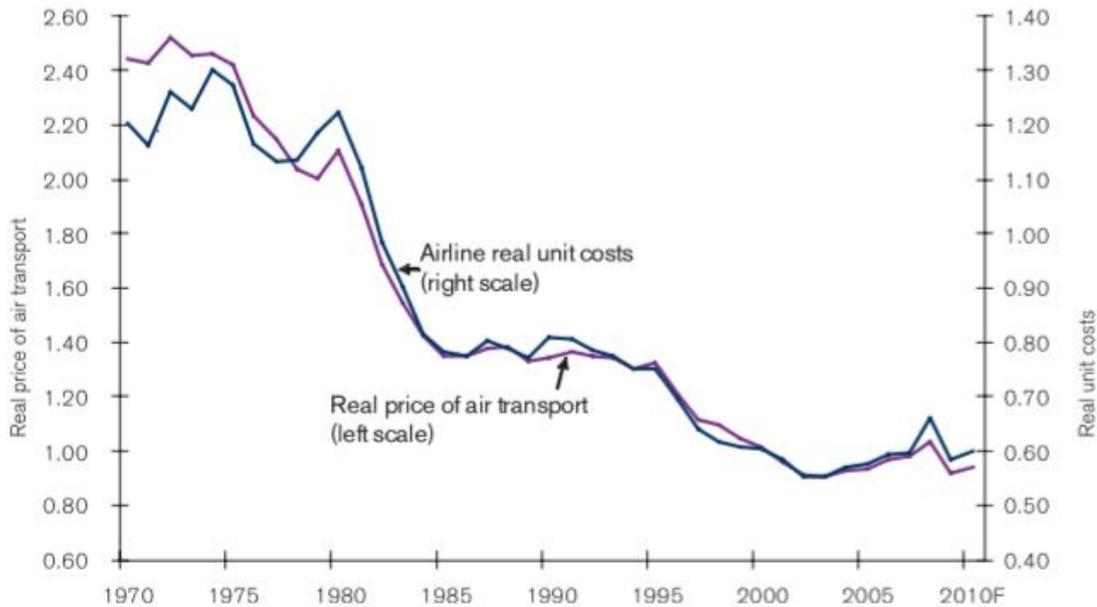
Figure 5 - The real cost's fall of air transport

(Source: IATA Vision 2050)

Next to an overview through the air travel industry, IATA Vision 2050 presents a forecast where it is predicted how the airline industry will be and who will be their customers in 2050. IATA (International Air Transport Association) expects that the air transportation sector grow twice the rate of GDP growth, which means that the number of passengers will be increasing too and yet, that the technological advances will transform the industry. In 2050 travelling in an airplane will be even faster and safer. Nonetheless, the mobile technology affects the consumer's behaviour when they travel and also on-board entertainment is no longer available in the aircrafts, since all passengers have their own entertainment needs available to take on board.

Regarding the customers in 2050, in one hand they will be older than before and, in the other hand, younger travellers are, normally, frequent fliers since ever and since early they establish their preferences concerning airlines brand and loyalty.

4. SATA – Sociedade Aérea de Transportes Açorianos

4.1. External environment

4.1.1. International environment

Before start SATA's Group descriptive analysis, it will be given a brief World's economic overview. Once aware of the current economic situation, it becomes easier to understand the way that SATA operates, and, as well their results.

In the following table are presented the GDP from different countries and, as well, from the World's economy in general. As it can be observed in the first item, the World economy, there was a moderate recovery of the GDP's variation from 2011 until 2016, apparently. The economy mainly slowed down because of the high levels of uncertainty that leads to high volatility in the financial markets causing loss of trust in economic agents. However, the recovery since 2011 has been caused, mainly, for the drop in the fuel prices.

The USA, due to the property market stabilization, private credit expansion, low unemployment rate and smoother inflation, has been showing a growth tendency. In Canada, they are facing a strong recovery due to more favourable financing condition, less pressure from fiscal consolidation and commodity boom.

GDP (% of Δ)	2010	2011	2012	2013	2014	2015P	2016P
World economy	5,1	3,8	3,3	3,3	3,3	3,5	3,7
Advanced economies	3	1,6	1,3	1,3	1,8	2,4	2,4
USA	2,4	1,8	2,2	2,2	2,4	3,6	3,3
Canada	3,2	2,4	1,9	2	2,4	2,3	2,1
Euro Zone	2	1,4	-0,4	-0,5	0,8	1,2	1,4

Table 1 - GDP's annual change rate (%) (Source: SATA Group annual report 2014)

During 2012 the Euro Zone suffered a decline in the economic activity because of the uncertainty relatively to some countries regarding the suitable appliance of policies to fight against the crises. Fortunately, until 2014 there was a recovery, even not so good as it was supposed to be due to the low investments and the reduction of inflation expectations.

4.1.2. National and Regional Environment

Since 2008 Portugal has been facing an aggressive economic crisis. From that year until now, a lot of measures were implemented to mitigate the situation. In 2012 all the processes were ongoing to reach the evolution of the economic activity. However, due to that measures, Portuguese families had to carry some consequences – increase in the price of some services, credit access restrictions and deterioration of the labor situation.

In 2014, fortunately, the economic activity was stabilized, at least better than the previous years, despite the adjustment process of macroeconomic unbalances went on.

Comparing with 2010 and 2011, it was recorded in 2012, in *Região Autónoma dos Açores*, that the Agriculture sector positively encouraged the economy. Nonetheless, the secondary and tertiary sectors brought a negative impact (due to a decrease in the electric energy production), just as well the touristic activity (there was an increase in the number of available rooms in the hotels).

Two years later the scenario has been moderately recovered. The unemployment and inflation rate dropped and the employment rate raised in all the sectors, followed up with an increase in the tourist activity.

4.2. SATA Group (Azores Airlines) – Internal Analysis

"The Atlantic and You"

SATA Group Slogan

SATA is an Azorean airline founded in 1941, which five friends named "*Sociedade Açoriana de Estudos Aéreos, Lda*" (*"Azorean Society of Aerial Studies"*). Six years later (1947) this society realized the first flight in a plane with seven passengers and a crew composed by two people, so their name changed to *"Sociedade Açoriana de Transportes Aéreos"* (*"Azorean Society of Air Transports"*) - SATA. After this, partners wanted to increase the number of the aircrafts and in 1964 they already had a plane with a capacity for 26 passengers. As consequence of all the company's improvements, in 1977 SATA Group had already transported 1 million passengers.

During all this years and until now this company was able to reach a lot of employees and by now is composed by 6 enterprises:

- SATA *Air Açores* (only flights between the nine Azorean islands)

- SATA *International* (it links the Azores with all the other destination abroad)
- SATA Express (flights between Canada and Azores)
- Azores Express (flights between EUA and Azores)
- SATA *Gestão de Aeródromos* (Airport infrastructures management in Pico, Graciosa, Corvo and S. Jorge islands)
- SATA SGPS (Management of the Azorean's air transport)

Despite all of the success, as all the others companies sometimes things do not always go as planned. Some of SATA's aircrafts suffered some accidents, which caused some victims. The first one was in the beginning of SATA's story in 1948, the second one in 1999 (the biggest accident, with more victims) and the last in 2009 (without victims).

4.2.1. Business Model

SATA operates in four business units – air transportation, airplane assistance, aerodrome management and touristic operation. In order to make it works, SATA evolve all the company in critic activities – revenues management, handling operations -, working with their partners and attending to all their customers' needs through their sales channels.

SATA Group has the objective of bringing the World into Azores and taking the Azores to the World, aiming to be a referent company all over the international commercial aviation world. Reliability, sympathy and innovation are their values that SATA believes that will lead them to reach all their strategic objectives – cost reduction, SATA's promotion in their activity markets, and operational innovation.

Since, at least, 2011 SATA have been working on their strategic objectives and, due to the financial liability tightening during these years, the first thing to carry on are the cost reduction. Some of the procedures in 2014 were contract renegotiation with Handling Agents, optimizing their consumption and fuel supply and flight plans, workshop areas development (instead of buying external services), improve sales through the SATA website and flight training carried by internal examiners. Another important issue to SATA Group is to improve and be aware of their operating market, since they work a lot on routes improvements. By now, SATA gives the Azoreans the opportunity to fly to over 30 destinations promoting the Azores around the World. Thus, the company should support the promotion by being present in several international travel events: SATA was present in 37 international fairs; realized the "*Fly to Europe 2015*" workshop to tourism professionals in Boston; promoted the offline markets

linkages in North of Europe via Munich and Frankfurt; focus on direct regular flight between Ponta Delgada and Madrid.

To make it all work and to emphasize SATA between all their competitors, they might be conscious about the importance of new technologies. Thus, 2012 and 2013 were two revolutionary years in terms of technology - SATA launched resident's promotional tariff and SATA4Agents, the Online Insurances, a new Website, the resident's Web Check-in and SATA Connect and "Passbook" apps. Aligned with all of these progresses, it is emerged a company with more corporate, personal and social development, higher quality services, more efficiency and with greater economic development and competitiveness. To concur with these developments, 2014 was characterized as a developer of the new products and website functionalities, as well of the client's relation and information management and internal systems improvements, e.g. PayPal is a new way of online payment or SATA4Agents website's optimization.

4.2.2. Fleet

2010 was a very tough year to the aviation sector, including for SATA due to 4 aspects: the European macroeconomic environment; the National economic situation; some atypical incidents that brought down the sector and the closure of the European air space (due to a volcanic crisis). Despite this, 2010 was the year when SATA concretized, in the right timing, with the expected budget and with safety, the fleet renewal project. The entrance of 4 Bombardier Q400NextGen, SATA *Air Açores* won vitality to the next decades and was considered the younger regional company in Europe, aligned with an improvement in operational reliability, safety and comfort. Moreover, these aircrafts guarantee bigger passengers transport's capacity, reducing the environmental impact induced from this activity.

Hence, nowadays, SATA Group owns a total of 12 aircrafts. SATA *Air Açores* (SAA) owns 2 *Bombardier* Q200 and 4 *Bombardier* Q400, while SATA *International* (SI) possesses 3 Airbus A310-300, 1 Airbus A310-325, 3 Airbus A320-200 and 1 Airbus A330-223 acquired in 2015.

4.2.3. Routes, Destination and Human Resources

As it had already been stated, SATA Group is divided into 6 companies, which 2 of them – SATA *Air Açores* and SATA *Internacional* - are responsible for the commercial flights with more than 20 cities and 50 routes. Since 2010 until 2014 there were some changes in terms of destinations (some were added and some were interrupted), as well in terms of routes. Some flights are operated by SATA *Air Açores,* and others operated by SATA *Internacional* (SATA *Air Açores* subsidiary). Briefing the modifications mentioned in the table below, in 2010 and 2011 SATA Group flew to 31 regular destinations, in 2012 to 34, in 2013 to 38 and in 2014 reduced the quantity of regular destinations to 25.

	2010	2011	2012	2013	2014
Regular Destinations	31	31	33	38	25
Flights	22 108	21 402	20 326	19 144	17 256
Passengers	1 848 890	1 352 341	1 236 119	1 195 251	1 180 146
Employees	1 258	1 222	1 241	1 288	1 330

Table 2 - SATA's Operational Data (Source: SATA Group annual report 2014)

To summarize all the information related with flights, destinations, passengers and employees, it was illustrated in the table above to be easier to understand. The mainly issues associated with the slight decline in all these subjects, through the years, are the entrance of the new 4 aircrafts to SATA *Air Açores* and also the International, National and Regional economic environment. Nonetheless, since the new fleet has a greater passenger's capacity, the number of performed flights drops.

The decline in air passengers and employees are directly associated and aligned with the economic crisis. Nevertheless, the number of passengers and flights declines, but the number of employees rises due to the increase in the number of regular destinations.

4.2.4. Competitors

In 2014 it was announced that the TAP and SATA's monopoly in the Azores was close to the end, due to the migration of the Low-cost companies to the Azores. Ryanair and EasyJet start their Azorean routes in the summer of 2015. This big change will increase the number of

flights to the islands (by now only to Ponta Delgada, with high probabilities, in the future, of flight to Terceira) in 40%, apart from the prices will represent only 10% of SATA's prices.

A lot of articles support the hypothesis that the reason why SATA sets so high prices was due to lack of competition, thus that tariff reduction come in order to smooth it and pull SATA and TAP's prices down.

The Azorean Government (SATA's Group shareholder) is committed to help them win all the new challenges, facing the low-cost competitors. Regarding SATA, they might adapt themselves to the new work conditions taking into account all of their skilled staff with a lot of expertise and know-how.

The entrance of these new companies into the Azorean routes was one of the biggest achievements in the Azorean air transport history. By now, it is worth to observe and study the boom in the Azorean tourism due to the more suitable flight prices.

4.2.5. Financial Analysis

In the following table is illustrated SATA Group's economic activity during 5 years (from 2010 until 2014). Now, it is important to understand where the values came from and how the differences do were originated.

	2010	2011	2012	2013	2014
Operational Revenues	252 595,00 €	226 185,00 €	220 480,00 €	204 456,00 €	185 157,00 €
Operational Expenses	176 515,00 €	152 032,00 €	146 341,00 €	227 343,00 €	216 489,00 €
Net Income	-3 531,00 €	527,00 €	73,00 €	-30 361,00 €	-34 784,00 €
Debt	91 679,00 €	88 160,00 €	107 896,00 €	124 471,00 €	152 660,00 €

Table 3 - SATA's Financial Performance (Source: SATA Group annual report 2014)

First of all it is important to explain the Operational Revenues and Expenses and the respective differences over the years. Looking at the table above, it is easy to see that both values dropped in 2011 (relatively to 2010). In one hand, the main reasons why for the revenue's decay were the reduction in the volume of passengers and load carried. In the other, what were really related with Expense's recession were the reduction in the staff costs (due to the remuneration's reduction plan requested in the State Budget), and, as well the reduction in the External Services and Supplies (FSE) since SATA Group signed new contracts with their suppliers in order to reduce costs and rise the competitiveness.

Moving on to 2012, the reduction continues. In association with the revenue's decrease are the provided services (11 million euros down) in contrast to other revenues that increased 5.5 million euros, mitigating the loss. The expense's decrease is directly related mostly with the lack of the sector's demand and with the recessive economic environment. The decline continues during 2013 and 2014.

In 2013, in general, the operational revenues went down, despite of having a slight increase SATA's *Air Açores* revenues due to the rise in sales and services and other revenues. Conversely, in SATA International suffered with the pressure because of the tariff reduction. Regarding the expenses in that year, SATA *Air Açores* and SATA International raised their numbers, thus SATA has grown up 17 million euros since 2012 related with the salary's cut replacement and, for the same reason allied with External Services and Supplies, it was added 10 million euros to their operational expenses.

Finally, the Revenue's climb and expense's decrease characterized 2014. The first one was due to the obtained income's break related to the air transport activity, and the second one caused mainly due to the big values of staff and fuel expenses.

In general, the low and negative values associated with the operating income are related with SATA's seasonality (in the summer there are a greater number of flights and carried passengers), combined with the expenses generated by the staff's expenses and aircraft maintenance.

4.2.6. SATA's News

The Randstad Company in association with the ICAM Group celebrated the *Randstad Awards 2016* taking into account more than 7200 surveys regarding *employer branding* around the World. As a result of this study SATA International (Azores Airlines) was the winner (between other 20 random portuguese companies) taking the first place as the best company to work in Portugal.

Despite being the most attractive company to work in their own country, SATA has been facing negative results until 2014. However, the previous companies' CEO, Paulo Menezes, aspires that in the end of 2015 the results will be significantly different. In order to obtain the desired results, SATA Group have a new business plan to accomplish until 2020, which their main goal is to reduce costs without firing any of their employees. Some of the strategies they found more suitable to reach their purpose were the following:

- Debt Renegotiation – the airline wants to renegotiate the payment deadlines of the debt, transforming some part into short-term and in medium/long term, while they try to recover their receivables in order to pay it until 2020.

- Replace Fleet – SATA tend to replace 4 of their airplanes by 2 with a higher capacity to reduce the labour (they will not renew the contracts or replace the future retired pilots) and maintenance costs.

- Azores Airlines – The company that the previously was called SATA *Internacional* gains a new name.

- Creation of "*SATA Serviços Partilhados*" – Aiming to take responsibility on accounting services, suppliers, human resources and information systems of all companies owned by SATA Group, a new department was born.

- Creation of "*SATA Serviços*" – Provide the handling services in all the Azorean airports, even to the new competitors, as Ryanair or EasyJet (since 2015).

- New Business Model – SATA SGPS will entirely own SATA *Air Açores*, SATA *Internacional* (Azores Airlines), "*SATA Serviços Partilhados*" and "*SATA Serviços*".

Since this company is exclusively owned by the Regional Government, during 5 years (2015 - 2020) SATA Group will be given around 135M€ by this entity in order to help them getting the desirable results. Besides SATA own all the Azorean aerodrome and provide all the handling services (contributing to the regional employment), the airlines' income represents 5% of the regional GDP and the majority of their suppliers are Azoreans. So, at this time SATA need to focus on the markets that they are already in providing them with the service they expect and, at the same time, improve it instead of entering in new ones.

5. SATA Group (Azores Airlines) Valuation

5.1. Discounted Cash Flows Model (DCF Model)

One of the most popular methods to evaluate a company is the Discounted Cash Flows model, since it translates the present value of a firm through its future cash flows discounted by a certain discount rate. In this method there are two available ways to evaluate a company: Free Cash Flow to the Firm (FCFF) or Free Cash Flow to the Equity (FCFE). Basically, the biggest difference between those two theories is their discount rate, as one is discounted by the weighted average of capital (WACC) and the other with the cost of equity (R_E), respectively.

The DCF method is the most correct way to valuate a company and it represented for the following formula:

$$Value = \frac{CF_1}{(1+i)^1} + \frac{CF_2}{(1+i)^2} + \cdots + \frac{CF_\infty}{(1+i)^\infty} = \sum_{n=i}^{\infty} \frac{CF_n}{(1+i)^n} \quad (1)$$

Where,

CF = cash flow

i = discount rate (WACC or R_E)

n = time periods from to infinity

It is very hard to predict the future values of a company until infinity and, still, maintaining it credible. Although, when the DCF approach is used to value a company, this future value is often combined with a terminal value, which represents that value in a distant future. Consequently, instead of using the equation (1), which it is supposed to end at some period of time, we should use the following formula that project the value until infinity:

$$Enterprise\ Value = \sum_{n=1}^{t} \frac{CF_n}{(1+i)^n} + \frac{TV_t}{(1+i)^t} \quad (2)$$

Where,

CF – cash flow

i – Discount rate (WACC or R_E)

n – Time periods

TV – terminal value (representing continuing value or the terminal value)

The terminal value is represented by the following formula:

$$TV_n = \frac{DCF_{n+1}}{i-g}, (3)$$

Where,

DCF$_t$ – Discounted cash flow

g - Perpetuity growth rate

i - Discount rate (WACC or R$_E$)

The SATA's case is not an exception. We need to calculate their discounted future value through a certain discount rate or another so we can achieve the Terminal Value (TV), the Enterprise Value (EV) and the Equity Value and, through this process, reach the true value of this company. Well, to get these values it is needed to take into account some historical values of SATA and, as well, comparable firms' information so we could compute the discount rates and, only after that, it is possible to calculate the value of the company.

5.1.1. Free Cash Flow to the Firm (FCFF)

As far as the **Free Cash Flow to the Firm** concerns, it comes that:

$$FCFF = EBIT(1-t) - \Delta Net\ Fixed\ Assets\ (CAPEX) - \Delta NWCN \ (4)$$

The equation above represents the one used to calculate the FCFF, where it is needed to calculate three main items:

Regarding the first item, EBIT (1-t), it is represented for the following formula:

$$EBIT(1 - tax\ rate) = Operating\ Revenues \times Return\ on\ Sales\ (after\ taxes)\ (5)$$

As for the previous equation, there are two important parts that matter. The initial step to take into account while calculating the earnings before interests after taxes or net operating profit after taxes (EBIT AT or NOPAT) is that it is the forecast of the future SATA's operating revenues.

First of all, it is needed to compute SATA's nominal yearly growth rate (g$_n$) from 2011 until 2014 just to understand how was the company's revenues before the valuation, since all we need is an estimation of that and know how they will grow between 2015 and 2019. As it is demonstrated in table 4, at least between 2011 and 2014 the operating revenues of SATA

tended to quickly decline more than 10% in 2014, which shows a huge decrease comparing with 2013.

	2010	2011	2012	2013	2014
Operating Revenues	233 329 665,00 €	230 013 910,00€	210 550 032,00€	203 730 401,00€	182 122 107,00€
g_n		-1,42%	-8,46%	-3,24%	-10,61%

Table 4 - Revenues growth between 2010 and 2014

Observing those growth rates and knowing all the SATA's historical results, we could made an assumption of SATA's growth rate to the next year (2015), which would be -5,93% since 2015 it is considered yet as a tough year for SATA due to the entrance of low cost companies into the Azores market and the branding modification (SATA Group has a new name/branding in the present – Azores Airlines). In 2016 it is expected that the airline starts to get their good results back as in 2012 and 2011, so this year on it is expected that the growth rate get near to the one they had in 2013. In 2017 the results follow the same rationality and it would be the same (or approximately) as in 2011. Finally in 2018 it would expect that the revenues growth rate would be the same as the inflation rate in 2015 (represented in table 11).

	2015	2016	2017	2018	2019
Operating Revenues	171 318 449,76€	165 769 513,96€	163 413 829,37€	166 763 812,88€	165 096 174,75€
g_n	-5,93%	-3,24%	-1,42%	-1,00%	2,05%

Table 5 - Revenues growth between 2015 and 2019

In 2019, we assume that SATA will be stable and will be able to get positive growth rates (perpetuity growth rate), hence, increase their Operating Revenues.

Secondly, it is required to pay attention to the Return on Sales (ROS) after taxes that is computed by:

$$Return\ on\ Sales = \frac{EBIT}{Operating\ Revenues} \quad (6)$$

By applying this formula for every SATA's historical year and, at the end, an average of those values, so it could be used as an assumption of the forecasted ROS values.

	2011	2012	2013	2014
Operating Revenues	230 013 910,00€	210 550 032,00€	203 730 401,00€	182 122 107,00€
EBIT	4 558 377,00€	7 160 252,00€	-22 886 583,00€	-31 332 072,00€
ROS	1,98%	3,40%	-11,23%	-17,28%

Table 6 - Return on Sales

As it is noticed in table 6, from 2013 on the percentage of profit relatively to their revenues is significantly declining more and more, mainly because SATA's net operating income (EBIT) became negative since that year. What's more, it is noticeable that the Return on Sales is a quite irregular variable, so the best solution would be to average the values between 2011 and 2013 (because of the poor results of 2014), resulting on a value of -1,95%, and use it as a forecast for that ratio in 2015 and 2016. From 2017 to 2019 the ROS would approximate its value to a normal year value, such as 3,4% in 2012. Nonetheless, the tax effect should be removed from the Return on Sales ratio.

The following table basically translates the EBIT (1-t) values representing the first portion that will be used on the calculation of the SATA's Free Cash Flow to the Firm, as it is explicit in the equation 5.

	2015	2016	2017	2018	2019
Operating Revenues	171 318 449,76€	165 769 513,96€	163 413 829,37€	166 763 812,88€	165 096 174,75€
ROS (after taxes)	-1,95%	-1,95%	3,40%	3,40%	3,40%
EBIT (1-t)	-2 639 719,94€	-2 554 220,47€	4 390 246,39 €	4 480 246,44€	4 435 44397€,

Table 7 - Revenues, ROS and EBIT(1-t) forecast

Moving on to the second item for the FCFF calculation, ΔNet Fixed Assets (CAPEX), also known as Capital Expenditure, it is represented by the Total of the Non-Current Assets,

which include tangible fixed assets, intangible fixed assets, financial participations, deferred taxes and accounts receivable.

	2015	2016	2017	2018	2019
Operating Revenues	171 318 449,76€	165 769 513,96€	163 413 829,37€	166 763 812,88€	165 096 174,75€
(Fixed Assets/Operating Revenues)	38,06%	38,60%	38,60%	38,60%	38,60%
Fixed Assets	66 133 096,71 €	63 991 072,26 €	63 081 720,61 €	64 374 895,88 €	63 731 146,92€
Δ Fixed Assets (Net CAPEX)	-7 125 946,29 €	-2 142 024,45 €	-909 351,66 €	1 293 175,27 €	- 643 748,96€

Table 8 - Net Capex forecast

Due to its cash outflow effect, it is not reflected in the income statement, the Capital Expenditure variation will be deducted from the FCFF. The values predicted from 2015 until 2019 were reached by computing an average between 2011 and 2014. So, the value of the Fixed Assets were divided by the Operating Revenues (historical data) and, the average of these values (excluding 2014), which results on 38,06%, will be multiplied by the predicted Operating Revenues. Those values are represented in table 8 followed by their variation between 2014 and 2019.

Finally, regarding to ΔNet Working Capital Needs (ΔNWCN), it is represented by the next equation:

$$\Delta \boldsymbol{Net\ Working\ Capital\ Needs} = \ Net\ Op.WCN + Net\ Non\ Op.WCN \ (7)$$

The previous equation represents the last part required to the calculation of the Free Cash Flow to the Firm, which includes the sum of the Net Operating Working Capital Needs (Operating current Liabilities deducted from the Operating current Assets) and the Net Non-Operating Working Capital Needs (Non-Operating current Liabilities deducted from the Non-Operating current Assets).

In table 9 it is observed that it is used exactly the same process explained before to estimate the Net Working Capital Needs for the SATA's future years: the NWCN were divided by the Operating Revenues of historical years (from 2011 to 2014), it is computed an average

of those values and multiplied by all of the Operating Revenue's future values (from 2015 until 2019). Lastly, it is calculated the variation of those results to be deducted from the FCFF, since it does not represent any actual cash flow.

	2015	2016	2017	2018	2019
Operational Revenues	171 318 449,76€	165 769 513,96€	163 413 829,37€	166 763 812,88€	165 096 174,75€
NWCN / Operational Revenues	24,56%	24,56%	24,56%	24,56%	24,56%
NWCN	40 109 294,64 €	38 810 170,69 €	38 258 654,80 €	39 042 957,22 €	38 652 527, 65€
ΔNWCN	-8 954 607, 36€	-1 299 123,95 €	-551 515, 89€	784 302,42 €	-390 429, 92€

Table 9 - NWCN forecast

So, as far as Free Cash Flow to the Firm is concerned, we already have available all the values needed to compute it.

	2015	2016	2017	2018	2019
EBIT (1-t)	-2 639 719,94€	-2 554 220,47€	4 390 246,39 €	4 480 246,44€	4 435 44397€,
Net CAPEX	-7 125 946,29 €	-2 142 024,45 €	-909 351,66 €	1 293 175,27 €	- 643 748,96€
ΔNWCN	-8 954 607, 36€	-1 299 123,95 €	-551 515, 89€	784 302,42 €	-390 429, 92€
FCFF	13 440 833,71€	886 927,93 €	5 851 113,74 €	2 402 768,95€	5 469 622,50€

Table 10 - FCFF (Free Cash Flow to the Firm)

As Mota and Custódio (2007) referred, the value of a company does not depend on its actual situation but on its future cash flows. Hence, it is needed to discount (at a certain discount rate, in this case WACC, which will be explained below) those future cash flows – using equation (1) applied to the FCFF - to reach the actual values. What's more, instead of the financial cash flows, the operational cash flows are the ones reflected by this model.

An important question regarding the valuation process of a company is the fact that its lifetime is unlimited. Because of that, in these cases the provisional period is often subdivided

into two periods (as it was demonstrated in equation (2), but now according to the FCFF approach:

- The first one is just a normal period where the FCFF is properly estimated;
- The second one, is the terminal value (TV) – represented in the equation 3 -, which is empirically estimated corresponding to the perpetuity or, in other words, to a stability period.

After that it is possible to compute the Enterprise Value (EV), which is obtained through the sum of all the discounted (at WACC – Weighted Average Cost of Capital, which will be explained soon) future values of the FCFF added to the discounted value of the terminal value (TV) – which will be also explained soon. Furthermore, the Equity Value is obtained only adding the Non-Operating Assets and deducting the Debt to the Enterprise Value, as it is demonstrated below:

$$Equity\ Value = EV + NOA - D \quad (8)$$

Where,

EV – Enterprise Value

NOA – Non Operating Assets

D – Debt

Regarding the TV, and according to Mota and Custódio (2007), this value plays, as it has been clarified, an important role in the company's evaluation and it is very important to be computed, since it represents the biggest part of the enterprise value. TV is represented by the following equation:

$$TV_n\ FCFF\ Approach = \frac{FCFF_{n+1}}{WACC - g} \quad (9)$$

Where,

$FCFF_{n+1}$ – Free cash flow at n+1 period (being *n* the last provisional year)

g – Annual perpetuity growth rate

WACC – Weighted average cost of capital

This value is the one that it is calculated as perpetuity for the FCFF, assuming for it a certain long-term growth rate, g, which in this case will be represented as an average of the inflation

rate of the last years (table 11), thus, there is no longer need to estimate forecasts with a high level of detail to those huge periods of time.

	2010	2011	2012	2013	2014	2015	Average
Inflation rates	4,60%	8,90%	3,30%	-2,30%	-1,20%	-1,00%	**2,05%**

Table 11 - Inflation rates (Source: Pordata)

As for the WACC, it represents the discounted rate suitable to discount all the future cash flows available to all the investors. It is really important to maintain a level of consistency between the methodologies used in the DCF model and, as well, in the WACC computation, and, for it, it is crucial to consider the SATA's financing sources; to use the debt and equity market values aiming to reach more reliable values for the company; and to adjust the WACC during the valuation period according to the inflation rate or even SATA's financing sources. It is represented by the following equation:

$$\boldsymbol{WACC} = R_D(1-t) \times \frac{D}{D+E} + R_E \times \frac{E}{D+E} \quad (10)$$

Where,

R_D – Cost of capital

R_E – Cost of equity

D – Debt

E – Equity

t – Corporate tax rate

So, before we could calculate the WACC, it is needed to find out each one of those presented variables.

When it comes to the Cost of debt (R_D) it represents the rate at which SATA can borrow money. To publicly traded companies it is relatively easy to find out this value, since they often use the issued yields on bonds or even the rating for these bonds to reach the default spreads. For non-publicly traded firms it is not that easy, since these types of companies are not rated and do not have bonds outstanding. Hence, in our case we calculated SATA's cost of debt through the following formula:

$$R_D = \frac{Interest\ Expense}{Financial\ Debt} = \frac{Interest\ Expense}{Short\ term\ debt + Long\ term\ debt} \quad (11)$$

After applying this formula for all the past years (since 2011 until 2014) we assumed that the most suitable value for SATA's cost of debt was the average of these value, which result in $R_D = 4,89\%$ (Annex 8.3).

As for the Capital Structure the best solution should be the utilization of a *target* to the financial structure, which would not be like the real company's structure. It is done mainly to avoid the circularity problem, since it cannot be estimated the market values without the WACC and the WACC cannot be estimated also without the market values. While assuming a *target,* it is essential to take into account the comparable firms that could really be SATA's competitors depending, mainly, on their business strategy and on their location. To estimate this *target,* we follow the Damodaran's updated information regarding the Market D/E divided by industries, where we can take the information related to the air transport industry, in which Damodaran assumption regarding Market debt to equity for this industry is 37,87%.

When it comes to the Corporation tax rate, the Deloitte website concludes that in Portugal it is 21%.

Moving on to the Cost of Equity (R_E), it is required the appliance of the CAPM (Capital Assets Pricing Model) in which are needed three inputs presented in the following equation:

$$CAPM: R_E = r_F + \beta_L \times (r_M - r_F) \quad (12)$$

Where,

r_F – risk free rate

β_L – beta

$(r_M - r_F)$ – Risk premium

R_E	4,89%
β_L	1,05
$r_M - r_F$	5,70%
r_F	0,84 %

Table 12 - CAPM items

According to Damodaran (2008), when investors buy some asset they are always expecting some return, however those returns not always are what they really expect. Thus, it

is clearly that the risk in those cases is viewed as a variance between the investors' expected returns and the actual ones. If the actual and the expected returns were the same, we could say that that investment was a risk free one. This rate is a "building block" for the estimation of the Cost of Equity and, because of this, we really need to estimate it. Taking into account Bruner et al (1998) study, in one hand, it was found out that one of the greatest parts of the Corporations (33%) use ten-years Treasuries and another huge part (33% also) of them use ten- to 30-years Treasury. In the other hand, we need to decide what type of risk free rate we will choose. Since SATA is a Portuguese company, we should pick up an European risk free rate, and, knowing that the German Government Bond has a triple A rating, it would be the best option. Nonetheless, as we are doing the valuation with information until 2014, we decided to pick a risk-free rate from 2014. So, on September 30th of 2014 the 10-year Treasury of the German Government Bond ended up with a yield o of 0,84%.

As far as risk premium is concerned it could be quantified by the difference between the general market yield and a risk free investment, but the main issue concerning this variable is that this premium fluctuates according to the considered period. Taking into account Fernandez et al (2015), it was made a research where they sent numerous e-mails to finance and economics professor with a survey in order to find out the Market Risk Premium used in different countries. According to this, answers from 41 different countries, including Portugal, were obtained. As it was already referred, as SATA is a Portuguese company, it makes sense applying here the most common Market Risk Premium in Portugal, which is, according to the research, 5,70%.

Finally, regarding Beta, it is obtained by regression statistics techniques with company's historical data, however, since SATA is a non-listed company, in this case the beta should be computed taking into account some other listed airlines (Annex 8.4) and according their historical data. Although the Beta we get through these calculations is an approximation of Beta Unlevered, which represents *"the portion of asset's total risk that is not correlated with general market movements"* (Bernström, 2014: 109), which is not the risk measure required to calculate the Cost of Equity. Thus, through the following formula, it is possible to use the Beta Unlevered and transform it into Beta Levered – *"the portion of asset's total risk that is correlated with overall market movements"* (Bernström, 2014: 109) -, resulting in 0,88.

$$\boldsymbol{\beta_L} = \beta_U \times (1 + (1 - t)(D)/E))\ (11)$$

Where,

β_L – Levered beta

βU – Unlevered beta

t – Corporate tax rate

D/E – Debt/Equity ratio

At this moment we are able to compute the discount rate to the Free Cash Flow to the Firm.

WACC	5,60%
r_D	4,69%
E/E+D	58,93%
D/E+D	41,07%
t	21%
r_E	6,81%

Table 13 - WACC calculation

The previous table describes all the achieved values from all the assumed assumptions to reach the purpose, which is the computation of the terminal value (TV), the enterprise value (EV) and the equity value, as it was already explained before, through the Free Cash Flow to the Firm method. So, the first step to follow is to compute the discounted FCFF using the appropriated discount rate, the WACC, and according to the equation (1), in order to discover the actual values of SATA's future Free Cash Flows to the Firm.

	2015	2016	2017	2018	2019
FCFF	13 440 833,71€	886 927,93 €	5 851 113,93 €	2 402 768,74€	5 469 622,50€
Discounted FCFF	12 727 697,99 €	795 308,53 €	4 968 319,48 €	1 931 997,62 €	4 164 622,30€

Table 14 - Free Cash Flow to the Firm and Discounted FCFF

After the computation of the previous values we are finally able to figure out the values of SATA's enterprise value, equity value and terminal value, respectively.

TV	157 098 652,54 €
Discounted TV	119 616 319,82 €
EV	144 204 345,73 €
Equity Value	-18 050 980,27 €

Table 15 - Terminal Value, Enterprise Value and Equity Value (FCFF)

5.1.2. Free Cash Flow to the Equity (FCFE)

Regarding the **Free Cash Flow to Equity**, it is another discounted cash flow model used to discover the value of a company. This method is similar to the Dividends method but, since SATA is a non-listed company, this one cannot be used. More specifically, FCFE measures how much money could SATA's shareholders receive after all the expenses and debt are accounted, this one is not available in this case. Hence, we need to estimate the estimated future values of the cash flows:

$$FCFE = FCFF + \Delta Debt - Interest\ Expense\ (1 - t)\ (12)$$

Where,

FCFF – Free Cash Flow to the Firm

Δ Debt – Variation on Debt

t – Tax rate

According to our previous calculation, we already have available the first part of the equation (12), FCFF. In order to know the Debt variation during the future provisional life duration it is important to consider the Debt/Revenues ratio taking into account the historical data of the company, between years 2011 and 2013. This ratio, presented in the table above, represents an average of all the Debt/Revenues ratios during all the SATA's historical years considered.

	2015	2016	2017	2018	2019
Operational Revenues	171 318 449,76€	165 769 513,96€	163 413 829,37€	166 763 812,88€	165 096 174,75€
Debt/Op. Revenues	55,38%	55,38%	55,38%	55,38%	55,38%
Estimated Debt	94 876 576,68 €	91 0803 562,46 €	90 498 978,57 €	92 354 207,63 €	91 430 665,56€
Δ Debt	-67 409 536,32 €	-3 073 014,23 €	-1 304 583,89 €	1 855 229,06 €	-923 542,08€

Table 16 - Debt Variation

Thus, aiming to obtain the estimated values for Debt it is needed to multiply that ratio, 55,38%, by the Operational Revenues forecast of the company. After that, it is required by the formula (12), FCFE formula, and the computation of the Debt variation during the SATA's future provisional years, which is already represented in the table above. As is it possible to notice, in 2015 SATA Group decreased significantly their debt and, after that the company enter in a very stability moment of its life, at least until 2019, since in that year its debt tends to increase again, due to a decrease in Operational Revenues.

Lastly, to calculate the Free Cash Flow to Equity we are also requested to estimate the forecast of the future values of the Interest Expense after taxes.

	2015	2016	2017	2018	2019
Estimated Debt	94 876 576, 68€	91 803 562, 46€	90 498 978, 57€	92 354 207, 63€	91 403 665, 56, €
R_D	4,89%	4,89%	4,89%	4,89%	4,89%
Interest Expense	4 640 265, 95€	4 489 969, 60€	4 426 164, 43€	4 516 900, 80€	4 471 731, 79€
(1-t)	79%	79%	79%	79%	79%
Interest Expense (1-t)	3 665 810, 10€	3 547 075, 98€	3 496 669, 90€	3 568 351, 63€	3 532 668, 11€

Table 17 - Interest Expense after taxes

In order to find out this value, it is usually used the Cost of Capital (R_D), which is multiplied by the estimated values for Debt calculated before, while the following step is delete the tax effect, 21%, from the Interest Expense.

At this time, we are finally able to figure out the future values of the FCFE applying formula (12).

	2015	2016	2017	2018	2019
FCFF	13 440 833,71€	886 927,93 €	5 851 113,93 €	2 402 768,74€	5 469 622,50€
Δ Debt	-67 409 536,32 €	-3 073 014,23 €	-1 304 583,89 €	1 855 229,06 €	-923 542,08€
Interest Expense (1-t)	3 665 810, 10€	3 547 075, 98€	3 496 669, 90€	3 568 351, 63€	3 532 668, 11€
FCFE	-57 634 512,70 €	-5 733 162,28 €	1 049 860,15 €	689 646,17 €	1 013 412,31€

Table 18 - Free Cash Flow to the Equity calculation

Reaching the previous value, FCFE, it is finally possible to figure out the discounted values of it, as it was computed in the FCFF but with a different discount rate than FCFF. Instead of using the WACC as a discounted rate, we will use the Cost of Equity (R_E), which was already explained above through the CAPM model, which corresponds to a rate of 5,45%. These discounted cash flows will lead us to calculate the Terminal Value, the Enterprise Value and the Equity value, but now, through the equity method. As far as the Terminal Value in the FCFE approach is concerned, now we should use the Cost of Equity as the discounted rate so, to compute it, the following equation according to Gordon's Growth model is needed:

$$TV_n \ FCFE \ Approach = \frac{FCFE_{n+1}}{r_E - g} \quad (13)$$

Where,

FCFE $_{n+1}$ - *Free cash flow* at n+1 period (being *n* the last provisional year)

g – Annual perpetuity growth rate

R_E – Cost of Equity

So, next to achieving this value of perpetuity to the Free Cash Flow to Equity, now it is required to discount (with the Cost of Equity) it and discover what will be the actual value that will enable the computation of the Enterprise Value and, finally, the Equity Value.

To the first one, it comes the next equation:

$$Enterprise \ Value = \sum_{n=1}^{t} \frac{FCFE_n}{(1+R_E)^n} + \frac{TV_t}{(1+R_E)^t} \quad (14)$$

Where,

Where,

CF – Free Cash Flow to Equity

i – Discount rate (R_E)

n – Time periods

TV – Terminal value

Moving on to the second part, Equity Value, it corresponds to the following formula:

$$\textbf{\textit{Equity Value}} = EV + NOA \text{ (15)}$$

Where,

EV – Enterprise Value

NOA – Non Operating Assets

At this time, it is not necessary to deduct the debt from the equation, since in this case it is assumed that SATA is only financed by Equity, instead of being financed also by debt.

Applying all these formulas, we finally get the following values:

Terminal Value	21 704 122,08€
Discounted TV	15 609 260,37 €
Enterprise Value	-41 252 952,51 €
NOA	30 787,00 €
Equity Value	-41 222 165,51 €

Table 19 - Terminal Value, Enterprise Value and Equity Value (FCFE)

All the future values computed and assumed for the future years of SATA Group was obtained taking into account all the firm's historical information, where it could be found a lot of answers to a lot of questions to the poor results (Enterprise and Equity values) from this Azorean company. So, first of all, since 2011 that SATA was decided to work hard to get some planned strategic objectives that they had planned for their future, their biggest desire was give SATA and their passengers to know the World.

In order to accomplish their goals, in 2010 the firm decided to invest in their fleet buying 4 Bombardier and, because of that they were considered the youngest company in the Azores. Nonetheless, between 2012 and 2013 SATA Group decided to invest in new technological improvements as SATA4Agents, Online Insurance and a new website. Simultaneously, during the same years, it could be observed in table 2 that the number of destinies increased while the

number of passengers of the company was significantly decreasing since 2011. At the same time, the number of their employees was getting bigger. It is obvious to conclude that these variables are not correlated, making SATA one of the poorest Azorean companies.

5.2. Multiples Valuation Method

Another very well-known method to valuate companies is by the Multiples (Relative) Valuation. According Damodaran, in relative valuation the value of an asset is compared to the values assessed by the market for similar or comparable firms. Regarding this method, there are three main advantages that should be mentioned: usefulness (when used correctly, it could be very useful providing important information about relative value), simplicity (its ease of calculation leads this method to be a "user-friendly" of achieving value) and, lastly, relevance (in relative valuation it is very common to use key statistics used by investors, helping to achieve more reliable results). However, behind these advantages, there are some disadvantages as, for instance, multiples could lead the investor to a bad interpretation, since it combines many value drivers making it difficult to disaggregate them. On the other hand, it is a very static model as it is very good showing how the company is at a certain point of time, however it does not translate its dynamic. Finally, as it was already referred, multiples are used to make comparisons, though they differ in many aspects that, consequently, could make the valuation less credible.

The multiples are differentiate by the enterprise value and the equity value types. These two different ways of valuation are used to compare values, but in the first one the value of the entire company is expressed, while in the second one only the shareholder's entitlements on the assets of the business are expressed.

According to Fernandez (2015), it was found out that the most widely used valuation methods by the analysts are the PER (Price earnings ratio) – used for more than 50% of the analysts - and the EV/EBITDA (Enterprise value to EBITDA) – used for more than 30% of the analysts. The Price earnings ratio is a multiple based on capitalization, which are very easy to understand and compute, whereas the Enterprise value to EBITDA is based on the company's value. Not including the variations on WC (working Capital) and not considering capital investments are two limitations of that latter multiple.

In the same research referred above, it was presented a table where it is shown the most commonly used multiples in the most different industries. What's more, it indicates that, in

average, in the air transport industry the most used multiple is Enterprise value to EBITDA (EV/EBITDA). So, as SATA belongs to the air transport industry, it makes sense that we use this type of multiple to do the valuation.

As this one is a value multiple, it is not so affected neither by the capital structure nor by the tax effect and, consequently it becomes more valuable.

The following table represents the chosen SATA's comparable firms where are presented their Enterprise value to EBITA and their Enterprise Value in two different currencies (Dollar and in Euros), retrieved from the Yahoo Finance on June, 3rd of 2016, just like the respective exchange rate (USD/EUR =0,89). Nonetheless, in the same table, it is yet expressed the average of the previous explained values and the Enterprise value to EBITDA of the Air Transport Sector, which was sought from the Damodaran Website.

	EV/EBITDA	Enterprise Value (USD)	Enterprise Value (EUR)
Air France	2,97	8,20	7,27
Lufthansa	2,93	9,08	8,05
Comparable Average	2,95		
Airline Sector	5,80		
USD/EUR	0,89		

Table 20 - EV/EBITDA of comparable firms

It could be observed through the presented data that, the average EV/EBITDA of the comparable companies (Air France and Lufthansa) have a significant difference comparatively to the whole air transport industry EV/EBITDA. This discrepancy between these two values are justified by the some facts as, for instance, in the latter it is evolved a great number of companies, including Low-cost companies, traded and non-traded companies, the fact that all of them are different and their values are affected by different factors and, since some of those companies have higher Enterprise value to EBITDA and others lower, it would justify that variance.

Then, firstly, it will be necessary to fall back on SATA's EBITDA, (which value is -22 303 527,00€), and multiply this for the comparable firms and air transport industry EV/EBITDA in the previous table, as the next equations suggest:

$$SATA's\ Enterprise\ Value = SATA's\ EBITDA \times$$
$$EV/EBITDA\ of\ Comparable\ firms \quad (16)$$

Secondly, after achieving SATA's Enterprise Value, we are able to use the same equation as for the Free Cash Flows (to the Firm and Equity) to get the value of Equity:

$$SATA's\ Equity\ Value = SATA's\ EV + NOA - Debt\ (17)$$

Where,

SATA's EV – SATA's Enterprise Value

NOA – Non-Operating Assets

The whole previous step would be illustrated in the next table:

	SATA's EBITDA	- 22 303 527,00 €		
	SATA's EV	**NOA**	**Debt**	**SATA's Equity Value**
Air France	-66 241 475,19 €	30 787,00 €	162 286 113,00 €	-228 496 801,19 €
Lufthansa	-65 349 334,11 €	30 787,00 €	162 286 113,00 €	-227 604 660,11 €
Comparable Average	-65 795 404,65 €	30 787,00 €	162 286 113,00 €	**-228 050 730,65 €**
Airline Industry	-129 360 456,60 €	30 787,00 €	162 286 113,00 €	-291 615 782,60 €

Table 21 - EV/EBITDA (SATA's Equity value)

Besides the fact that *"EBITDA represents a proxy for cash flows and is free of arbitrariness concerning the accounting for depreciation and amortization"* (Schreiner, 2006: 43), if the depreciation expenditures vary according to the industry, using the EBIT (or the Enterprise value to EBIT) could be advantageous.

So, at this time it was required to get the Enterprise value and the EV/EBIT of the comparable firms and of the airline sector, as well, illustrated in the following table:

	EV/EBIT	**Enterprise Value (EUR)**
Air France	6,91	7,27
Lufthansa	2,71	8,05
Comparable Average	4,84	
Airline Industry	9,71	

Table 22 - EV/EBIT of comparable firms

We are once again confronted with the fact that the EV/EBIT of the whole air transport industry is considerably greater than the average of the comparable firms because of the same facts referred previously.

After obtaining all the previous information from the Yahoo Finance, we follow the same process as we already did when we calculated the EV/EBITDA. Firstly, we get the SATA's EBIT from the income statement and then we use again the equations 16 in order to compute SATA's Enterprise Value and the equation 17 aiming to, finally, get SATA's Equity Value.

	SATA's EBIT		-31 332 072,00 €	
	SATA's EV	**NOA**	**Debt**	**SATA's Equity Value**
Air France	-218 572 534,27 €	30 787,00 €	162 286 113,00 €	-380 827 860,27 €
Lufthansa	-84 753 254,76 €	30 787,00 €	162 286 113,00 €	-247 008 580,76 €
Comparable Average	-151 662 894,52 €	30 787,00 €	162 286 113,00 €	**-313 918 220,52 €**
Airline Industry	-304 234 419,12 €	30 787,00 €	162 286 113,00 €	-466 489 745,12 €

Table 23 - EV/EBIT (SATA's Equity value)

In order to evaluate more credible values, it is suggested to take into account the output values calculated according to the comparable firms.

5.3. Declining and Distressed Companies

Despite all of the previous work, it is possible to reach the conclusion that SATA is a declining company since, as it was possible to observe, their earnings were negative in 2010, 2013 and 2014 and, consequently, led to negative operating margins in these years. Furthermore, through the DCF Model it was possible to compute the enterprise value, which was also negative and SATA's revenues were continuing declining from 2011 until 2014, which normally is the greatest sign when a company is in decline.

In the previous section SATA Group was evaluated through the Discounted Cash Flow Model, which is considered the best way to valuate firms. However, valuing a healthy company and a distressed company is significantly different and, because of that there are some issues to take into account in the latter case. On one hand, according to Damodaran (2009), in the majority of declining firms the cost of capital normally is higher than the company's earnings, which could destroy its value by discounting the forecasted cash flows with that rate; on the

other hand, if the latter really happens, it would be better to sell the assets and wait until a buyer pays a best price for them. In distress cases, where the company needs urgently those cash flows, their bargaining power is not so strong, thus it is possible that the buyer gets those assets at a lower price than their fair value.

When it comes to relative valuation, it brings some problems to SATA's valuation since, as it was already mentioned, their earnings (EBIT, EBITDA) are negative becoming inappropriate for the valuation. Another issue regarding to this valuation with multiples is the comparable companies chosen, since normally the analysts choose healthy ones just because of the simple fact that all the companies of that sector are healthy and, for some external reason, the evaluated company is not. In this specific case neither Lufthansa, nor Air France are in the same problematic situation as SATA Group is, despite all of them are European companies and also belong to the same industry.

Concluding that SATA Group really is a distressed company it cannot be evaluated as a healthy one just like so many analysts do, bringing some problems and mistakes to the results and creating an over optimistic valuation. The *"auto-pilot optimism"*, like it is called by Damodaran (2009), is probably the biggest problem of this kind of companies for some reasons. First, regarding to growth rates, it is used positive rates since this is what seems more normal to analysts in a valuation exercise; secondly, in the discount rates the distressed debt is easily replaced by for a much safer one; lastly, in many cases the usage of historical average margins are not suitable in some firms, however it is the most famous method, that is why the analysts keep on appeal to it.

While analysts evaluate declining firms it is important to analyse if that declining state is reversible or not or, in other words, if the decline observed in the firm could eventually get better. After that, since not all the companies get distressed, it is necessary to study the possibility of SATA's distress, starting by the analysis of the debt obligations accumulated all over the time. In the casa of SATA Group, it is considered that their decline situation is reversible, however the company has a high probability of distress. So, according with Damodaran (2009) there are important steps to follow:

1. Estimate the probability of SATA's distress through its expected cash flow values;
2. Adjust the expected values to distress;
3. Value the hypothesis of liquidation.

"Not all declining firms are distressed, nor all distressed firms in decline, but distress and decline seem to go together"

Damodaran (2009)

There are numerous reasons why to companies fall down into a distress situation, however there is one that fits better in SATA's condition which is the fact that they borrow money but, unfortunately, they are not able to pay the debt requested. Following Damodaran's theory, the previous fact will bring some consequences to the company and, probably, SATA Group might liquidate their assets in order to pay their debt. For that reasons and given the likelihood and consequences of distress, it is very common for analysts to ignore its possibility.

As it was already mentioned in the beginning of the SATA's valuation, the discounted cash flow is considered the best method and the most used by analysts to value companies. Though, this method automatically assumes that the firm will lasts forever, taking into account the constant rate, used to calculate the terminal value, as which the company will grow forever. Because of that, it is needed to adapt the DCF model to the effects of distress through the SATA's estimated value and, instead of using historical averages to analyse the forecasts, in the majority of the cases it is more suitable to build a recovery process to the company.

As for relative valuation it could work by two ways: in one hand we can use current values of revenues or earnings to the valuation, on the other hand it could be estimated future revenues and earnings in order to obtain forecast of the multiple. Using the current values of revenues and earnings would bring some disadvantages, since the majority of airlines are healthy firms, making SATA Group an outlier out of their competitors in the air transportation industry. So, evaluating SATA in these conditions would bring down the company's results and "*will trade at lower multiples than the rest of the sector*", in other words the company under analysis will look cheaper than all the others.

Because of the facts described above there are significant discrepancies between the Discounted Cash Flows (FCFF and FCFE) valuation and Relative valuation.

	FCFF	FCFE	EV/EBIT	EV/EBITDA
Equity Value	-18 050 980,27 €	-41 222 165,51 €	-313 918 220,52 €	-228 050 730,65 €

Table 24 - Equity value by each different analysis

As it could be confirmed through the values above, the SATA's Group Equity Value is substantially lower when computed by the multiples and comparing with the Discounted Cash Flows (FCFF and FCFE). To conclude the previous table, it is noticeable that the latter method

is the most suitable when we need to value (mainly) distressed firms since it includes a recovery process, instead of a "picture" of the company under analysis compared with other healthy ones.

6. Conclusion

The air transportation industry is one of the biggest and richest industries in the world and has been increasing their target. Traveling no longer means luxury. Nowadays the meaning of traveling is different, since everybody is able to do it, from business trips to low cost airlines.

One of the most important driver to redeem this industry is the demand, but it will always depend on some economic deliberations. To reach the customer loyalty, the traditional carriers have to think about their growth measures and, consequently, guarantee that their position in the intercontinental traffic is sustainable.

As far as industry scenarios after the crisis are concerned, we need to take into account some drivers that would build these scenarios and, as well, the ones that are more suitable in the air transport industry. So, for example:

- The emerging markets, like China, are more likely to get higher traffic growth rates, while affected by a downturn, than America or Europe;
- It is probable that the consolidation between companies continue, however, after a recession the managers are more sensitive, thus they will be stricter in these situations;
- After a crisis, while the industry goes through a recovery, it is likely that the fuel prices go up again, hence improving the hub structure;

So, the markets really need to adapt themselves to all the changes that are occurring, just like the legacy carriers did, re-inventing their business model when the low-cost carriers emerged.

It is not different in the Azores. The Azores are an archipelago that wanted their independency and for that they tried to build something that let them fly all over the Atlantic Ocean. So, they decided to build their own way out: SATA Group. Besides all the obstacles, nowadays SATA Group is a link between the archipelago and the rest of the World. With 12 aircrafts, approximately 30 routes, 1.180.000 passengers (average) per year and almost 1.300 employees. Despite all these glories, this company has been through hard times. Being an airline company means expend a lot of money in technological investment, campaigns, new routes, new aircrafts, so it needs a continuous investment, which is supposed to bring future earnings to these types of companies. Aligned with these facts, it is true that the air transportation industry has an enormous seasonal influence, since it is much more predictable that the majority of the passengers prefer to travel in the Summer or in the Easter break than in the middle of the October or January and, due to that reason there will always be differences in their results while comparing different monthly results.

The fact is that sometimes the bad management of these companies, especially SATA Group, is not helpful for the business when, for example, the number of passengers was declining and the number of routes and the employees was increased. Thus, it could be concluded that the seasonality is not always the reason for the bad results of the airlines.

In this thesis we just decided to value this Azorean company to understand how is being the only company (until 2015) flying to one entire archipelago with 9 islands and analyse their results.

During our analysis, we obtained results from two different types of valuation methods: discounted cash flows (FCFF and FCFE) and multiples (or relative valuation). Both valuations draw a not so good or favourable image from the company under analysis, although there were some differences between these results: in the first ones (output from FCFF and FCFE) extract a much better result than the latter one (multiples). In one hand, the study made for the discounted cash flows transmits a process of recovery from the company. It is a gradual analysis, where it could be analysed the historical of the firm and, posteriorly some assumptions are chosen to the company's future growth rates (always considering SATA's historical data) to produce the Free Cash Flows to the Firm and to the Equity. In the other hand, while we produce a multiples analysis we are valuing the company in a determined period (one year) and comparing with some comparable firms to the one being analysed, in other words, a multiples analysis projects an image of the enterprise in that period of time. The true is that 2014 was probably the worst year in SATA's history and, due to this the results of this analysis were approximately ten times worse than by the Discounted Cash Flows.

In fact, the Azorean company suffered some unavoidable changes in consequence of their poor situation and of the air travel liberalization, with the low-costs entrance. Due to this latter, SATA needed to take into account some measures in order to compete with their new rivals and to adapt their situation into their new reality as, for instance, the reduction in their flights (with the same routes as the low-cost), the fares adjustment and yet advertisement campaigns.

After all, the truth is that looking at the SATA's condition in August of 2015, comparing their results with the year before, we found that the company dropped their expenses and increased their revenues and load factor, showing that the number of travellers in the airline rose 9% and it is really expectable that this Azorean airline continue its activity and could obtain in the near future the good results from the past.

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8. Annexes

8.1. SATA Group Balance sheet

	2011	2012	2013	2014
Assets				
Non-Current Assets				
Tangible Fixed Assets	79 012 551,00 €	75 955 423,00 €	70 371 649,00 €	63 729 061,00 €
Intangible Assets	263 144,00 €	145 164,00 €	311 887,00 €	246 960,00 €
Financial Participations	134 146,00 €	99 014,00 €	99 014,00 €	99 461,00 €
Deferred taxes	7 848 192,00 €	6 949 736,00 €	1 845 500,00 €	6 625 326,00 €
Accounts receivable	- €	- €	2 257 230,00 €	2 558 235,00 €
Total Non-Current Assets	**87 258 033,00 €**	**83 149 337,00 €**	**74 885 280,00 €**	**73 259 043,00 €**
Current Assets				
Inventories	3 196 128,00 €	3 314 463,00 €	3 853 091,00 €	3 386 121,00 €
Accounts Receivable	70 709 890,00 €	84 792 308,00 €	82 594 061,00 €	90 402 465,00 €
State and other Public entities	587 159,00 €	823 241,00 €	93 550,00 €	30 787,00 €
Cash and Other Equivalent	8 030 575,00 €	6 825 364,00 €	17 803 787,00 €	9 625 842,00 €
Deferrals	3 144 507,00 €	3 286 614,00 €	- €	- €
Total Current Assets	**85 668 259,00 €**	**99 041 990,00 €**	**104 344 489,00 €**	**103 445 215,00 €**
Total Assets	**172 926 292,00 €**	**182 191 327,00 €**	**179 229 769,00 €**	**176 704 258,00 €**
Owners' Equity and Liabilities				
Owners' Equity				
Common Stock	18 000 000,00 €	18 000 000,00 €	18 000 000,00 €	18 000 000,00 €
Capital Surplus	3 315 342,00 €	3 315 342,00 €	3 315 342,00 €	3 315 342,00 €
Retained Earnings	4 492 618,00 €	4 993 188,00 €	-10 525 350,00 €	-43 224 201,00 €
Legal reserves	545 685,00 €	572 031,00 €	575 676,00 €	575 676,00 €
Other Equity	551 400,00 €	136 226,00 €	-374 521,00 €	277 709,00 €
Equity	**26 905 045,00 €**	**27 016 787,00 €**	**10 991 147,00 €**	**-21 055 474,00 €**
Net Profit	**526 916,00 €**	**72 901,00 €**	**-30 360 991,00 €**	**-34 784 362,00 €**
Total Equity	**27 431 961,00 €**	**27 089 688,00 €**	**-19 369 844,00 €**	**-55 839 836,00 €**
Liabilities				

Non-Current Liabilities				
Accruals	10 448 870,00 €	7 784 138,00 €	283 413,00 €	208 942,00 €
Loans (medium and long term debt)	63 252 358,00 €	57 137 811,00 €	50 169 047,00 €	59 732 641,00 €
Post-retirement Obligations	10 281 158,00 €	7389047	9 303 709,00 €	9 965 889,00 €
Deferred taxes	- €	10 524,00 €	1 755 205,00 €	1 526 409,00 €
Other accounts payable	- €	- €	254 444,00 €	1 094 869,00 €
Total Non-Current Liabilities	**83 982 386,00 €**	**72 321 520,00 €**	**61 765 818,00 €**	**72 528 750,00 €**
Current Liabilities				
Loans (short term debt)	32 938 163,00 €	57 583 212,00 €	92 105 976,00 €	102 553 472,00 €
Suppliers (account payable)	16 456 564,00 €	13 409 427,00 €	14 110 430,00 €	21 336 529,00 €
Flight documents	1 954 283,00 €	1 608 831,00 €	12 331 271,00 €	13 296 794,00 €
Other Accounts payable	5 599 706,00 €	5 558 921,00 €	18 047 656,00 €	22 824 733,00 €
Other Short Terms debt	4 563 229,00 €	4 619 728,00 €	238 462,00 €	3 816,00 €
Total Current Liabilities	**61 511 945,00 €**	**82 780 119,00 €**	**136 833 795,00 €**	**160 015 344,00 €**
Total Liabilities	**145 494 331,00 €**	**155 101 639,00 €**	**198 599 613,00 €**	**232 544 094,00 €**
Total Equity and Liabilities	**172 926 292,00 €**	**182 191 327,00 €**	**179 229 769,00 €**	**176 704 258,00 €**

Table 25 - SATA Group Balance sheet

8.2. SATA Group Profit and Loss statement

	2011	2012	2013	2014
Sales/Revenues	197 343 134,00 €	177 702 709,00 €	171 934 943,00 €	154 393 166,00 €
Operating grants	32 670 776,00 €	32 847 323,00 €	31 795 458,00 €	27 728 941,00 €
Operating Revenues	**230 013 910,00 €**	**210 550 032,00 €**	**203 730 401,00 €**	**182 122 107,00 €**
CMVMC	2 137 988,00 €	1 864 377,00 €	2 333 569,00 €	2 294 238,00 €
FSE	160 916 993,00 €	146 340 861,00 €	149 353 601,00 €	141 162 519,00 €
Salaries	49 732 890,00 €	49 747 652,00 €	60 439 549,00 €	59 743 416,00 €
Impairment of receivables	222 474,00 €	183 275,00 €	141 465,00 €	737 844,00 €
Impairment of inventories	-124 049,00 €	- €	- €	198 000,00 €
Provisions	-15 637,00 €	-2 624 732,00 €	-131 838,00 €	-74 471,00 €
Other Revenues	-4 249 075,00 €	-7 305 569,00 €	-594 596,00 €	-2 960 690,00 €
Others Expenses	4 238 909,00 €	4 964 970,00 €	5 059 128,00 €	3 324 778,00 €
Operating Expenses	**212 860 493,00 €**	**193 170 834,00 €**	**216 600 878,00 €**	**204 425 634,00 €**
EBITDA	**17 153 417,00 €**	**17 379 198,00 €**	**-12 870 477,00 €**	**-22 303 527,00 €**

Depreciation and Amortization expenses	12 595 040,00 €	10 218 946,00 €	10 016 106,00 €	8 919 660,00 €
Impairment of depreciable assets	- €	- €	- €	108 885,00 €
EBIT (Net Operating Income)	**4 558 377,00 €**	**7 160 252,00 €**	**-22 886 583,00 €**	**-31 332 072,00 €**
Interest Expenses	4 283 281,00 €	5 859 697,00 €	7 007 021,00 €	8 240 405,00 €
Interest Revenues	125 911,00 €	19 407,00 €	23 833,00 €	182 769,00 €
Financial Income	**-4 157 370,00 €**	**-5 840 290,00 €**	**-6 983 188,00 €**	**-8 057 636,00 €**
EBT (Earnings Before Taxes)	**401 007,00 €**	**1 319 962,00 €**	**-29 869 771,00 €**	**-39 389 708,00 €**
Taxes	194 678,00 €	-1 247 061,00 €	-491 220,00 €	4 605 346,00 €
Net Income	**595 685,00 €**	**72 901,00 €**	**-30 360 991,00 €**	**-34 784 362,00 €**

Table 26 - SATA Group Profit and Loss statement

8.3. Cost of capital computation

	2011	2012	2013	2014	Average
Interest Expense	4 283 281,00 €	5 859 697,00 €	7 007 021,00 €	8 240 405,00 €	
ST Debt	63 252 358,00 €	57 137 811,00 €	50 169 047,00 €	59 732 641,00 €	
LMT Debt	32 938 163,00 €	57 583 212,00 €	92 105 976,00 €	102 553 472,00 €	
Financial Debt	96 190 521,00 €	114 721 023,00 €	142 275 023,00 €	162 286 113,00 €	
R$_D$	4,45%	5,11%	4,92%	5,08%	**4,89%**

Table 27 - Cost of capital computation

8.4. Beta unlevered computation

Beta	
Air Berlin	0,419502864
Lufthansa	0,789380546
Finnair	0,217319466
Air France	1,057619475
Aer Lingus	0,895983075
Average	**0,68**

Table 28 - Beta unlevered computation