Ryanair Holdings plc

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Abstract

The aim of this dissertation is to attain the true value of Ryanair's equity fair value. To do so were selected and performed proved methods and tools, from the existing literature, namely the Discounted Cash Flows and Relative valuation approaches.

Initially, the value per share on March 31, 2016 was 14.17 €. Concerning the DCF/WACC approach, the one year price target estimation was 18.16 €. As for Relative valuation, the price target reached 9.98 € and 12.83 €, considering the EV/EBITDA and P/E forward looking multiples, accordingly.

Furthermore, a sensitivity analysis was performed in order to study the impact on the previously projected forecasts, resulting from shifts on key variables and assumptions, such as the WACC rate or fuel expenses.

To conclude, a comparison between this thesis's conclusions and the ones reached by J.P Morgan were analyzed. Both final outcomes, despite its asymmetries, led to an "Overweight" conclusion, in regard to a price target end date on 31 March, 2017. The dissertation recommended price target was 16.47 €, while the investment bank estimation was 16.53 €.

Resumo

O objectivo desta dissertação é o de alcançar o verdadeiro valor de capital bolsista da Ryanair. Para tal, foram seleccionados e executados métodos e ferramentas certificados, extraídos da literatura existente, nomeadamente os métodos de Cash Flows descontados e de avaliação Relativa.

Inicialmente, o valor por acção a 31 de Março de 2016 era de 14.17 €. Relativamente ao método DCF/WACC, o preço-alvo estimado para daqui a um ano foi de 18.16 €. Já em relação à avaliação Relativa, o preço-alvo estimado foi de 9.98 € e 12.83 €, considerando os múltiplos de óptica futura, EV/EBITDA e P/E, respectivamente.

Para além disso, foi executada uma análise de sensibilidade de forma a estudar o impacto nas previsões previamente projectadas, resultantes de mudanças em variáveis e suposições chave, como por exemplo a taxa WACC ou despesas em combustíveis.

Para concluir, foi feita uma análise comparativa entre as conclusões obtidas nesta tese e aquelas obtidas pela J.P. Morgan. Apesar das assimetrias, ambos os resultados finais levaram a uma conclusão de "Superação", relativamente ao preço-alvo a atingir a 31 de Março de 2017. Esta dissertação recomenda um preço-alvo de 16.47 €, enquanto o banco de investimento estima um valor de 16.53 €.

Preface

Firstly, I want to express my gratitude towards Professor José Carlos Tudela for his availability and valuable insights taught both in the "Firm Valuation" classes and in the dissertation seminar.

Secondly, I would like to thank to my family, girlfriend and close friends for all the words of motivation and relaxation expressed in the last months, truly important to deliver a good final project.

Finally, I wish to express a word of gratitude to all the people from Católica who made part of my academic life in the last 5 years.

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1. Literature Review

Valuation is the key instrument for any analyst or investor to assess the true value of a company, leading to potential gains deriving from differences between the valuation and the current market´s perspective on the company.

However, the true value is not that easy to reach. In fact, valuation lies on a large amount of assumptions and predictions regarding the future performance of the company and economic environment that may not be able to be foreseen or predicted properly.

Throughout this section we will explain the main methods used namely the discounted cash flow methodology, the dividend discount model and the relative valuation technique, as well as the reasoning behind their adoption.

1.1. Discounted cash flow methodology

The discounted cash flow (DCF) technique is a powerful tool widely used by analysts, investment banks and managers around the globe. The model states that predicted future free cash flows must be discounted by an appropriate discount rate in order to reach the present value of a firm.

According to Fernandez (2007), exists ten different ways to value a company by discounting cash flows. However, the analysis will focus on the Weighted Average Cost of Capital (WACC) and on the Adjusted Present Value (APV) since these two methods are widely used and are the most relevant for a company with the features like Ryanair.

1.1.1 Free Cash Flow to the Firm (FCFF)

The FCFF includes the cash flows available for either debt or equity holder's, which will be helpful to reach the enterprise value of the company (the Asset value). This method is calculated by deducting taxes (T) from the company's earnings before interests and taxes (EBIT). In addition, all non-cash charges found in the company´s income statement should be added back, such as depreciations and amortizations (D&A). The capital expenditure (CAPEX), not reflected in the income statement, should be deducted as well as any increase in the net working capital (NWC), since an increase in the cash requirements for the day-to-day operations will lead to an cash outflow. Equation **(1)** sums up the explanation given above:

$$FCFF = EBIT(1-T) + D\&A - CAPEX - \ Increase\ in\ NWC \quad \textbf{(1)}$$

After computing the FCFF, we should discount those cash flows by the WACC, which is calculated by "weighting the sources of capital according to the company's financial structure and then multiplying them with their costs" (Steiger, 2008), as described in equation **(2):**

$$WACC = \frac{Equity}{Debt+Equity} * Cost\ of\ Equity_{Levered} + \frac{Debt}{Debt+Equity} * Cost\ of\ Debt_{Levered} * (1-T) \quad \textbf{(2)}$$

To conclude the computation of the Enterprise Value, it should be included the Terminal Value of the company. This implies it has reached a steady state, which means, according to Levin and Olsson (2000), "the company remains qualitatively similar year by year after the valuation horizon and that it has a stable development of earnings, free cash flows, dividends and residual income", growing at a constant rate (g) forever. The growth rate (g) and enterprise value (EV) are computed in the following way:

$$g = \frac{Ret.Earnings}{Earnings} * ROE_{NI} = Plowback\ Ratio_{NI} * ROE_{NI} \quad \textbf{(3)}$$

$$EV = \sum_{t=1}^{N} \frac{FCFF_t}{(1+WACC)^t} + \frac{\frac{FCFF_{N+1}}{WACC-g}}{(1+WACC)^N} \quad \textbf{(4)}$$

Another possible way to reach the terminal growth rate is to assume a direct link between inflation and the company' steady growth, expected after the valuation horizon.

1.1.2 Free Cash Flow to the Equity (FCFE)

The FCFE comprises the cash flow available to equity holders, after all commitments have been sealed regarding others stakeholders in the company.

This method seeks the Equity Value (E) of the company. To reach that value, we should add to net income (NI) the value of depreciations and amortizations (non-cash charges), deduct capital expenditures (CAPEX) and the changes in working capital (NWC). As final step, we should include the net borrowing (NB = New Debt-Debt Repayment).

$$FCFE = NI + D\&A - CAPEX - NWC + NB \quad \textbf{(5)}$$

Since, the FCFE translates equity rewards, cash flows should be discounted by the required return investors demand for bearing the risk associated with the company's equity, which is equivalent to the company's cost of equity (Ke). According to the capital asset pricing model (CAPM) the cost of equity can be computed by the following equation:

$$Ke = Rf + \beta_{Levered}(E[rm] - rf) \quad \textbf{(6)}$$

Where,

- Rf: Risk free rate
- $\beta_{Levered}$: Beta coefficient, systematic risk of common equity
- $E[rm] - rf$: The expected (equilibrium) market risk-premium

Ultimately, following the same reasoning of FCFF methodology, all cash flows until reaching a steady state, must be discounted by the appropriate factor, in this case the cost of equity (Ke) and add the terminal value. As displayed in equation (6):

$$E = \sum_{t=1}^{N} \frac{FCFE_t}{(1+Ke)^t} + \frac{\frac{FCFE_{N+1}}{Ke-g}}{(1+Ke)^N} \quad \textbf{(7)}$$

1.2.1 Adjusted Present Value (APV)

According to many authors APV delivers superior accuracy, in a valuation process, in comparison with others DCF methods. It is the most suitable approach in case the capital structure of the firm tends to change over time. As an example Sweeney (2002) states "the WACC approach is a special case of the APV approach", while Luehman (1997) argues that "adjusted present value is especially versatile and reliable, and will replace WACC as the DCF methodology of choice among generalists". Although the APV approach allows a clearer understanding of the elements being evaluated, it might pose quite challenging to measure distress costs, namely the indirect ones, as well as agency costs and personal taxation.

This method "is the net present value of the company's free cash flows assuming pure equity financing and adding the present value of any financing side effect" (Steiger, 2008). In order to compute the base case, cash flows must be discounted as if it was only equity financed, that is using the unlevered cost of equity (Ku). Subsequently, we should include the financing side effects, which mean the interest tax shields (ITS) attained, the costs associated with financial distress, subsidies, hedges, issue costs or other costs.

Interest tax shields (ITS), are the tax savings obtained through the payment of the debt's service. Fernández (2004) claims the sole existence of two ways to compute the value of interest tax shields. One is presented by Fernandez's (2004a) theory, which states " if the company expects to increase its debt, the value of tax shields is the present value of D Ku T discounted at the required return to unlevered equity (Ku): VTS = PV[D Ku T;Ku]". A different path is presented by Myers (1974), from whom interest tax shields (D T Kd) must be discounted by the cost of debt (Kd), in case the company does not expect to increase its debt in the future.

Regarding the costs of financial distress, is relevant to recognize the probability of default (PD) as well as both direct and indirect costs associated with it. According to Wruck (1990), direct bankruptcy costs (DBC) are easily obtainable." They include legal, administrative, and advisory fees paid by the company". Indirect bankruptcy costs (IBC) "arise because suppliers and customer might become reluctant to do business with a firm severely affected by bankruptcy risk", (Larsson and Prakt, 2014), which makes it much harder to quantify.

To conclude, the adjusted present value can be summarized into the following equation (ITS formula depends on debt's trend):

$$EV = \sum_{t=1}^{N} \frac{FCFF_t}{(1+Ku)^t} + \frac{\frac{FCFF_{N+1}}{Ku-g}}{(1+Ku)^N} + ITS + PD * (DBC + IBC) \quad \textbf{(8)}$$

1.2 Dividend Discount Model

According to Williams (1938), "a stock is worth the present value of all the dividends ever to be paid upon it, no more, no less". Following that same line of thought, Gordon (1962) created the "constant growth model" (a special case of the dividend discount model) to find the stock's value (P) through a perpetuity. By knowing the next period's expected dividend, the growth rate of those dividends and the equity cost of capital (Ke), the value of the stock can be computed as a growing perpetuity. Equation (9) presents the general formula of the dividend discount model, while equation (10) presents the modified Gordon's Model:

$$P_0 = \sum_{t=1}^{N} \frac{Dividend_t}{(1+ke)^t} + \frac{P_N}{(1+Ke)^N} \quad \textbf{(9)}$$

$$P_t = \frac{Dividend_{t+1}}{Ke-g} \quad \textbf{(10)}$$

In order to achieve a proper function of this model, both dividend policy and return on equity must stabilize in the long run and growth rate should never exceed the cost of equity. In fact the growth rate should be equal or lower than the nominal growth rate for the economy over the long term (Foerster and Sapp, 2005). Financial policies should remain stable as well and FCFE must be close to the amount distributed as dividends to equity holders. Despite being quite simple to implement, is not always possible to observe these assumptions at the same time. To conclude is relevant to point out that dividends usually follow a political trend not exposing the true health of the company.

1.3 Relative Valuation

The relative valuation (or multiples valuation) is commonly used as an extra valuation method in order to stress test the previous results obtained by a more complex model, "the multiples of comparable firms enables us to gage the valuation performed and identify differences between the firm valued and the firms it is compared with", (Fernández, 2002). This method is quite straightforward, according to Kaplan and Ruback (1994) the estimated value results from the multiplication of a representative and unbiased performance measure of the company under evaluation by a ratio generated by a sub-set of similar companies. As we can conclude, the performance measure used is usually followed and widely accessible to investors. Regarding the sub-set of companies used as peer group, Goedhart, Koller, & Wessels (2005) suggests that companies with similar Return-on-Invested-Capital (ROIC) and growth rates are suitable comparables.

Furthermore, the usage of multiples may be extremely useful in forecasting future cash flows, which would contribute to a more accurate DCF model. In fact, it gives a picture of how the company and its main competitors are performing and how big is the gap between them, allowing "to hold useful discussions about whether it is strategically positioned to create more value than other industry players are", (Goedhart, Koller, & Wessels, 2005).

Nevertheless, is important to highlight some drawbacks of this model. According to Damodaran (2002), in case markets are under a pessimist trend that leads to a biased undervaluation of the company. The same would happen in case markets are overconfident causing an overvaluation. In addition, the hard task to incorporate in the chosen multiple and peer group all key variables (e.g. risk, growth and cash flows) in a way consistent with the company under valuation. Moreover, is rather important to bear in mind the possible lack of transparency concerning the assumptions and multiples used, in order to achieve the desired value through this model. Finally, "empirical evidence shows that forward-looking multiples are more accurate predictors of value", (Goedhart, Koller, & Wessels, 2005) in comparison with historical profits, which sets a limit to data availability.

Fernández, (2002) states multiples can be divided into three groups, based on the company's equity value, asset value (Equity + Debt = EV) and growth-referenced multiples.

Capitalization	Value	Growth
Price Earnings Ratio (PER) Price to Cash Earnings (P/CE) Price to Sales (P/S) Price to Book Value (P/BV)	Enterprise Value to EBITDA (EV/EBITDA) Enterprise Value to Sales (EV/Sales) Enterprise Value to Unlevered Free Cash Flow (EV/FCF)	PER to EPS growth (P/EG) Enterprise Value to EBITDA growth (EV/EG)

Table 1: Classification of multiples. Source: Fernández, (2002)

The most popular multiples are the Price Earnings ratio (PER) and the Enterprise Value to EBITDA (EV/EBITDA). PER gained its popularity due to its straightforward approach (easy to compute) being widely used by analyst, however is relevant to point out the effects of capital structure (higher leverage → higher PER) and the "static" feature of the multiple, since it may lead to unreasonable interpretations often due to one-time events observed on nonoperation items. Regarding EV/EBITDA ratio, changes in capital structure poorly affect, unless "such a change lowers the cost of capital" leading to a higher multiple, (Goedhart, Koller, & Wessels, 2005). Besides, changes in depreciation or taxation policies are also taken into account by this multiple.

1.4 Conclusion

Following the insights given by the literature review is possible to address Ryanair's case in a most proper manner. Thus, due to the stable capital structure observed in the past 5 years, in line with the peers and company's projections, I found suitable to use the discounted cash flow (DCF) method through a WACC perspective. Moreover, a relative valuation will be performed, in order to increase robustness to our results. The multiples used will be the PER, due to its high prevalence in analysts' reports, and the EV/EBITDA due to its accuracy in a context of irrelevant changes in capital structure and ability to avoid manipulation through changes in depreciation or taxation accountings. In fact, the latter is the most used multiple in the Air Transport industry.

The Dividend Discount model (DDM) was disregarded because the company does not distribute dividends in a regular basis, only in special cases, following an unstable dividend policy. This method is subject to a high degree of political manipulation through the dividend payout.

To conclude, the Adjusted Present Value (APV) will not be executed due to irrelevant changes in the company's recent historical and projected capital structure. Furthermore, the market value of debt is considerably low in comparison with the market value of equity, around 23%, which reduces the impact of debt as value generator. In fact, the WACC, the APV and the multiples' approaches should grant a similar value. Although, are used to stress test the valuation performed and the assumptions made during the analysis.

2. Industry Overview

In this chapter will be detailed all the components of the Airline industry, namely LCCs, and the company's role in it. The purpose is to explain the reasoning behind the valuation and the key features of this particular sector and how it may influence the company's value itself.

Foremost, it will be done an introduction to the business model of the LCCs and the main topics that may shift its present conception. Afterwards, the company's perspective will be addressed as well, in order to analyze the impacts of historical data and future strategy on Ryanair's forecasts.

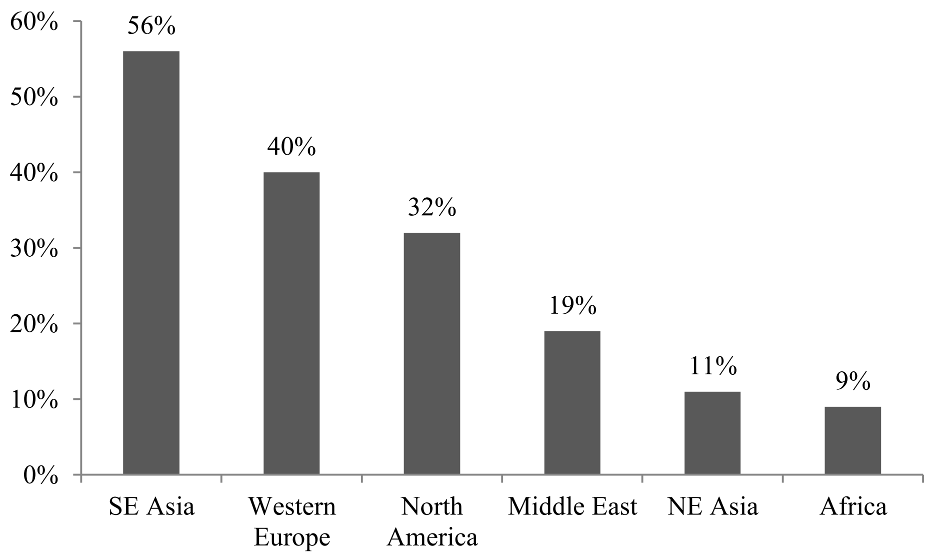
2.1 Overview of Airline Industry

According to the World Bank, the Airline Industry has recorded a rapid and sustained growth throughout the past 60 years. An example of this remark, is the increase in passenger and maximum load carried by the archaic Douglas DC-3, transporting 32 passengers and 4.6 tons, respectively, in comparison with the most recent and modern Airbus 380 able to transport 525 passengers and 338 tons of maximum load. This Industry has doubled its revenues in the last decade (2004-2014) from US$369 billion to projected US$746 billion. Despite the increase in revenues costs followed that same trend, resulting in narrow profit margins, around 3 percent overall, according to IATA[1]. Low-cost carriers (LCCs), which Ryanair is one of the European major players, were responsible for that fast pace in revenues, representing nowadays 25 percent of the worldwide market.

[1] International Air Transport Association

2.1.1 Description of LCCs market

After the liberalization of the air transport sector, many region of the globe, namely North-America and Western Europe faced the blossoming of LCCs over the following years. These companies offer low-cost routes through the reduction of unit costs (40%-50% of the average cost of net-working carriers) and increasing output and productivity. LCCs seek Economies of Density, which means raising the usage of airplanes and/or their capacity within a certain network, by decreasing time between arrivals and departures (25 minutes turnaround limit). LCCs employees are worst paid and present heavier workload comparing to Full services carriers. Present higher occupation rates and optimize their operational activity by standardizing their fleet and services to customers (one class, one service). In addition, LCCs seek to enhance revenues by selling incremental services and products, such as car rentals, hotel reservations or Internet.



Graph 1: LCC share of available seats within a specific region from 05-June-2016 to 11-June-2016

In the Southeast Asia region, the seat capacity of LCCs increased from 25 million to 200 million between 2004 and 2014, while Full Service Airlines (FSA) recorded an expansion of 80 million to 260 million seats during that same period. By June 2016, 56 percent of seats capacity within that region was provided by LCCs. Lion and AirAsia groups account for 60 percent of the Southeast Asia's LCC capacity and represent around 80 percent of the current fleet order book. North Asia region accounted for 11% of total airline seats capacity within that region.

Regarding, the domestic U.S. market, LCCs are visibly active in the market, taking opportunity of FSA's routs reductions to increase market share and expand its capacity. In fact, LCCs represent 32 percent of the U.S domestic market, in which Southwest Airlines Co. is the strongest player, holding approximately 15 percent of the overall U.S Airline market (half of LCCs stake in the market). JetBlue Airways Corp., Spirit Airlines Inc. and Allegiant Travel Co. are also relevant LCCs in this sector.

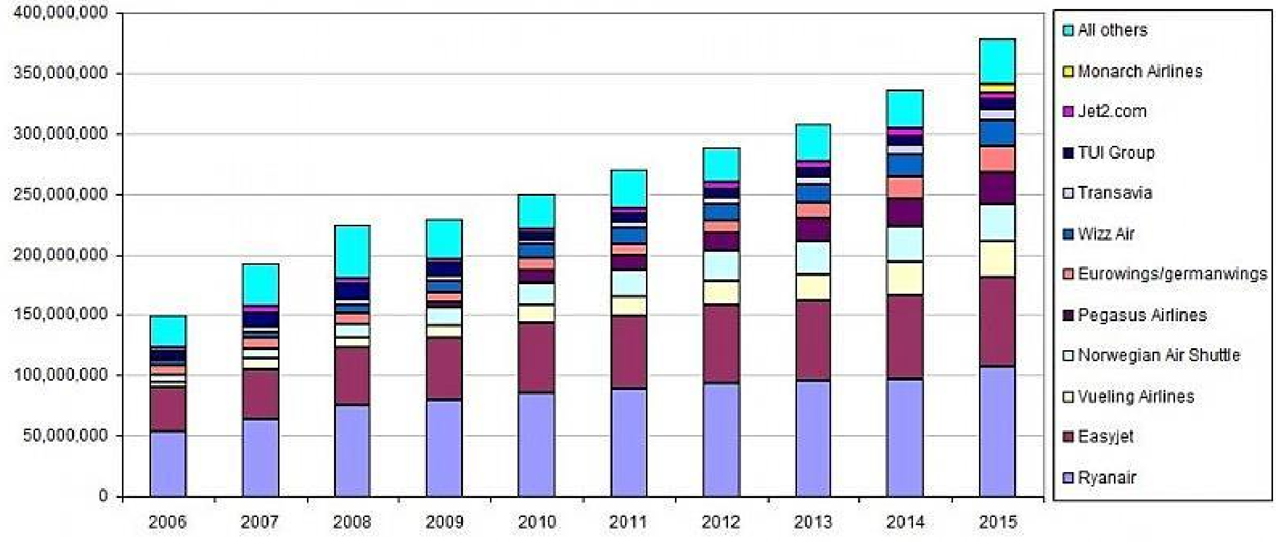
Middle East operates already around 19 percent of total domestic capacity. However, the main focus of LCCs is routes outside Middle East due to better yields and non-liberalized air services regimes. The largest LCC in 2015 was Flydubai just ahead of its major competitor Air Arabia.

Europe was the most active market for LCCs business by June 2014, recording until that period, 250 million passenger trips per year. The LCCs' market share reached 26 percent, which represents an exponential growth, taking into consideration the numbers at the beginning of the century. According to OAG[2], the number of seats sold during the summer of 2016, from Europe to any other location, had an increment of 8 percent in comparison with the homolog period. Since 2006 until 2016, a compounded average rate of 4 percent, per annum, was achieved during all the summer periods. During the summer of 2016, the share of schedule seats from Europe to another location (including locations inside Europe) was mainly dispersed by the following 5 largest companies:

- Lufthansa Group - 11%;
- Ryanair – 10%;
- IAG – 10%;
- Air France-KLM – 8%;
- EasyJet – 7%.

During the summer of 2016, LCCs provided over 40 percent of intra-Europe scheduled seats. The increasing success of the LCCs made the European flag airlines to intervene and acquire their own "budget airlines". Lufthansa bought Germanwings, Iberia bought Vueling, KLM bought Transavia and Alitalia bought Volare, for example. In 2015, around 378 million seats

[2] Official Aviation Guide, is the largest airline schedule and flight status database in the world



Graph 2: LCCs Intra-Europe seats by airline from 2066 to 2015. Source: CAPA and OAG Schedule Analyser

were operated by the 20 existing European low cost carriers, in which 48 percent (181 million seats) were provided by the two largest LCCs European companies, Ryanair and EasyJet, as we can state on the graph below.

2.2 Porter's Five Forces

2.2.1 Bargaining Power of Suppliers – Low

In the Airline Industry, the suppliers can differ from fuel suppliers, aircraft suppliers or services suppliers (e.g. airport and outsourcing). Regarding the aircraft supplying, exists two large manufacturers, Boeing and Airbus, that domain the overall market (around 80%). They benefit from high switching costs, due to the fact that pilots and engineers would have to be retrained. However, airlines are the only "income" for these manufacturers, which reduce their bargaining power. Access to fuel is highly correlated to the cost of oil in the market, nevertheless companies may use forward contracts to hedge against and prevent any momentary shortage of the commodity. Concerning the suppliers of airport services, is relevant to highlight that any regional airport (most used by LCCs) usually depends from one main airline customer, which diminish their potential bargaining power.

2.2.2 Bargaining Power of Customers – High

In general, LCCs offer identical services and limited differentiation, which makes customers extremely sensitive to price changes. In fact, costumers do not face switching costs and is relatively easy to compare fares between suppliers, as a result of full access to online information about routes offered. To conclude, customers exert a high degree of bargaining power over LCCs also due to the lack of loyalty, resulting from an unfocused vision towards its customers.

2.2.3 Threat of potential entrants – Medium

Any Airline company faces substantial capital investments to initiate operations and even further to expand its business. As an example, the Boing 737-800 NG, the standardized aircraft model used by Ryanair, costs approximately $96 million. This fact suggests these kinds of companies are quite dependent from large sources of capital, like bank loans and institutional creditors to invest in their fleet. In order to maintain costs at a low level it requires confidence from those sources which takes time and a huge initial commitment. Another aspect to lower this potential threat is the customer preference to choose among companies with the most reliable historical performance over unknown airlines. Nevertheless, the most recent strategy followed by the major Flag Airlines in the world to start competing in the low-cost segment against the existing LCCs constitutes a huge threat.

2.2.4 Threat of substitutes – Low

This threat has a low degree of influence because it does not exist in the market a substitute able to serve the same need as well as the one offered by Airlines and at a lower price. In fact, LCCs that mainly offer short-haul routes, have suffered an enhancement in the number of passengers transported along the past decade while other ways to travel like cars and buses decreased their previous influence. Despite the lack of customer’s loyalty or switching costs the fact that low-cost air transportation offers a faster, more comfortable and cheaper alternative makes this threat almost negligible.

2.2.5 Existing rivalry within the Industry – High

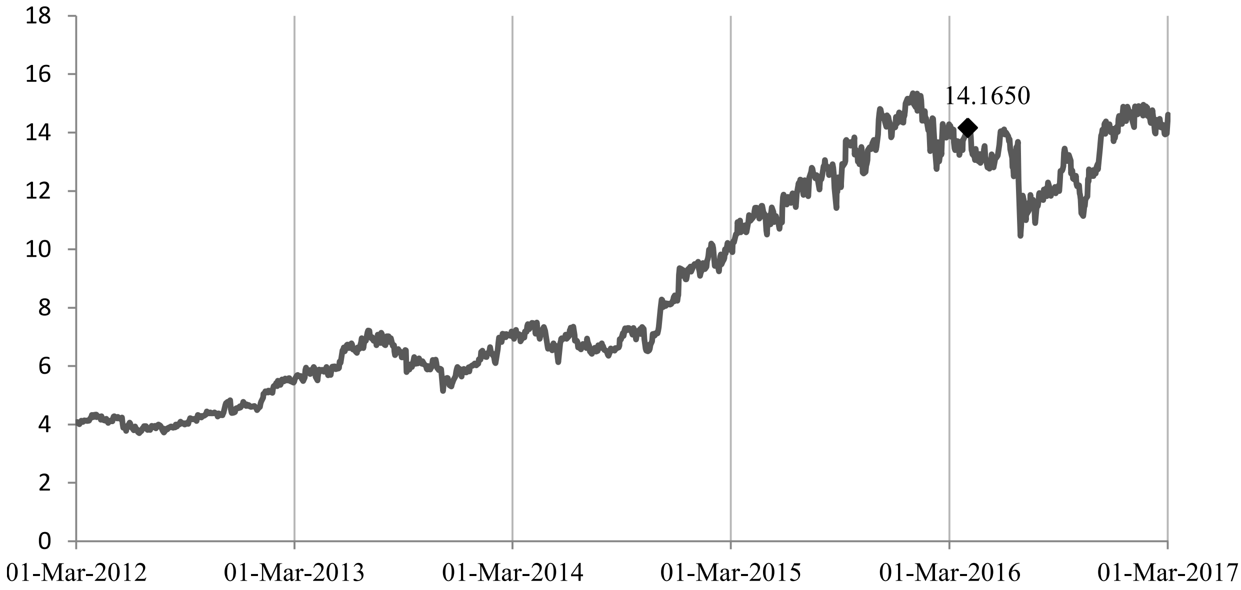
This industry, namely in the low-cost segment, is highly competitive. Currently several LCCs operate in the most active global markets offering similar routes at an identical price. The fact that cost advantages are usually easy to copy leads to a differentiation through price, making this rivalry even more intense. As an example, in Europe operate 20 different LCCs all in the same market.

2.3 Company Overview

Ryanair Holdings is an Irish ultra-low fare Arline, headquartered in Dublin, Ireland. It was incorporated in 1996 as a holding company for Ryanair Limited. The company operates short-haul routes within and from Europe through 84 different bases. In June 30, 2016, Ryanair provided over 2,000 flights per day serving more than 200 airports. It presents a fleet of over 350 Boeing 737-800 NG aircrafts and expects to expand to approximately 550 aircrafts by the end of 2024. During 2016 FY, the company created 2,065 new jobs totalizing 11,458 aviation professionals at the year end.

Under the leadership of Michael O'Leary, CEO of the company since January 1994, the company achieved, in the 2016 fiscal year, a profit on ordinary activities after taxation of €1,559.1 million and an average book passenger load factor of 93 percent, consolidating its position as one of the largest European airline by passengers transported (106.4 million against the 107.7 million transported by the Lufthansa group) and "firmly establish itself as Europe's biggest schedule passenger airline", according to Ryanair's 2016 Annual Report.

In graph 3 is possible to observe Ryanair's price performance during the last five years, highlighting its sustained growth.



Graph 3: Last 5 years share price performance. Source: Own Computations and Thompson Reuters

2.4 SWOT Analysis

2.4.1 Strengths

Ryanair is the leading LCC in Europe, sharing with easyJet the domain over the low-fare segment. Both companies have agreed not to compete directly with each other in order to not jeopardize their margins. The company benefits from economies of scale and density, aircrafts' homogeneity and cost-efficient (more seats per aircraft), use of secondary airports with lower charging fees and flexibility of the non-union labor force to keep unit and maintenance costs at a lower level than its rivals.

Linked to a low cost structure are solid revenues based on the lowest fares, largest short-haul network in Europe, best on time performance, quick turnaround strategy (usually 25 minutes limit), superior customer service and online reservations via Ryanair's website. The company is the leader in online check-in and booking, allowing eliminating costs progressively with ground staff and travel agents. This trend has become policy in any Ryanair's flight, boosting ancillary revenues, such as travel insurance or car hire, while at the same time allowing familiarizing the website with the costumer (i.e. potential future revenues).

2.4.2 Weaknesses

In the low-cost segment costumers are very price sensitive, basing their decision mainly through price, while displaying a low degree of loyalty by a LCC in particular. The Ryanair's strategy in operating mainly through regional or secondary airports, usually distant from the city center, may constitute an important weakness in case its competitors operate using more convenient ones. The seasonality of earnings, higher profits during summer and lower ones during winter's period (from November to March), negatively impact the operating income resulting in the grounding of a certain portion of its fleet during that period (40 in 2016 FY). Regarding brand and media perception, the company has been categorized as an uncaring airline, disregarding customer service, which may be potentiated by other companies to gain customers while charging a few more money, by providing a more careful and distinctive service.

2.4.3 Opportunities

Ryanair seeks to take advantage of the European aviation industry growth in the medium to long term, while gaining market share. Many European flag airlines are undergoing restructuring operations, diminishing their current capacity and ability to keep up with the industry. The company could fill that gap by using the following steps:

- Aggressive fare promotions to enhance load factors;
- Initiate new routes and increase the frequency on its existing ones;
- Start operating routes not served by any carrier or by a low-cost carrier in EU;
- Consider acquisition opportunities that may be potentiated in the future;
- Establish new bases;

The enlargement of the number of countries within the European Union is an opportunity to expand operations as well.

Following the latest European economic outlook and the corresponding Ryanair's financial performance, is possible to conclude that Ryanair can benefit from a more price sensitive scenario to increase the number of passengers, which means current austerity in EU could serve as a continuous gain for the company. Apart from Europe, Ryanair could explore the

"Open Skies Agreement", between E.U and U.S, to start providing low-cost transatlantic flights in a near future.

2.4.4 Threats

To begin with, despite the company enters into forward arrangements, changes in fuel costs and availability are a serious threat that might result in hedging losses or fuel shortages. Furthermore, the seasonality of Ryanair's operations negatively impact operating income, with the inability to avoid fixed costs while decreasing potential ancillary revenues. In addition, currency fluctuations can significantly affect the financial performance of the company because a large portion of its operating costs are incurred in U.S dollars and substantially none of its revenues are denominated in U.S. dollars, exposing the company to direct exchange rate risks.

The "Brexit" Referendum and the uncertainty it sparkled could adversely affect the company's business. Topics like freedom of movement between U.K. and E.U, employment rules, the U.K. status in relation to the E.U's open aviation market and tax status of E.U. members with strong relations with U.K. (28% of revenue in 2016 FY came from operations in the U.K.) are relevant threats to the company.

Ryanair operates in a highly competitive environment facing in Europe several low-fare, flag and charter airlines all within similar routes. Many of these competitors are state-owned or controlled, which give them access to wider brand recognition and resources to face any unpredictable challenge. A possible one is the increase of Airport fess in a strategic location for a targeted geographic market, forcing a cost raise or eventual route shut-down. Tense labor relations or a rising cost in an outsourcing contract are two relevant threats as well.

Terrorism is an important issue that must be highlighted because independently of its location it impacts negatively any airline company around the world during some length of time. Volcanic ash emissions, like the one occurred in 2010, forced the closure of a significant portion of the airspace over northern Europe resulting in a significant amount of unpredictable flights cancelations.

3. Forecasts

In the following chapter it will be detailed each component of Ryanair's business through an in depth analysis of its main value drivers. This process is fundamental to achieve an accurate valuation and as a result a target price the nearest as possible to its true value. To do so, the analysis will be based on the comprehension of financial statements, such as the statement of financial position, income statement and cash flow statement. In each one will be explained the reasoning behind the assumptions made and the computations done in order to achieve the projected forecast.

3.1 Operating Revenues

Ryanair have been recording a sustained growth in revenues for the past 10 years. In a matter of fact the strategy developed by Michael O'Leary through an exhaustive and diverse expansion linked with competitive low-cost flights have been successful and according to the most recent annual report that strategy will remain at least until 2024. Under that assumption, it seems reasonable to take the last five years' average in terms of growth to project future revenues for a large number of cases.

Following the proven insights given by Ryanair's own estimates, it was projected for the next 8 years the total number of passengers transported per year as well as the average fare.

Year	2015	2016	2017F	2018F	2019F	2020F	2021F	2022F	2023F	2024F
# Passengers	**90.6**	**106.4**	**117.0**	**128.7**	**140.3**	**151.6**	**160.7**	**168.7**	**175.4**	**180.7**
Δ	*10.88%*	*17.50%*	*10.00%*	*10.00%*	*9.00%*	*8.00%*	*6.00%*	*5.00%*	*4.00%*	*3.00%*
Average Fare	**47.05**	**46.68**	**46.22**	**45.76**	**45.30**	**44.84**	**44.40**	**43.95**	**43.62**	**43.40**
Δ	1.39%	-0.77%	-1.00%	-1.00%	-1.00%	-1.00%	-1.00%	-1.00%	-0.75%	-0.50%

Table 2: Forecast of Revenues. Source: Own computations

According to the CEO, “over the next eight years we plan to grow traffic to more than 180 million customers per annum”. This goal will be supported by an increase in the number of available aircrafts (introducing at the meantime a more recent version with more seats per aircraft), from 350 to an operating fleet comprising approximately 546 aircrafts, and through a reduction in the average fare around 1%, as we can observe in table 2.

Having that into account it was possible to compute scheduled revenues, which are the main source of income, by taking the product of the number of passengers transported for the average fare charge in a single year. This item recorded a 16.6% increase from 2015 to 2016 fiscal year to €4,967.2 million boosted by the enhance of passenger transported, enjoying from the success of new routes offered and improvement on booked passenger load factors from 88.2% in 2015 to 92.8% in the following year. In table 3 we can notice the impact of this item on the operating revenue of the company in the 2016 fiscal year.

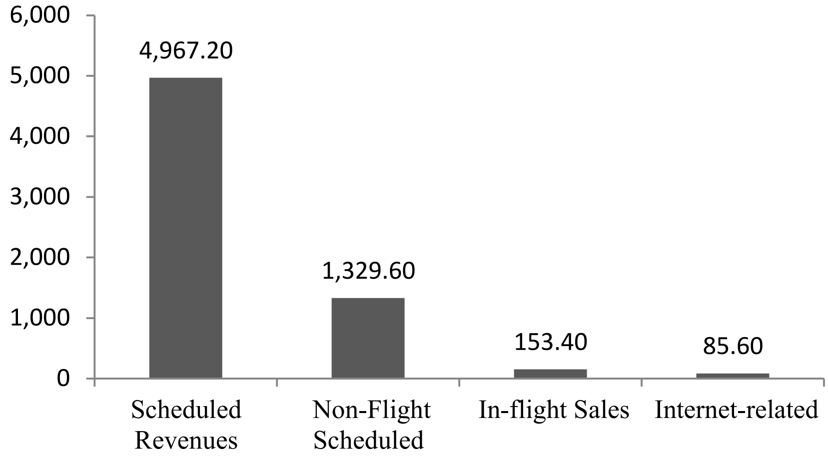
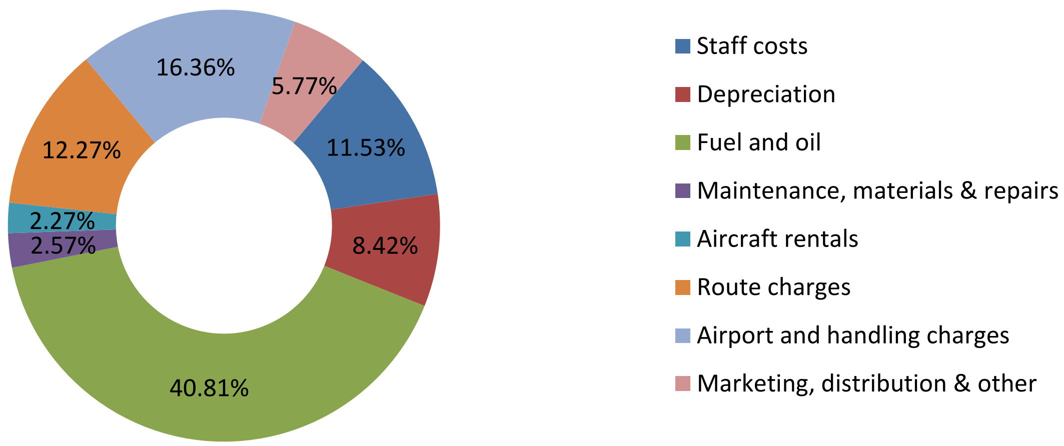


Table 3: Revenues FY2016

Operating revenues are divided into two categories: Schedule and ancillary revenues. The latter is dependent from the actual passenger’s transportation and as a result it seems coherent to project future revenues based on Scheduled revenues’ weight. Both non-flight scheduled and in-flight sales were projected by taking into account the last five years’ average weight over the scheduled revenues (24.2% - non-flight scheduled; 3.03% - in-flight sales). Non-flight scheduled revenues comprises car rental, travel insurance, accommodation, excess baggage charges, administration/credit card fees, sales of rail and bus tickets, priority boarding and reserved seating. It has recorded a 14.2% boost in the last fiscal year, following the 16.6% increase in Ryanair’s scheduled passenger revenues. Regarding the in-flight sales it has increased at the same pace with a 19.8% enhance. At last, Internet-related sales, which are primarily commissions received from products sold on Ryanair's or associated websites, has recorded a 15.4% decrease in revenues in the 2016 fiscal year. This revenue has been losing influence throughout the last few years, granting support to a reduction of 0.1% in the total weight this item has over scheduled revenues until stabilizing in 2022.

3.2 Operating Expenses

Operating expenses are divided into seven different categories: Staff costs, depreciation, fuel & oil, maintenance & materials & repairs, aircraft rentals, route charges and airport & handling charges. The main item is fuel and oil, representing in the FY 2016 more than 40% of the overall operating costs and a 31.69% weight over total revenues.



Graph 4: Operating Expenses FY2016

Staff costs consist primarily of salaries, wages and benefits. It recorded a per-passenger decrease of 1% from 2015 to 2016 and it followed that same path until 2023. In absolute terms, after a 16% increase in the FY2016, it recorded smaller increasing variations, in line with total revenues, around 6% on average. This sustained augmentation is attributed to an increase of offered routes and by the increase in the number of aircrafts and passengers thought the explicit period.

Ryanair's depreciation per passenger decreased 3.7%, while in absolute terms it has increased 13.1%. In the next year, in 2017, this cost per passenger has enhanced 7% due to a higher rate of depreciation and to the delivery of additional 52 aircrafts (under the 2013 Boeing agreement). Despite that increase, in the following years the cost per passenger has stabilized, recording an average decrease of 1.3% in the eight years ahead. Regarding, the absolute variation it has increased 7% on average, in line with CAPEX and with expected growth traffic.

Its main driver, fuel and oil, has been losing influence due to lower crude oil prices recorded in the last two fiscal years. However, according to World Bank estimates, the crude oil price will recover throughout the years, from 56.9USD/barrel in 2016 to levels before 2015, which led to assume a progressive enhance in weight (over total revenues) until 2020 and stabilization from there forward by taking the last years' average accordingly. In 2016 the cost per passenger decreased by 11.5% while in absolute terms it increased by 4%, after considering fuel hedging activities. It is expected a reduction of 3.2% in 2017 and a small increase in the years ahead regarding cost per passenger. As a result of more passengers transported and cheaper fuel until 2020, this cost will have a sustained and progressive increase until 2019, decreasing its pace after then.

Regarding maintenance, materials and repairs, which consist mainly of cost of routine maintenance provision for leased aircraft and the overhaul of spare parts, it decreased 17.8% on a per passenger basis in 2016 and is expected to have a null variation on average in the following years. Concerning absolute variation, it was assumed the last five years' average over total revenues as a proxy for the future, leading to a corresponding increase.

Aircraft rentals, which reflect the cost associated with aircraft leases, decreased by 10.5% in a per passenger basis and increased 5% in respect to the 2015-2016 FY periods. It was estimated a constant weight (1.96% over total revenues) resulting from the last five years average weight (% total revenues).

Ryanair's route charges decreased in 2016 by 3.2%, in a per passenger basis, and recorded a null variation on the following years of the explicit period. Concerning the absolute variation, it has attained a 14% increase in the 2016 FY while for the next years it was estimated a variation in line with total revenues (by taking the last fight years average weight).

Airport and handling charges are closely linked with passenger transportations and to the airports used for that purpose. Regarding the 2016 FY, Ryanair has recorded a 0.8% reduction on a per passenger perspective, while in absolute terms it has increased 16.5%, reflecting the increased number of passengers transported, the addition of primary airports operated and the appreciation of the U.K. pound sterling against the euro. In the forecast performed, it was assumed the last five years average weight over total revenues as a suitable proxy for this cost in the future.

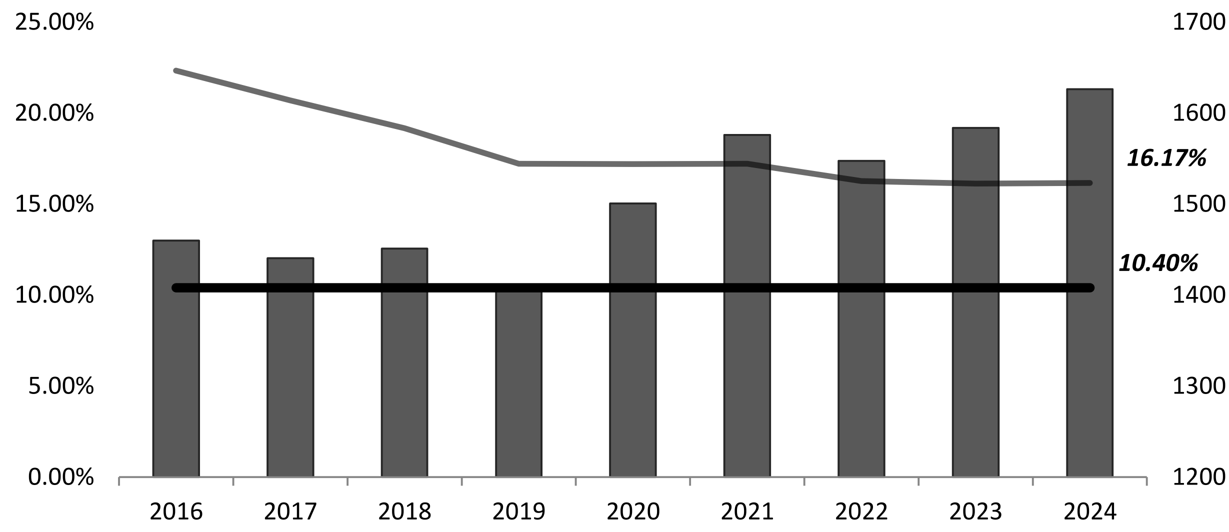
Finally, the marketing, distribution and other expenses include a broad range of operating costs, some considered abnormal for its singularity (e.g. disruption costs associated with strikes or terrorist attacks). In the 2016 FY, on a per passenger basis, occurred a 6.5% increment, leading to a 25% enhance in absolute terms, resulting from higher distribution costs attained by larger on-board sales, the French ATC strikes, the Brussels terrorist attacks and higher passenger compensation costs following an ECJ ruling on passenger compensation in September 2015. As a result of the wide dispersion associated with this item, it was assumed the last five years average weight over total revenues, in order to capture the same variation as before while taking into consideration the increase observed in revenues for the future.

in €m

Year	2015	2016	**2017F**	**2018F**	**2019F**	**2020F**	**2021F**	**2022F**	**2023F**	**2024F**
+ Total Revenue per passenger	*62.44*	*61.43*	*59.46*	*58.82*	*58.18*	*57.56*	*56.98*	*56.37*	*55.94*	*55.66*
- Total Op. Expenses per passenger	*50.92*	*47.70*	*47.15*	*47.54*	*48.16*	*48.08*	*47.59*	*47.19*	*46.92*	*46.66*
=	*11.52*	*13.72*	*12.31*	*11.27*	*10.02*	*9.47*	*9.39*	*9.18*	*9.03*	*9.00*

Table 4: Per Passenger operating margin. Source: Own Computations

After reviewing both operating revenues and expenses, is possible to conclude that the strategy followed by the board will diminish Ryanair's operating margin on a per passenger perspective. However, this result would be compensated by a larger number of passengers transported, which is in line with the CEO statement, "over the next eight years we plan to grow traffic to more than 180 million customers per annum" and to more competitive fares.



Graph 5: Operating Margin comparison. Source: Own Computations and Thompson Reuters

In the steady state, is assumed Ryanair will converge to the Industry median regarding total operating margin of around 10.40%. As is observable in the graph above, the company will converge throughout the years to that percentage, departing from an initial value of 22.34% in 2016 to 16.17% in 2024.

3.3 CAPEX and Property, Plant and Equipment

The main component of CAPEX is the investment in the acquisition of new aircrafts (primary investment) in line with the fleet expansion plan for the next eight years. As secondary investments, should be highlighted expenditures in hangar and buildings, plant and equipment, fixtures and fittings, motor vehicles, intangible assets and in financial investments.

In order to compute the CAPEX on aircraft, it was performed the difference between the current gross value minus the previous year's gross value (as stated in the statement of financial position) plus the depreciation accounted in the previous year. For the secondary investments it was assumed a value of capital expenditures similar to the one recorded in 2016.

The estimated expenses on financial investments were null due to the sale of Ryanair's stake in Aer Lingus in July 2015 to IAG and to the absence of further investments on the horizon.

Finally, the rate of depreciation was addressed based on the last five years level of depreciation, leading to a 6.74% rate each year, over the total amount of depreciable and amortizable assets.

3.4 Operating Net Working Capital

Operating Net working capital is a measure of the company's short-term sustainability and liquidity. It is computed by taking the difference between current assets and current liabilities. According to Ryanair's annual report, variations in working capital requirements were closely linked to increase in operations and revenues. As a result, the forecasts were done according to that same principle: changes in working capital would result from changes in operations.

Since we predict that revenues will have a sustainable growth in the future, current liabilities will surpass current assets leading to a negative variation of NWC. This could be explained by the increase in payables due to the large order of new fleet, which will require higher indebtedness to suppliers both in long and short term.

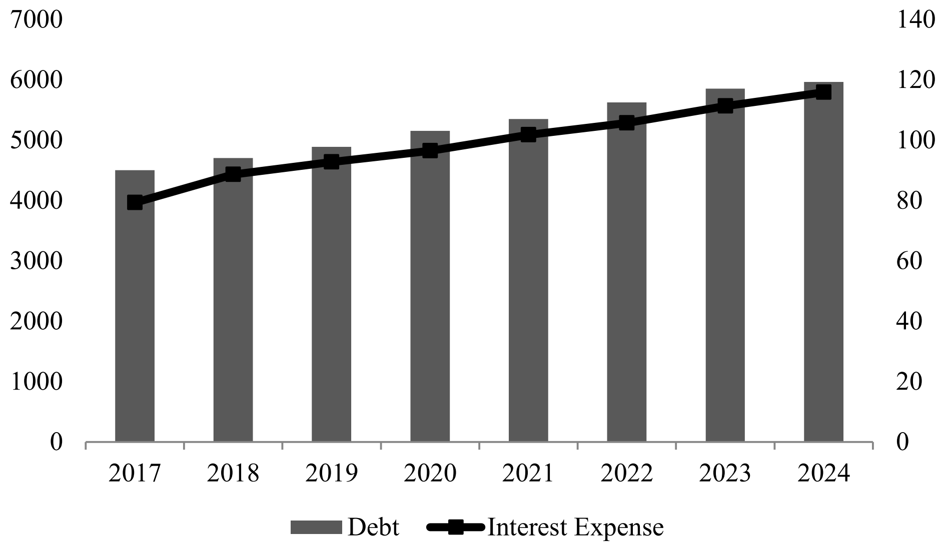
Regarding the derivative financial instruments, it was assumed an operational side effect due to the high relevance these instruments have in the day-to-day operation of the company, by providing hedge mainly against fuel and oil shortage and price peaks. Restricted cash was maintained in line with the derivative financial instruments, because most of this cash was set aside as collateral for the counterparty's exposure to risk of fluctuations on certain derivative arrangements with Ryanair.

3.5 Debt

Ryanair's debt amounted to €4.023 million at the end of the 2016 fiscal year. In which €3.458 million consisted of long-term debt, €565 million of finance leases obligations. For the computation of the market value of debt it also included the operating leases obligations.

Regarding debt estimation, the forecast was based on the Debt/Assets ratio observed in the last 5 years and expected debt issuances foreseen by the board, mainly to finance the fleet expansion from 341 to 546 over the next eight years. The Debt/Assets ratio ranged between 35% and 36% in the last three years, while in the last five years the ratio varied between 40% and 35%. Under this scenario it was assumed a constant ratio of 36%.

Furthermore, interest expenses were computed based on the debt ratio, above present, multiplied by the cost of debt (Kd). Concerning the cost of debt, the company reported an "outstanding cumulative borrowings (…) of €4,023.0 million with a weighted average interest rate of 1.97% at March 31, 2016", similar to the YTM (1.949%) of a bond issued in June 2015, so it was assumed a 1.97% in this analysis as well.



Graph 6: Debt and Interest Expenses. Source: Own Computations

3.6 Effective Tax Rate

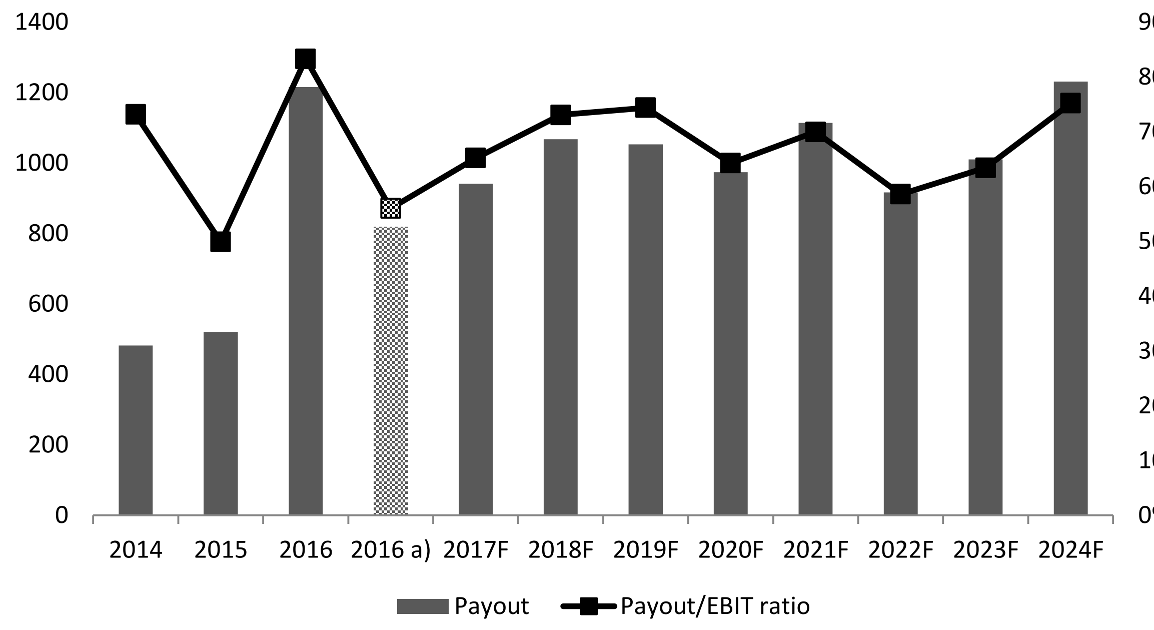
Ryanair pays taxes according to the Irish statutory rate of 12.5%. The effective tax rate may be subject to adjustments due to earnings taxed at higher or lower rates. Nevertheless, by taking in consideration the dispersion of the last five years effective tax rate, it is reasonable to assume the statutory rate as the effective tax rate.

3.7 Payout Policy

Ryanair have been increasing the amount returned to shareholders since 2007, either through special dividends or share buy-back programs. In the 2014 FY, the company has distributed €481.7 million in share buy-backs and paid a special dividend of €520.3 million in the 2015 FY. In the 2016 FY, it was completed an ordinary share buy-back program, finished in August 2015, of €400 million. In addition, the company returned €398 million proceeds from the sale of its shares in Aer Lingus to shareholders. To conclude, the company announced a €800 million share buy-back program in February 2016, of which €418.1 million had been distributed up until March 31. To summarize, approximately €1,200 million were distributed during the 2016 fiscal year.

Following June 23, 2016, Brexit referendum result to leave the EU, shareholders approved the enlargement of the prior share buy-back program from the original €800 million to €886 million (5% buy-back limit) in order to deal with existent and future market volatility. "On July 1, 2016, the Board confirmed that it will hold an EGM on July 27, 2016 to seek approval from shareholders to grant the Board of the Company the discretion to engage in further share buy-backs"[3]. As we can conclude, the Board intends to increase the amount distributed in the following years in order to point out the robustness and belief of shareholders towards the success of the company despite the challenges it will face in the future. Following this line of though, it was estimated a smooth increase of the amount distributed in the next three years ahead, in which the payout/EBIT ratio, for the entire estimated period, would range between 59% and 75% and present an average of 69% as recorded in the last three historical years.

[3] Ryanair Annual Report FY2016



Graph 7: Amount distributed to shareholders from 2014 FY until 2024 forecasted FY. [Note: 2016 a) excludes the one-time event regarding the distribution of proceeds of Aer Lingus' sale]. Source: Own Computations

3.8 Key Metrics

From the table below is possible to conclude that operating (EBIT) margin, EBITDA margin and net margin are all above the industry median, from the last historical observation until the last forecasted year, which gives a positive sign in regard of the existence of strong cash-flow streams and healthy operational activity.

in € m	**Historical**		**Forecast**								**Industry Median**
Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	
EBIT Margin	18.4%	22.3%	20.7%	19.2%	17.2%	17.2%	17.2%	16.3%	16.1%	16.2%	10.4%
EBITDA Margin	25.1%	28.9%	27.9%	26.2%	24.0%	24.0%	24.0%	23.3%	23.3%	23.3%	14.3%
Net Profit Margin	15.3%	23.9%	17.4%	16.0%	14.3%	14.3%	14.3%	13.5%	13.3%	13.3%	6.5%

Table 5: Key Metrics comparison with Industry. Source: Own Computations and Thompson Reuters

The EBITDA margin was 28.9% in 2016 and is expected to decline to 23.3% at the end of the 2024 fiscal year, converging to 14.3% of margin of its peers. Concerning net margin is important to highlight the effect of the Aer Lingus sale on the 2016 results, which led to a 56% enhance of this margin in the period of one year. According to my own calculations, the net profit margin is going to keep above Ryanair's peers despite converging throughout the years to the Industry median of 6.5%.

4. Valuation

4.1 DCF Valuation

In this chapter will be presented the assumptions and conclusions reached through the DCF implemented approach. As already stated, the WACC method was chosen over APV due to both historical and projected stable capital structure. The explicit period considered was 8 years, comprising the fiscal years from March 31, 2017 until March 31, 2024. After this period, the terminal value was computed.

4.1.1 Free Cash Flows to the Firm (FCFF)

Firstly, future cash flows were estimated for each year, using the FCFF formula, presented in the literature review, equation (1).

$$FCFF = EBIT(1-T) + D\&A - CAPEX - \ Increase\ in\ NWC \ \textbf{(1)}$$

As we can see in the table below, the FCFF were quite stable despite suffering from several relevant factors, presenting an increasing trend at the end of the valuation period. The company's EBIT * (1- effective tax rate) presented a volatile growth of 13% during the explicit period. Depreciations and amortizations (D&A) increased as well, resulting primarily from the acquisition of new aircrafts. The net working capital (NWC) requirements were positive, except in 2017, and presented a higher enhance in the early years. Finally, capital expenditures (CAPEX) recorded a volatile behavior, resulting mainly from the pace of aircrafts' acquisitions, according to Boeing contracts and company's forecasts.

Year	**2017F**	**2018F**	**2019F**	**2020F**	**2021F**	**2022F**	**2023F**	**2024F**
EBIT * (1- tax rate)	1270.65	1280.38	1241.43	1325.01	1391.58	1367.58	1399.69	1437.41
+ D&A	491.56	517.75	540.26	578.67	605.98	649.11	683.64	697.27
- Net increase in WC	-135.69	198.02	191.29	180.19	139.10	114.32	98.83	78.72
- Capex	1139.53	860.08	829.97	1087.05	958.84	1219.53	1134.49	858.08
FCFF	**758.37**	**740.04**	**760.42**	**636.45**	**899.63**	**682.84**	**850.01**	**1197.87**

Table 6: FCFF Forecasts. Source: Own Computations

4.1.2 Weighted Average Cost of Capital (WACC)

Regarding WACC, as detailed in the literature review, a set of variables were computed in order to achieve the 6% rate to discount the projected cash-flows.

$$WACC = \frac{Equity}{Debt + Equity} * Cost\ of\ Equity_{Levered} + \frac{Debt}{Debt + Equity} * Cost\ of\ Debt_{Levered} * (1 - T)$$

4.1.2.1 Cost of Equity

The cost of equity (Ke) of 7.01% was computed by applying the Capital Asset Pricing Model (CAPM), equation (6).

$$Ke = Rf + \beta_{Levered}(E[rm] - rf) \quad \textbf{(6)}$$

Firstly, it was assumed a risk free rate of 0%, due to the current low interest rates environment in Euro zone, in both primary and secondary markets. Secondly, the Beta levered was computed by using an OLS regression on the company's common stock price volatility relative to market price volatility, the ISEQ Overall Index, over the last 5 years on a monthly basis (i.e. 60 last months). The value for the levered beta was 0.99 and was extracted from Thomson Reuters Eikon platform. Thirdly, regarding market risk premium, it was reached a value of 7.08%, taken from Damodaran's website on January, 2017. This value takes into consideration the implied equity risk premium of the S&P 500 plus the country risk premium.

4.1.2.2 Cost of Debt and effective tax rate

Regarding the cost of debt (Kd), as already presented, it was applied a weighted average of interest rates on the book value of debt, at the end of 2016 FY, of 1.97% . The effective tax rate used was the Irish statutory rate of 12.5% leading to an after-tax cost of debt of 1.72%.

4.1.2.3 Market value of Debt and Equity

Finally, the market value of debt was obtained by converting the non-traded portion of debt and operating leases into marketable debt and adding the two bonds, of €850 million each, recently issued. The intention to include operating leases into the market value of debt results from companies' common practice in using this instrument in order to present a healthier outlook under operating expenses rather than interest expenses.

In the following table is possible to comprehend the computation of debt. In each year, the financial commitment was discounted by the cost of debt, taking in consideration the corresponding maturity as stated in the company's report. It was reached a value of 268.40 € million.

(M €)

Maturity		Commitment	Present Value
	< 1	93.50 €	92.59 €
	1 – 2	77.10 €	74.88 €
	2 – 5	107.60 €	100.50 €
	> 5	0.50 €	0.43 €
Debt value of leases			**268.40 €**

Table 7: Market Value of Operating Leases. Source: Damodaran and Own computations

Regarding the non-traded portion of debt, it was applied a conversion from book to market value by treating it "as one coupon bond, with a coupon set equal to the interest expenses on all the debt and the maturity set equal to the face-value weighted average maturity of the debt, and then to value this coupon bond at the current cost of debt for the company"[4]. The value of 2,441.28 € and the process behind it, concerning the non-traded portion of debt, is detailed in the following table and equation.

(M €)

Maturity	Commitment
< 1	259.79 €
1 - 2	259.84 €
2 - 5	640.66 €
> 5	1,162.77 €
Total B.V	**2,323.06 €**
Weighted average maturity of the debt	4.94
Interest Expenses	71.10 €
Pre-tax Cost of debt (kd)	1.97%
Estimated MV of Ryanair's Non-traded Debt	**2,441.28 €**

Table 8: Market value of non-traded debt. Source: Own Computations

$$MV\ of\ non-traded\ debt = 71.10\ € \left(\frac{1 - \frac{1}{(1 + 1.97\%)^{4.94}}}{1.97\%} \right) + \frac{2{,}323.06\ €}{(1 + 1.97\%)^{4.94}}$$

$$= \mathbf{2{,}441.28\ M€}$$

The sum of all sources of debt led to an overall market value of 4,409.68 M €.

For the market value of equity it was assumed the market capitalization on the 31, March 2016, in the amount of 18,995.27 M €.

4.1.3 Terminal Value

Concerning terminal value, it was applied the perpetuity growth model leading to a 19,192.44 M € amount. After reaching a steady state in 2025, it was applied the perpetuity over the FCFF, at a constant WACC of 6% and growth rate of 1.84%, in line with the last IMF

[4] Damodaran

forecast (2021) for inflation in European Union (used as a robust measurement tool to assess the steady growth in the countries in which it operates).

4.1.4 Price target

(€ M)

Enterprise Value	24,406.49 €
Net debt	56.68 €
Value of equity	24,349.81 €
Number of shares outstanding	1341.00
Price at the end of March 2017	18.16 €
Current Price	14.17 €

Table 9: DCF/WACC Price Target. Source: Own Computations

According to the DCF approach, Ryanair PLC is undervalued presenting an upside potential of 28%.

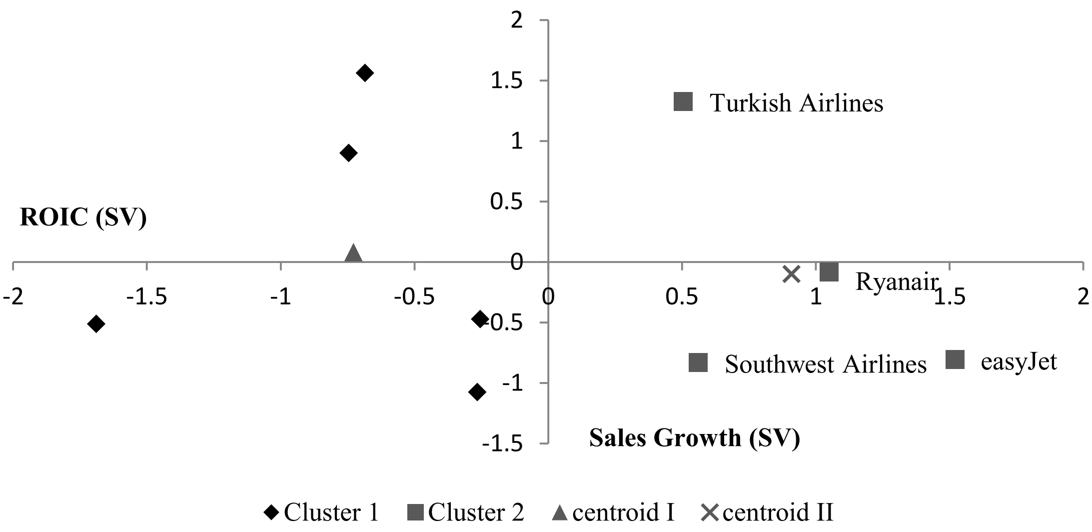
4.2 Multiples Valuation

As stated in the literature review, the multiples approach is widely used by analysts and allows to stress test a more embracing valuation model, like the DCF approach. This chapter will be divided into two sub-chapters, the explanation of the peer group chosen and the results obtained from the peers and multiples used for the effect.

4.2.1 Peer Group

The initial sample comprised the seven largest European Airline companies by total passengers carried (Ryanair, Lufthansa Group, International Airlines Group, Air France-KLM, easyJet, Turkish Airlines, Aerofloot Group), the three largest low-cost carriers in the world (Southwest Airlines, Ryanair, easyJet) and also the three largest European low-cost carriers (Ryanair, easyJet, Norwegian Air Shuttle ASA).

From here, it was applied a cluster analysis in order to identify the group that Ryanair more relates with and has greater level of similarity in terms of ROIC and sales growth. It was obtained two distinctive, non-overlapping, clusters. Ryanair shares its cluster with three other companies: easyJet, Southwest Airlines and Turkish Airlines, as we can infer in graph 8.



Graph 8: Peer Group selection. Source: Own Computations

4.2.2 Price target

The following step, consisted in applying the two forward-looking multiples described in the literature review, as the most reliable and popular ones, to validate previous results. The first one was the forward EV/EBITDA ratio, reliable against changes in capital structures, which is not the case, followed by the popular forward PER ratio.

Peer Group	EV/EBITDA	P/E
easyJet plc	6.28	11.55
Southwest Airlines Co.	6.14	13.50
Turkish Airlines	7.85	8.71
Mean	**6.76x**	**11.25x**
Ryanair	**8.05x**	**12.67x**

Table 10: Peers forward-looking multiples 2017. Source: Own Computations and Thompson Reuters

For the EV/EBITDA multiple it was reached a target price of €9.98 per share for the end of 2017 fiscal year, representing a 29.52% downside potential in regard to the price of €14.17 at the end of the 2016 fiscal year. This result is in line with the last two years performance of this ratio. Ryanair outperformed constantly its peers in terms of average EV/EBITDA, despite being emerged a slight conversion to its peers in the prior semester, it does not seem accurate to estimate a reliable relationship between the company and its peers through this multiple due to the large disparity of EBITDA and EV values.

EV/EBITDA 2017F	
RYA EBITDA	1,943.74 €
Average Peers EV/EBITDA	6.76 €
RY EV by Peers estimate	13,133.17 €
RYA Net Debt	57.38 €
RYA Equity by Peers estimate	13,075.79 €
Shares outstanding	1,309.75 €
Price Target from Relative Valuation	**9.98 €**
Current Price	14.17 €

Table 11: EV/EBITDA target price. Source: Own Computations

Concerning the P/E multiple it was achieved a target price of €12.83 per share for the end of 2017 fiscal year, representing a 9.43% downside potential taking into consideration the end of the 2016 fiscal year. This result can be mostly explained by the low earnings expectations in comparison with its peers average future and historical earnings. In fact, the last two years trend was to a conversion between Ryanair and its peers and is reasonable to assume a close relationship between both sides in the close future (Forward P/E: Ryanair- 12.46; Peers- 11.25).

P/E 2017F	
RYA EPS	1.14 €
Average Peers P/E	11.25 €
Price Target from Relative Valuation	**12.83 €**
Current Price	14.17 €

Table 12: P/E target price. Source: Own Computations

5. Sensitivity Analysis

A sensitivity analysis will be performed on key variables in order to highlight the main vulnerabilities of the company and stress test the implemented valuation method.

This chapter will exploit possible effects on the price target, achieved through the DCF method, by analyzing shifts on both operational and discount rates assumed along the valuation process. On the operational side, simulations taking into consideration the four main sources of expense will be analyzed in detailed, within a reasonable range of dispersion from the estimated value. The key financial assumptions will be tested as well, focusing on the variables with higher impact on the target price.

5.1 Operational Analysis

Under this sub-chapter are detailed the impacts resulting from variations of the four main cost items. Those items are (described by order of relevance): Fuel and Oil, Airport and handling charges, Route charges and Staff costs.

In the tables below is possible to observe the joint impact of two variables in the price target. Variations are measure by changes of one percentage point in the percentage weight of the cost over total revenues (underlined values are the assumed weights).

As is common knowledge, Fuel and Oil prices vary over time and in this company in particular, those variations may represent a serious risk to the company, despite existing hedging strategies. Airport and handling charges have a close relationship with the level of passengers carried and with the number of airports (mainly primary ones) used in the normal activity of the company, as a result is easy to acknowledge the risk it brings to an activity in fast development. The impact owing to changes in both Fuel & Oil (-5% to +5%) and Airport & Handling (-3% to +3%) expenses, presented in the following table, led to values between 9.30 € and 27.01 €, which represents a 49 % upside and downside potential in regard to the initial price target.

	in €	Fuel and Oil (% W)										
	18.16 €	31.36%	32.36%	33.36%	34.36%	35.36%	36.36%	37.36%	38.36%	39.36%	40.36%	41.36%
Airport & Handling(% W)	9.54%	27.01	25.91	24.80	23.69	22.59	21.48	20.37	19.26	18.16	17.05	15.94
	10.54%	25.91	24.80	23.69	22.59	21.48	20.37	19.26	18.16	17.05	15.94	14.84
	11.54%	24.80	23.69	22.59	21.48	20.37	19.26	18.16	17.05	15.94	14.84	13.73
	12.54%	23.69	22.59	21.48	20.37	19.26	18.16	17.05	15.94	14.84	13.73	12.62
	13.54%	22.59	21.48	20.37	19.26	18.16	17.05	15.94	14.84	13.73	12.62	11.52
	14.54%	21.48	20.37	19.26	18.16	17.05	15.94	14.84	13.73	12.62	11.52	10.41
	15.54%	20.37	19.26	18.16	17.05	15.94	14.84	13.73	12.62	11.52	10.41	9.30

	in €	Route Charges (% W)										
	18.16 €	9.51%	9.61%	9.71%	9.81%	9.91%	10.01%	10.11%	10.21%	10.31%	10.41%	10.51%
Staff (% W)	8.79%	19.04	18.93	18.82	18.71	18.60	18.49	18.38	18.27	18.16	18.05	17.94
	8.89%	18.93	18.82	18.71	18.60	18.49	18.38	18.27	18.16	18.05	17.94	17.83
	8.99%	18.82	18.71	18.60	18.49	18.38	18.27	18.16	18.05	17.94	17.83	17.72
	9.09%	18.71	18.60	18.49	18.38	18.27	18.16	18.05	17.94	17.83	17.72	17.60
	9.19%	18.60	18.49	18.38	18.27	18.16	18.05	17.94	17.83	17.72	17.60	17.49
	9.29%	18.49	18.38	18.27	18.16	18.05	17.94	17.83	17.72	17.60	17.49	17.38
	9.39%	18.38	18.27	18.16	18.05	17.94	17.83	17.72	17.60	17.49	17.38	17.27

Table 13: Sensitivity analysis of Operational activity. Source: Own Computations

The other two relevant cost items, Route Charges and staff costs, are detailed in the above table. Both inputs have been increasing, in absolute terms, due to an increase of offered routes and by the enlargement in the number of operated aircrafts and passengers transported. The combination of these two costs caused a variation between 17.27 € and 19.04 € on price target, resulting in a 5% upside and downside potential.

5.2 Financial Analysis

This sub-chapter covers the impacts generated by shifts on the main financial assumptions undertook during the valuation process. Those assumptions are: terminal growth rate, perpetuity WACC, market risk premium and levered Beta.

The following tables manage and analyze the joint impact of two variables in the original price target. In the first table is analyzed the impact of 0.10% changes on both terminal growth and perpetuity WACC rates, while on the second table are covered the impacts produced by changes in Market risk premium (0.5%) and levered Beta (0.05).

Terminal value is responsible for 79% of Ryanair's overall enterprise value and as a result is relevant to study the organic behind it. The terminal growth rate assumption was based on IMF's projected level of inflation for 2021, concerning countries belonging to EU. This assumption is subject to a great degree of uncertainty due to EU political and financial instability and also regarding the length between the last FMI's forecasted year and the one of valuation. WACC is the main discount factor and embrace a set of assumptions such as the cost of equity, cost of debt or the market values of both equity and debt, which makes the final WACC of 6% liable to possible misalignments. Is possible to conclude a price target ranging between 15.80 € and 21.64 €, under the conditions expressed in the first part of table 14, which represents a -13% and 19%, downside and upside potential.

	in €	% Change in Terminal Growth rate										
	18.16 €	1.34%	1.44%	1.54%	1.64%	1.74%	1.84%	1.94%	2.04%	2.14%	2.24%	2.34%
% Change in Perpetuity WACC	5.71%	17.44	17.77	18.12	18.48	18.86	19.27	19.69	20.14	20.61	21.11	21.64
	5.81%	17.13	17.45	17.78	18.13	18.49	18.88	19.28	19.70	20.15	20.62	21.12
	5.91%	16.84	17.15	17.46	17.80	18.14	18.51	18.89	19.30	19.72	20.17	20.64
	6.01%	16.56	16.86	17.16	17.48	17.81	18.16	18.52	18.91	19.31	19.74	20.18
	6.11%	16.30	16.58	16.87	17.17	17.49	17.82	18.17	18.54	18.92	19.33	19.75
	6.21%	16.04	16.31	16.59	16.88	17.19	17.50	17.84	18.19	18.55	18.94	19.34
	6.31%	15.80	16.06	16.32	16.60	16.89	17.20	17.52	17.85	18.20	18.57	18.95

		Change in Market risk premium										
	18.16 €	4.58%	5.08%	5.58%	6.08%	6.58%	7.08%	7.58%	8.08%	8.58%	9.08%	9.58%
Change in Levered Beta	0.84	41.08	34.58	30.00	26.61	24.00	21.91	20.22	18.81	17.62	16.60	15.72
	0.89	37.23	31.64	27.65	24.66	22.33	20.46	18.94	17.66	16.58	15.66	14.85
	0.94	34.10	29.21	25.68	23.01	20.91	19.23	17.84	16.68	15.69	14.84	14.10
	0.99	31.50	27.18	24.01	21.60	19.70	18.16	16.89	15.82	14.91	14.12	13.44
	1.04	29.32	25.44	22.58	20.38	18.64	17.23	16.05	15.07	14.22	13.49	12.85
	1.09	27.45	23.94	21.33	19.32	17.71	16.41	15.32	14.40	13.61	12.93	12.33
	1.14	25.84	22.64	20.24	18.38	16.89	15.68	14.66	13.80	13.07	12.43	11.87

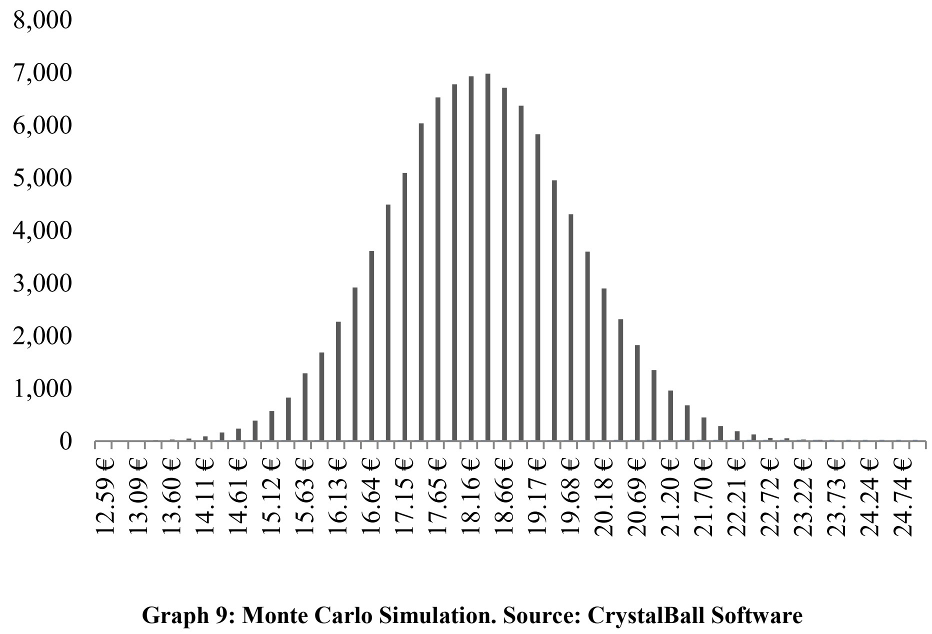
Table 14: Sensitivity analysis on Financial assumptions. Source: Own Computations

Regarding the second part of table 14, the market risk premium and the levered beta constitute the entire cost of equity because it was assumed a risk free rate of 0%. The responsiveness of Ryanair's stock is practically identical to the overall market and the market risk premium is close to 7%. Both fundamentals should be tested against plausible shifts in their original values. According to this table, the price target could reach a value between 11.87 € and 41.08 €, leading to a downside potential of 35% and upside of 126%.

5.3 Monte Carlo Simulation

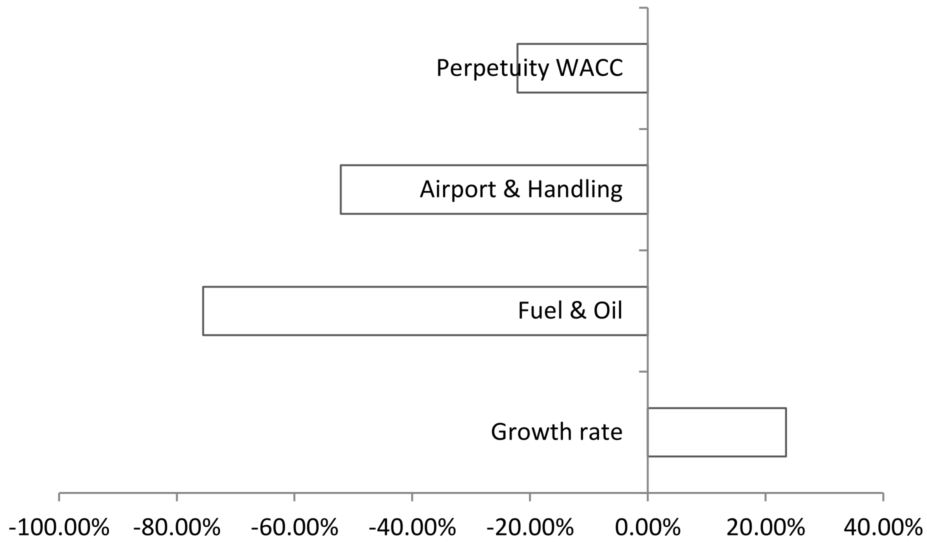
A Monte Carlo simulation intends to assess the impact of risk from changes in random variables. To do so, it was applied a 100,000 sample trial on the 4 main variables addressed above. Those variables were: the perpetuity WACC, the terminal growth rate, Fuel & Oil and Airport & Handling costs items.

The assumptions plotted into the model assumed a standard deviation of 0.1% on financial estimates, perpetuity WACC and terminal growth rate, while on the Fuel & Oil item the standard deviation assumed was 1% and 0.75% on Airport & Handling due to a lower expected volatility in the latter. The mean corresponded to the original forecasted value of each variable.



Graph 9: Monte Carlo Simulation. Source: CrystalBall Software

With respect to the simulation presented in the graph 8, the mean amounted to 18.17€, the standard deviation to 1.44 € and the Kurtosis to 3.03, in line with Normal distribution. It was assumed a recommendation framework similar to the one put into practice by BPI's Investment rating, detailed in appendix 11. According to those guidelines, exists around 80% probability an "Overweight" recommendation can be sustained.



Graph 10: Random Variables impact on price. Source: CrystalBall and Own Computations

The variables with higher impact on price, under the specified conditions, are Fuel & Oil (-75.53%) and Airport & Handling (-52.14%), followed by the terminal growth rate (23.52%) and perpetuity WACC (-22.15%).

6. Equity Research Comparison

In this chapter, it will performed a comparison between the valuation made in this dissertation with the one made by J.P Morgan Cazenove on May 26th 2016.

6.1 Methodology

The J.P. Morgan valuation is based on a DCF model assuming the WACC/FCFF approach solely. According to the investment bank, Ryanair's shares are "overweight", which means the security is expected to outperform the average total return of the stocks in the analyst's coverage universe until March 31st 2017, the price target end date. It was reached a target price of 16.53 €.

Regarding this dissertation, the price target obtained was based on a DCF model assuming the WACC/FCFF approach as well, in association with the relative valuation method. The target price of 16.47 € was reached by attributing a 75% weight to the WACC/FCFF model (18.16 €) and 25% to the EV/EBITDA (12.83 €) and P/E (9.98 €) multiples approach. The decision to incorporate the relative valuation into the computation of the final price target derives from the effort to increase robustness to the results.

6.1.1 Forecasts

Year	2017F	2018F	2019F	2020F	2021F	2022F	2023F	2024F
Total Revenues								
Dissertation	**6,958.7**	**7,572.1**	**8,164.7**	**8,722.9**	**9,153.8**	**9,508.0**	**9,814.2**	**10,058.0**
Investment bank	**6,764.0**	**7,087.0**	**-**	**-**	**-**	**-**	**-**	**-**
Operating Expenses								
Dissertation	**5,518.1**	**6,121.0**	**6,758.6**	**7,222.2**	**7,577.7**	**7,960.3**	**8,230.6**	**8,431.7**
Investment bank	**5,078.0**	**5,162.0**	**-**	**-**	**-**	**-**	**-**	**-**
EBITDA								
Dissertation	**1,943.7**	**1,981.0**	**1,959.0**	**2,093.0**	**2,196.4**	**2,212.1**	**2,283.3**	**2,340.0**
Investment bank	**2,161.0**	**2,446.0**	**-**	**-**	**-**	**-**	**-**	**-**
EBIT								
Dissertation	**1,440.6**	**1,451.1**	**1,406.1**	**1,500.7**	**1,576.1**	**1,547.7**	**1,583.6**	**1,626.4**
Investment bank	**1,686.0**	**1,926.0**	**-**	**-**	**-**	**-**	**-**	**-**
Net Income								
Dissertation	**1,276.6**	**1,285.8**	**1,246.4**	**1,329.2**	**1,395.3**	**1,370.4**	**1,401.9**	**1,439.4**
Investment bank	**1,439.0**	**1,650.0**	**-**	**-**	**-**	**-**	**-**	**-**

Table 15: Forecasts: Dissertation vs Investment Bank

The first aspect that must be highlighted is the difference regarding the forecast horizon. In this thesis the explicit period comprises 8 fiscal years, from 2017 until 2024, while the investment bank considers a 2 years window.

Concerning operational forecasts, the dissertation estimate higher revenues (higher number of carried passengers) and higher operating expenses in comparison with the investment bank. The EBITDA margin presents a higher value in the investment bank forecasts (2017: I.Bank: 32%; Thesis: 28%; 2018: I.Bank: 35%; Thesis: 26%) as well as the EBIT margin, slightly enlarged by higher estimated depreciation & amortization costs. Finally, the investment bank's Net Income presents a larger and stronger growth than the one presented in this thesis, which makes us conclude J.P. Morgan projected a more optimistic outlook than the dissertation did.

6.1.2 Comparison Summary

	Dissertation	Investment bank
Method	DCF/WACC & Multiples	DCF/WACC
WACC	6.01%	9.30%
Risk-free rate	0%	1.10%
MRP	7.08%	7%
Beta	1	1.35
Cost of Equity	7.01%	10.50%
Terminal growth rate	1.84%	2%
Price Target	**16.47 €**	**16.53 €**

Table 16: Comparison summary: Disseration vs Investment Bank

In the table above is possible to infer the main differences in terms of key assumptions and tools between the two valuations.

The dissertation includes the relative valuation in the computation of its final price target while the investment bank does not. However is possible to compare the "common ground" both valuations share, which means the DCF/WACC approach.

In case the dissertation focused its analyses just on the DCF/WACC approach it would reach a target price of 18.16 €, way above the 16.53 € of the investment bank. According to this result, despite J.P. Morgan presents a better forecast outlook than the thesis, the fact the latter discount the FCFF by a lower WACC allows to reach a higher price target.

7. Conclusion

An equity valuation procedure is subject to several different approaches, which can be categorized into direct and indirect ones. On one hand, a direct approach intends to find out the intrinsic value of a firm by studying each of its variables and assuming a plausible trend in regard to its performance. On the other hand, an indirect approach leads us to think in a firm as an individual inside a group of similar companies, inserted in the same market category and displaying similar features.

In order to achieve a robust and accurate outcome is common practice to extract insights from both approaches. However, is strictly vital that assumptions, forecasts, pears and multiples made are maintained in the future and capture the true characteristics of the company. One way to address possible fluctuations on these two first fundamentals is by producing a robust sensitivity analysis on key variables. Regarding the selection of peers and multiples, the process was based on insights' taken from the literature as well as similarities between companies.

Finally, the comparison with J.P. Morgan Cazenove helps demystify contrasts between the two valuations. Despite both approaches reach a similar price target, around 16.5 €, this dissertation assumes a much more optimistic outlook in regard to the DCF/WACC valuation. Nonetheless, the two valuations present an "Overweight" recommendation until March 31, 2017, due to the expectation Ryanair's price will rise to 16.47 €.

8. Appendices

Appendix 1: Income Statement 2016-2024, in Million euros. Source: Own Computations and Ryanair's 2016 Annual Report

Year	*2016*	2017F	2018F	2019F	2020F	2021F	2022F	2023F	2024F
Period End Date	31-Mar-2016	31-Mar-2017	31-Mar-2018	31-Mar-2019	31-Mar-2020	31-Mar-2021	31-Mar-2022	31-Mar-2023	31-Mar-2024
Operating Revenues									
Scheduled Revenues	4,967.2	5,409.3	5,890.7	6,356.7	6,796.5	7,132.3	7,414.0	7,652.7	7,842.9
Ancillary revenues	1,568.6	1,549.4	1,681.4	1,808.1	1,926.4	2,021.6	2,094.0	2,161.4	2,215.1
Total Operating Revenues	**6,535.8**	**6,958.7**	**7,572.1**	**8,164.7**	**8,722.9**	**9,153.8**	**9,508.0**	**9,814.2**	**10,058.0**
Operating Expenses									
Staff costs	585.4	632.2	688.0	741.8	792.5	831.7	863.9	891.7	913.8
Depreciation	427.3	503.1	529.9	552.9	592.3	620.2	664.3	699.7	713.6
Fuel and oil	2,071.4	2,205.4	2,533.9	2,909.2	3,108.1	3,261.7	3,457.1	3,568.5	3,657.1
Maintenance, materials & repairs	130.3	160.4	174.5	188.2	201.1	211.0	219.2	226.2	231.8
Aircraft rentals	115.1	136.2	148.2	159.8	170.8	179.2	186.1	192.1	196.9
Route charges	622.9	696.3	757.6	816.9	872.8	915.9	951.3	982.0	1,006.4
Airport and handling charges	830.6	872.8	949.7	1,024.0	1,094.0	1,148.1	1,192.5	1,230.9	1,261.5
Marketing, distribution & other	292.7	311.6	339.1	365.7	390.6	409.9	425.8	439.5	450.4
Total Operating Expense	**5,075.7**	**5,518.1**	**6,121.0**	**6,758.6**	**7,222.2**	**7,577.7**	**7,960.3**	**8,230.6**	**8,431.7**
Operating Profit	**1460.1**	**1440.6**	**1451.1**	**1406.1**	**1500.7**	**1576.1**	**1547.7**	**1583.6**	**1626.4**
EBITDA	**1,887.4**	**1,943.7**	**1,981.0**	**1,959.0**	**2,093.0**	**2,196.4**	**2,212.1**	**2,283.3**	**2,340.0**
Finance income	17.9	17.9	18.0	18.0	18.1	18.1	18.2	18.2	18.3
Interest expenses	(71.1)	(79.3)	(88.7)	(92.7)	(96.4)	(101.7)	(105.7)	(111.3)	(115.8)
G/L on Invest. HFS, Maturity & Trading	317.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Foreign exchange (loss)	(2.5)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Total other income/(expenses)	**261.8**	**18.3**	**18.3**	**18.4**	**18.4**	**18.5**	**18.5**	**18.6**	**18.6**
Disposal Assets	0.0	0	0	0	0	0	0	0	0
Net Income Before Taxes	**1,721.9**	**1,458.9**	**1,469.5**	**1,424.5**	**1,519.1**	**1,594.6**	**1,566.2**	**1,602.2**	**1,645.0**
Provision for Income Taxes	(162.8)	(182.4)	(183.7)	(178.1)	(189.9)	(199.3)	(195.8)	(200.3)	(205.6)
Corporate Tax rate	9.45%	11.37%	11.37%	11.37%	11.37%	11.37%	11.37%	11.37%	11.37%
Net Income After Taxes	**1,559.1**	**1,276.6**	**1,285.8**	**1,246.4**	**1,329.2**	**1,395.3**	**1,370.4**	**1,401.9**	**1,439.4**
Dividend Paid	1216.10	941.50	1067.89	1053.42	974.12	1114.17	916.78	1010.59	1231.64

Appendix 2: Statement of Financial Position 2016-2024, in Million euros. Source: Own Computations and Ryanair's 2016 Annual Report

	2016	2017F	2018F	2019F	2020F	2021F	2022F	2023F	2024F
Period End Date	31-Mar-2016	31-Mar-2017	31-Mar-2018	31-Mar-2019	31-Mar-2020	31-Mar-2021	31-Mar-2022	31-Mar-2023	31-Mar-2024
Assets									
Current Assets									
Consumables	3.3	3.6	3.9	4.2	4.5	4.7	4.9	5.0	5.2
Current tax	0.0	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Derivative financial Instruments	269.1	506.8	506.8	506.8	506.8	506.8	506.8	506.8	506.8
Restricted cash	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0
Financial assets: cash > 3 months	3,062.3	3,103.2	3,152.6	3,205.5	3,262.0	3,322.0	3,383.0	3,445.1	3,508.4
Cash and cash equivalents	1,259.2	1,340.7	1,458.9	1,573.0	1,680.6	1,763.6	1,831.8	1,890.8	1,937.8
Trade receivable	66.1	77.2	84.0	90.6	96.8	101.6	105.5	108.9	111.6
Other Assets	148.5	158.1	172.0	185.5	198.2	208.0	216.0	223.0	228.5
Total Current Assets	**4,821.5**	**5,204.8**	**5,393.4**	**5,580.9**	**5,764.1**	**5,921.8**	**6,063.2**	**6,194.9**	**6,313.5**
Non-current Assets									
Landing Rights	46.80	46.8	46.8	46.8	46.8	46.8	46.8	46.8	46.8
Available for sale financial assets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Aircraft	6,198.70	6,907.64	7,289.38	7,616.58	8,180.10	8,580.02	9,216.25	9,725.23	9,925.19
Hangar and Buildings	45.70	50.27	55.30	60.27	65.10	69.00	71.76	74.27	75.91
Plant & Equipment	5.70	6.27	6.90	7.52	8.12	8.61	8.95	9.26	9.47
Fixtures and Fittings	10.40	11.44	12.58	13.72	14.81	15.70	16.33	16.90	17.27
Motor Vehicles	1.00	1.30	1.60	1.90	2.20	2.50	2.80	3.10	3.40
Derivative Financial Instruments	88.50	321.50	321.50	321.50	321.50	321.50	321.50	321.50	321.50
Total non-current Assets	**6,396.8**	**7,345.2**	**7,734.1**	**8,068.3**	**8,638.6**	**9,044.1**	**9,684.4**	**10,197.1**	**10,399.5**
Total Assets	***11,218.3***	***12,550.0***	***13,127.5***	***13,649.1***	***14,402.7***	***14,965.9***	***15,747.6***	***16,391.9***	***16,713.1***
Liabilities									
Current Liabilities									
Trade payables	230.60	235.77	256.56	276.64	295.55	310.15	322.15	332.52	340.78
Cur.Port.LT Debt	449.90	449.90	449.90	449.90	449.90	449.90	449.90	449.90	449.90
Derivative Instruments	555.40	555.40	555.40	555.40	555.40	555.40	555.40	555.40	555.40
Current tax	20.90	4.24	4.24	4.24	4.24	4.24	4.24	4.24	4.24
Accrued expenses and other liabilities	2,112.7	2,249.4	2,447.7	2,639.3	2,819.7	2,959.0	3,073.5	3,172.4	3,251.3
Total Current Liabilities	**3,369.5**	**3,494.7**	**3,713.8**	**3,925.4**	**4,124.8**	**4,278.7**	**4,405.2**	**4,514.5**	**4,601.6**
Non-current liabilities									
Non-current maturities of debt	3,573	4,051	4,258	4,445	4,715	4,917	5,197	5,428	5,544
Derivative Instruments	112	112	112	112	112	112	112	112	112
Other Creditors	33	33	33	33	33	33	33	33	33

Provisions	149	153	156	160	163	167	171	175	179
Deferred Tax	386	386	386	386	386	386	386	386	386
Total non-current liabilities	**4,252.0**	**4,733.0**	**4,943.6**	**5,134.2**	**5,408.1**	**5,613.8**	**5,897.9**	**6,132.9**	**6,252.0**
Total Liabilities	***7,621.5***	***8,227.7***	***8,657.3***	***9,059.6***	***9,532.9***	***9,892.5***	***10,303.1***	***10,647.4***	***10,853.6***
Total Debt	***4,023.0***	***4,500.6***	***4,707.7***	***4,894.7***	***5,165.0***	***5,366.9***	***5,647.3***	***5,878.3***	***5,993.5***
Shareholders Equity									
Issued share capital	8	8	8	8	8	8	8	8	8
Share premium account	719	719	719	719	719	719	719	719	719
Capital redemption reserve	2	2	2	2	2	2	2	2	2
Retained earnings	3,166	3,434	3,582	3,701	3,982	4,185	4,556	4,856	4,971
Other reserves	(298.7)	158.9	158.9	158.9	158.9	158.9	158.9	158.9	158.9
Total Equity	***3,596.8***	***4,322.3***	***4,470.1***	***4,589.5***	***4,869.9***	***5,073.5***	***5,444.5***	***5,744.6***	***5,859.4***
Total Liabilities & Shareholders' Equity	***11,218.3***	***12,550.0***	***13,127.5***	***13,649.1***	***14,402.7***	***14,965.9***	***15,747.6***	***16,391.9***	***16,713.1***

Appendix 3: Cash-Flow Statement 2017-2024, in Million euros. Source: Own Computations

Years	2017F	2018F	2019F	2020F	2021F	2022F	2023F	2024F
Operating Activities								
Net Income	1207.21	1208.21	1165.26	1244.87	1306.26	1277.94	1304.55	1338.04
D&A	503.10	529.91	552.95	592.26	620.21	664.35	699.69	713.65
Income tax	-172.46	-172.60	-166.47	-177.84	-186.61	-182.56	-186.36	-191.15
Change in NWC	-135.69	198.02	191.29	180.19	139.10	114.32	98.83	78.72
Total Cash from Operating Activities	**1402.17**	**1763.53**	**1743.03**	**1839.48**	**1878.96**	**1874.05**	**1916.70**	**1939.26**
Investing Activities								
CAPEX	-1149.34	-871.00	-841.50	-1099.09	-971.78	-1233.10	-1149.07	-873.47
Other investments	40.91	49.40	52.90	56.51	59.92	61.02	62.15	63.29
Total Cash from Investing Activities	**-1108.43**	**-821.60**	**-788.60**	**-1042.58**	**-911.85**	**-1172.07**	**-1086.92**	**-810.18**
Financing Activities								
Interest paid	-79.25	-88.66	-92.74	-96.43	-101.75	-105.73	-111.25	-115.80
Dividends paid & Shares repurchase	-939.29	-1060.38	-1045.88	-964.54	-1102.63	-906.88	-1004.53	-1223.17
Issuance (Retirement) of Debt, Net	477.57	207.09	187.07	270.23	201.98	280.32	231.06	115.16
Total Cash from Financing Activities	**-540.97**	**-941.95**	**-951.55**	**-790.73**	**-1002.40**	**-732.29**	**-884.72**	**-1223.82**
Net Change in cash	**98.75**	**153.19**	**149.54**	**133.31**	**118.59**	**111.76**	**93.07**	**86.94**
Net Cash - Beginning Balance	**1259.20**	**1340.68**	**1458.86**	**1573.03**	**1680.58**	**1763.60**	**1831.83**	**1890.82**
Net Cash - Ending Balance	**1340.68**	**1458.86**	**1573.03**	**1680.58**	**1763.60**	**1831.83**	**1890.82**	**1937.80**

Appendix 4: Common-Size Income Statement 2016-2024, in Million euros. Source: Own Computations and Ryanair's 2016 Annual Report

Year	*2016*	2017F	2018F	2019F	2020F	2021F	2022F	2023F	2024F
Period End Date	31-Mar-2016	31-Mar-2017	31-Mar-2018	31-Mar-2019	31-Mar-2020	31-Mar-2021	31-Mar-2022	31-Mar-2023	31-Mar-2024
Operating Revenues									
Scheduled Revenues	76.00%	78%	78%	78%	78%	78%	78%	78%	78%
Ancillary revenues	24.00%	22%	22%	22%	22%	22%	22%	22%	22%
Total Operating Revenues	**100.00%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
Operating Expenses									
Staff costs	8.96%	9.09%	9.09%	9.09%	9.09%	9.09%	9.09%	9.09%	9.09%
Depreciation	6.54%	7.23%	7.00%	6.77%	6.79%	6.78%	6.99%	7.13%	7.10%
Fuel and oil	31.69%	31.69%	33.46%	35.63%	35.63%	35.63%	36.36%	36.36%	36.36%
Maintenance, materials & repairs	1.99%	2.30%	2.30%	2.30%	2.30%	2.30%	2.30%	2.30%	2.30%
Aircraft rentals	1.76%	1.96%	1.96%	1.96%	1.96%	1.96%	1.96%	1.96%	1.96%
Route charges	9.53%	10.01%	10.01%	10.01%	10.01%	10.01%	10.01%	10.01%	10.01%
Airport and handling charges	12.71%	12.54%	12.54%	12.54%	12.54%	12.54%	12.54%	12.54%	12.54%
Marketing, distribution & other	4.48%	4.48%	4.48%	4.48%	4.48%	4.48%	4.48%	4.48%	4.48%
Total Operating Expense	**77.66%**	**79.30%**	**80.84%**	**82.78%**	**82.80%**	**82.78%**	**83.72%**	**83.86%**	**83.83%**
Operating Profit	**22.34%**	**20.70%**	**19.16%**	**17.22%**	**17.20%**	**17.22%**	**16.28%**	**16.14%**	**16.17%**
EBITDA	**28.88%**	**27.93%**	**26.16%**	**23.99%**	**23.99%**	**23.99%**	**23.27%**	**23.27%**	**23.27%**
Finance income	0.27%	0.26%	0.24%	0.22%	0.21%	0.20%	0.19%	0.19%	0.18%
Interest expenses	-1.09%	-1.14%	-1.17%	-1.14%	-1.11%	-1.11%	-1.11%	-1.13%	-1.15%
G/L on Invest. HFS, Maturity & Trading	4.86%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Foreign exchange (loss)	-0.04%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total other income/(expenses)	**4.01%**	**-0.88%**	**-0.93%**	**-0.91%**	**-0.89%**	**-0.91%**	**-0.92%**	**-0.94%**	**-0.97%**
Disposal Assets	**0.00%**	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Net Income Before Taxes	**26.35%**	**19.83%**	**18.24%**	**16.31%**	**16.31%**	**16.31%**	**15.36%**	**15.19%**	**15.20%**
Provision for Income Taxes	-2.49%	-2.48%	-2.28%	-2.04%	-2.04%	-2.04%	-1.92%	-1.90%	-1.90%
Corporate Tax rate	9.45%	11.37%	11.37%	11.37%	11.37%	11.37%	11.37%	11.37%	11.37%
Net Income After Taxes	**23.85%**	**17.35%**	**15.96%**	**14.27%**	**14.27%**	**14.27%**	**13.44%**	**13.29%**	**13.30%**
Dividend Paid	19%	13%	14%	13%	11%	12%	10%	10%	12%

Appendix 5: Common-Size Statement of Financial Position 2016-2024, in Million euros. Source: Own Computations and Ryanair's 2016 Annual Report

	2016	2017F	2018F	2019F	2020F	2021F	2022F	2023F	2024F
Period End Date	31-Mar-2016	31-Mar-2017	31-Mar-2018	31-Mar-2019	31-Mar-2020	31-Mar-2021	31-Mar-2022	31-Mar-2023	31-Mar-2024
Assets									
Current Assets									
Consumables	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%
Current tax	0.00%	0.02%	0.02%	0.02%	0.02%	0.01%	0.01%	0.01%	0.01%
Derivative financial Instruments	2.40%	4.04%	3.86%	3.71%	3.52%	3.39%	3.22%	3.09%	3.03%
Restricted cash	0.12%	0.10%	0.10%	0.10%	0.09%	0.09%	0.08%	0.08%	0.08%
Financial assets: cash > 3 months	27.30%	24.73%	24.02%	23.49%	22.65%	22.20%	21.48%	21.02%	20.99%
Cash and cash equivalents	11.22%	10.68%	11.11%	11.52%	11.67%	11.78%	11.63%	11.54%	11.59%
Trade receivable	0.59%	0.62%	0.64%	0.66%	0.67%	0.68%	0.67%	0.66%	0.67%
Other Assets	1.32%	1.26%	1.31%	1.36%	1.38%	1.39%	1.37%	1.36%	1.37%
Total Current Assets	**42.98%**	**41.47%**	**41.09%**	**40.89%**	**40.02%**	**39.57%**	**38.50%**	**37.79%**	**37.78%**
Non-current Assets									
Landing Rights	0.42%	0.37%	0.36%	0.34%	0.32%	0.31%	0.30%	0.29%	0.28%
Available for sale financial assets	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Aircraft	55.26%	55.04%	55.53%	55.80%	56.80%	57.33%	58.52%	59.33%	59.39%
Hangar and Buildings	0.41%	0.40%	0.42%	0.44%	0.45%	0.46%	0.46%	0.45%	0.45%
Plant & Equipment	0.05%	0.05%	0.05%	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%
Fixtures and Fittings	0.09%	0.09%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%
Motor Vehicles	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%	0.02%	0.02%	0.02%
Derivative Financial Instruments	0.79%	2.56%	2.45%	2.36%	2.23%	2.15%	2.04%	1.96%	1.92%
Total non-current Assets	**57.02%**	**58.53%**	**58.91%**	**59.11%**	**59.98%**	**60.43%**	**61.50%**	**62.21%**	**62.22%**
Total Assets	***100%***	***100%***	***100%***	***100%***	***100%***	***100%***	***100%***	***100%***	***100%***
Liabilities									
Current Liabilities									
Trade payables	2.06%	1.88%	1.95%	2.03%	2.05%	2.07%	2.05%	2.03%	2.04%
Cur.Port.LT Debt	4.01%	3.58%	3.43%	3.30%	3.12%	3.01%	2.86%	2.74%	2.69%
Derivative Instruments	4.95%	4.43%	4.23%	4.07%	3.86%	3.71%	3.53%	3.39%	3.32%
Current tax	0.19%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%
Accrued expenses and other liabilities	18.83%	17.92%	18.65%	19.34%	19.58%	19.77%	19.52%	19.35%	19.45%
Total Current Liabilities	**30.04%**	**27.85%**	**28.29%**	**28.76%**	**28.64%**	**28.59%**	**27.97%**	**27.54%**	**27.53%**
Non-current liabilities									
Non-current maturities of debt	31.85%	32.28%	32.43%	32.56%	32.74%	32.85%	33.00%	33.12%	33.17%
Derivative Instruments	0.99%	0.89%	0.85%	0.82%	0.77%	0.75%	0.71%	0.68%	0.67%

Other Creditors	0.29%	0.26%	0.25%	0.24%	0.23%	0.22%	0.21%	0.20%	0.19%
Provisions	1.33%	1.22%	1.19%	1.17%	1.13%	1.12%	1.09%	1.07%	1.07%
Deferred Tax	3.44%	3.07%	2.94%	2.82%	2.68%	2.58%	2.45%	2.35%	2.31%
Total non-current liabilities	**37.90%**	**37.71%**	**37.66%**	**37.62%**	**37.55%**	**37.51%**	**37.45%**	**37.41%**	**37.41%**
Total Liabilities	***67.94%***	***65.56%***	***65.95%***	***66.38%***	***66.19%***	***66.10%***	***65.43%***	***64.96%***	***64.94%***
Total Debt	***35.86%***	***35.86%***	***35.86%***	***35.86%***	***35.86%***	***35.86%***	***35.86%***	***35.86%***	***35.86%***
Shareholders Equity									
Issued share capital	0.07%	0.06%	0.06%	0.06%	0.05%	0.05%	0.05%	0.05%	0.05%
Share premium account	6.41%	5.73%	5.48%	5.27%	4.99%	4.81%	4.57%	4.39%	4.30%
Capital redemption reserve	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	0.01%	0.01%	0.01%
Retained earnings	28.22%	27.36%	27.29%	27.12%	27.64%	27.96%	28.93%	29.63%	29.74%
Other reserves	-2.66%	1.27%	1.21%	1.16%	1.10%	1.06%	1.01%	0.97%	0.95%
Total Equity	***32.06%***	***34.44%***	***34.05%***	***33.62%***	***33.81%***	***33.90%***	***34.57%***	***35.04%***	***35.06%***
Total Liabilities & Shareholders' Equity	***100.00%***	***100.00%***	***100.00%***	***100.00%***	***100.00%***	***100.00%***	***100.00%***	***100.00%***	***100.00%***

Appendix 6: Net Working Capital 2016-2024. Source: Own Computations and Ryanair's 2016 Annual Report

ΔCurrent Assets

in €m

Years	*2016*	2017F	2018F	2019F	2020F	2021F	2022F	2023F	2024F
Consumables	3.30	3.57	3.88	4.19	4.47	4.69	4.87	5.03	5.16
Current tax	0.00	2.24	2.24	2.24	2.24	2.24	2.24	2.24	2.24
Derivative financial Instruments*	282.10	519.75	519.75	519.75	519.75	519.75	519.75	519.75	519.75
Trade receivable	66.10	77.24	84.04	90.62	96.82	101.60	105.53	108.93	111.64
Other Assets	148.50	158.11	172.05	185.51	198.19	207.98	216.03	222.99	228.53
Total current assets	487	747.90	768.96	789.31	808.47	823.27	835.43	845.94	854.31
Total Δcurrent assets	452.8	-260.90	-21.06	-20.35	-19.16	-14.79	-12.16	-10.51	-8.37

*includes the restricted cash

ΔCurrent Liabilities

in €m

Years	*2016*	2017F	2018F	2019F	2020F	2021F	2022F	2023F	2024F
Trade payables	230.60	235.77	256.56	276.64	295.55	310.15	322.15	332.52	340.78
Current tax	20.90	4.24	4.24	4.24	4.24	4.24	4.24	4.24	4.24
Accrued expenses and other liabilities	2112.70	2249.40	2447.69	2639.25	2819.69	2958.98	3073.47	3172.43	3251.27
Derivative financial Instruments	555.4	555.4	555.4	555.4	555.4	555.4	555.4	555.4	555.4
Total current liabilities	2919.6	3044.82	3263.89	3475.53	3674.88	3828.77	3955.26	4064.59	4151.69
Total Δcurrent liabilities	-26.8	125.22	219.08	211.64	199.35	153.89	126.48	109.34	87.10

Total ΔNWC	426.00	-135.69	198.02	191.29	180.19	139.10	114.32	98.83	78.72

Appendix 7: Depreciations and Amortizations 2016-2024. Source: Own Computations and Ryanair's 2016 Annual Report

Years	*2016*	2017F	2018F	2019F	2020F	2021F	2022F	2023F	2024F
in €m									
Aircraft	6198.7	6907.6	7289.4	7616.6	8180.1	8580.0	9216.2	9725.2	9925.2
Hangar and Buildings	45.7	50.27	55.3	60.3	65.1	69.0	71.8	74.3	75.9
Plant and Equipment	5.7	6.27	6.9	7.5	8.1	8.6	9.0	9.3	9.5
Fixtures and Fittings	10.4	11.44	12.6	13.7	14.8	15.7	16.3	16.9	17.3
Motor Vehicles	1	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4
Intangible Assets	0	321.5	321.5	321.5	321.5	321.5	321.5	321.5	321.5
Depreciation, amortisation and impairment	427.30	503.10	529.91	552.95	592.26	620.21	664.35	699.69	713.65

Prior 5 year average depreciation rate	**6.89%**

Appendix 8: CAPEX 2016-2024. Source: Own Computations and Ryanair's 2016 Annual Report

Years	*2016*	2017F	2018F	2019F	2020F	2021F	2022F	2023F	2024F
in €m									
Primary investments									
Aircraft	1203.80	1136.24	857.90	829.68	1088.55	963.80	1227.68	1144.29	870.35
Secondary investments									
Hangar and Buildings	3.40	3.40	3.40	3.06	2.72	2.04	1.36	1.19	0.75
Plant and Equipment	2.90	2.90	2.90	2.61	2.32	1.74	1.16	1.02	0.64
Fixtures and Fittings	6.50	6.50	6.50	5.85	5.20	3.90	2.60	2.28	1.43
Motor Vehicles	1.10	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Intangible Assets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Financial investments									
Financial investments	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Capex (excluding financial investments)	1217.70	1149.34	871.00	841.50	1099.09	971.78	1233.10	1149.07	873.47
Total Capex	1217.70	1149.34	871.00	841.50	1099.09	971.78	1233.10	1149.07	873.47

Appendix 9: ROE 2013-2024. Source: Own Computations and Ryanair's 2016 Annual Report

ROE	
17.40%	25.39%
15.91%	25.56%
21.48%	25.75%
43.35%	23.47%
27.93%	22.71%
27.03%	22.84%

Legend	
2013	2019F
2014	2020F
2015	2021F
2016	2022F
2017F	2023F
2018F	2024F

ROA	
6.37%	8.54%
5.93%	8.64%
7.11%	8.73%
13.90%	8.12%
9.62%	7.96%
9.20%	8.01%

Leverage Ratio	
2.73	2.97
2.68	2.96
3.02	2.95
3.12	2.89
2.90	2.85
2.94	2.85

Assets Turnover	
0.55	0.60
0.57	0.61
0.46	0.61
0.58	0.60
0.55	0.60
0.58	0.60

Net Profit Margin	
11.66%	14.27%
10.38%	14.27%
15.33%	14.27%
23.85%	13.44%
17.35%	13.29%
15.96%	13.30%

Tax Burden	
87.46%	87.50%
88.40%	87.50%
88.22%	87.50%
90.55%	87.50%
87.50%	87.50%
87.50%	87.50%

Interest burden	
79.27%	82.87%
79.38%	82.95%
83.10%	82.88%
106.78%	82.57%
83.80%	82.38%
83.26%	82.27%

EBIT Margin	
14.71%	17.22%
13.08%	17.20%
18.45%	17.22%
22.34%	16.28%
20.70%	16.14%
19.16%	16.17%

Appendix 10: Implied ERP on January 1, 2017. Source: Damodaran

Rating	*Default spread in basis points*
A1	81
A2	98
A3	139
Aa1	46
Aa2	57
Aa3	70
Aaa	0
B1	520
B2	636
B3	751
Ba1	289
Ba2	347
Ba3	416
Baa1	184
Baa2	220
Baa3	254
Ca	1386
Caa1	866
Caa2	1040
Caa3	1155
NR	NA

Appendix 11: Investment Ratings and Risk Classification (Total Return in 12-18 Months). Source: BPI and Own Computations

	Low Risk	Medium Risk	High Risk
Buy/Core List	> 15%	> 20%	> 30%
Neutral	> 5% and < 15%	> 10% and < 20%	> 15% and < 30%
Reduce	> -10% and < 5%	> -10% and < 10%	> -10% and < 15%
Sell	< -10%	< -10%	< -10%

Current Price	14.17 €			
Buy	>	17.00 €		
Neutral	>	15.58 €	<	17.00 €
Reduce	>	12.75 €	<	15.58 €
Sell	<	12.75 €		

Appendix 12: Monte Carlo Simulation. Price target at the end of March 2017, per percentile. Source: CrystalBall Software

Percentiles	Price at the end of March 2017
0%	12.33 €
10%	16.34 €
20%	16.96 €
30%	17.41 €
40%	17.79 €
50%	18.16 €
60%	18.52 €
70%	18.92 €
80%	19.38 €
90%	20.03 €
100%	25.00 €

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