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Equity Valuation: Ryanair Holdings PLC

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Abstract

The main goal of this dissertation is to arrive at a fair value of Ryanair's equity. Ryanair Holdings Plc is a low cost carrier and one of the strongest in the airline industry in Europe: transporting more than 130 million passengers per year, with thousands of flights per day and offering the cheapest fares, on average.

To reach into a final estimated price for the company's stock value, this dissertation used three methods: the Discounted Cash Flow (DCF) methodology, the Economic Value Added (EVA) and the Multiples/Relative methodology. We will, then, compare the estimated price for each method with the current market price (16,00€) and give relative weights to each in order to land to the final target price: 17,25€. Hence, we give recommendations to investors to "Hold" their positions.

Moreover, a sensitivity analysis was performed in order to study the impact on projected forecasts on both DCF and EVA, resulting from shifts on some key variables and assumptions.

Ultimately, a comparison between this dissertation's conclusions and the ones reached by Credit Suisse Research team was studied. Analogous to our recommendations, the bank endorsed for a "Neutral" conclusion, leading investors to "Hold" their positions. The investment bank target price for 12 months, starting at 22 Jan 2018, was 17,91€.

Resumo

O principal objetivo desta dissertação é chegar ao valor justo de capital da Ryanair. A Ryanair Holdings Plc é uma companhia aérea "low-cost" e é uma das mais fortes na indústria de transporte aéreo na Europa: transportando mais de 130 milhões de passageiros por ano, através de milhares de voos por dia e oferecendo os preços mais baratos, em média.

De modo a estimar o preço final do valor por ação para a empresa, esta dissertação estudou três métodos: o método de Discounted Cash Flow (DCF), o Economic Value Added (EVA) e o método de Múltiplos. De seguida, compararemos o preço resultante de cada método com o preço atual de Mercado (16,00€) e iremos conceder diferentes importâncias a cada método com o intuito de calcular o preço-alvo: 17,25€. Portanto, nós damos recomendações aos investidores para "Segurar" as suas posições.

Para além disso, uma análise de sensibilidade foi feita nos métodos DCF e EVA para estudar o impacto nas nossas projeções, resultando em mudanças nalgumas variáveis de maior importância e nas respetivas suposições.

Por fim, comparámos as nossas conclusões com as da equipa do Credit Suisse. Similar às nossas recomendações, o banco adotou uma postura "Neutra" relativamente às ações da Ryanair, dirigindo os investidores para "Segurar" as suas posições. O preço-alvo deste banco de investimento, começando em 22 de Janeiro de 2018 e com duração para os 12 meses seguintes, foi de 17,91€.

Acknowledgments

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1. Executive Summary

Ryanair Holdings PLC is currently the leading airline in Europe, transporting more than 130 million of customers per year on over two thousand flights every day, connecting 215 destinations in 36 countries. Ryanair has currently a fleet of over 400 Boeing 737 aircraft and it is set to expand with further 240 aircrafts, in order to achieve its primary goal of achieving a traffic of 200 million passengers by Fiscal Year 2024, while keeping the lower fares.

As of 2018, Ryanair is still the lowest fare/lowest cost carrier in Europe with the most customers and it is considered to be one of the greenest and cleanest airlines in this region.

This work will focus in analyzing Ryanair past, present and future performance based on the information available, with the purpose to value the company's business to achieve a final share price target. After reaching this value, we will be able to compare it to the market and we will conclude that investors should "Buy", "Hold" or "Sell" their positions.

The dissertation will be divided in four major topics. The first one is the Literature Review and it will explain the concepts behind the valuation, including the most relevant models. In second place, we chose to provide an overview of both the airline industry and the company to give a closer perception of how the market is settled and what differs Ryanair from its competitors. The third part is the Methodology, as it will include forecasts for the next years as well as the valuation, using DCF and EVA methodologies, with respective sensitivity analysis, and the Multiples/Relative approach. Finally, we will compare our findings to the ones achieved by Credit Suisse Equity Research Team, exploring the main differences and similarities.

2. Literature Review

Valuation is a key instrument in a way that investors and analysts can assess the true value of a company and, therefore, leading to possible gains by comparing their own price with the one in the market.

According to Damodaran (2006), it is most important to determine where such value is coming from. It relies in strong assumptions and the models that each one uses. So, the best fit here to find the most adjustable valuation is to use more than one model.

According to Fernandez (2013), a company value may not be the same for sellers and buyers and for different buyers. That is why this topic is very subjective and it's almost impossible to reach a certain right price as the future is unpredictable and it depends on how the company will react to the environment.

Damodaran (2002), also states that "Valuation plays a key role in many areas of finance" as it can be applied to corporate finance, portfolio management and mergers and acquisitions.

Throughout this section, we will theoretically explain the main methods used for any non-financial company: Discounted Cash Flow methodology, the Dividend Discount model, the Economic Value Added model and the Multiples/Relative valuation model. We will reason, as well, why some methods will not be used to value Ryanair.

2.1 Discounted Cash Flow Methodology

The Discounted Cash Flow methodology (DCF) attempts to seek the intrinsic value of a company based on the expected cash flows from its business, discounted by a risk rate of these cash flows. In other words, the value of a company right now is equal to the present value of future cash flows. This value can differ from the firm's price in the market, according to Damodaran (2002).

This method is most suited for companies that have positive and more stable cash flows. When the company is in its early stages (still unstable) or have negative cash flows, the DCF model becomes more difficult to apply. Same difficulties can be encountered if a company is

cyclical, meaning that its cash flow pattern follows the economic cycle, or private firms that have few or none publicly information available.

Since Ryanair has a stable capital structure over the last years with positive cash flows, we are going to use this method to compute the target value of the firm using the Free Cash Flow to Firm (FCFF) and the WACC as a discount factor.

2.1.1 Free Cash Flow to Firm

The Free Cash Flow to Firm (FCFF) is a measure of financial performance that expresses the net amount of cash that is generated from operations for a firm after taxes and before interest payments and all the company investments (working capital and capital expenditures).

When breaking down to its formula (equation 1), we can see that it starts with the EBIT (firm's earnings before interests and taxes), deducting taxes (T), adding depreciations and amortizations (D&A) as it is a non-cash expense, and, finally, deducting all investments – changes in net working capital (Δ NWC) and capital expenditures (CAPEX) – because they are not reflected in the income statement for the EBIT calculations and they can be a form of cash outflow, as an increase in cash requirements will most likely occur when investing:

$$FCFF=EBIT(1\text{-}T)+D\&A\text{-}\Delta NWC\text{-}CAPEX \tag{1}$$

Next, we need to compute a discount rate for the FCFF and the correct variable is the WACC. The WACC values all sources of financing taking into consideration its own risk: equity cash flows discounted at cost of equity (Ke) and debt cash flows discounted at cost of debt (Kd), the latter deducting taxes (T). However, this discount rate can't be considered a "cost of capital" because it isn't a cost. Fernandez (2011) considers WACC to be "a weighted average of a cost and a required return". Equation 2 describes the WACC formula:

$$WACC=Ke(levered)*\frac{E}{D+E}+Kd(levered)*\frac{D}{D+E}*(1\text{-}T) \tag{2}$$

To calculate Ke, we have some models that we can use to estimate it, as it is very difficult to exactly predict returns. One of the most used and reliable models is the Capital Asset Pricing Model (CAPM). It is a model that calculates the cost of equity based on the risk-free rate (Rf), a levered Beta, which is described as a systematic risk measuring a stock's sensitivity of returns to changes in the market (β levered) and the Market Risk Premium (MRP), which is the difference between the expected return on a market portfolio and the risk-free rate (MRP = Expected Return – Rf):

$$Ke(levered) = Rf + \beta(levered) * MRP \tag{3}$$

The cost of debt, Kd, is the weighted average of Internal Rate of Return (IRR) of different debts and it should be computed on an after tax basis. Following Damodaran (2016), this after-tax Kd is equal to the Default Spread, associated to long-term bonds investment rating, plus the Risk-free rate, deducting the marginal tax rate:

$$After\ tax\ Kd = (Default\ Spread + Rf) * (1-T) \tag{4}$$

Now that we have all sufficient tools to estimate the value of a company per year, we need to have a terminal value that is really important to value the following years of our explicit forecasted period and it is measured as a perpetuity. When we reach the terminal period, it means that the company reached a steady state with stable growth afterwards. Using the Gordon method, we should take into account the FCFF of the last year of our explicit period and add a permanent growth rate per year (g), discounted by the difference between a stable perpetuity WACC and that same growth:

$$Terminal\ Value = \frac{FCFF*(1+g)}{WACC-g} \tag{5}$$

Finally, we need to sum all this equations into one which is going to determine the company's value. As equation 6 shows, the present value of a firm, according to the DCF model, is the sum of the expected FCFF for every year of the explicit period and the terminal value, all discounted by the same WACC:

$$Firm's\ Present\ Value = \sum_{T=1}^{N} \frac{FCFFt}{(1+WACC)^t} + \frac{Terminal\ Value}{(1+WACC)^N} \qquad (6)$$

2.1.2 Free Cash Flow to Equity

The Free Cash Flow to Equity (FCFE) is a measure of how much cash is available to the equity holders of a company after all expenses, investments and debt are paid. So, basically, the cash that is left after payment to all other stakeholders of a firm, other than shareholders.

This method is similar to the FCFF, however the discount rate will be only the cost of equity (Ke), since the objective is to determine the equity value. To determine FCFE, we should begin with the Net Income (NI) and add it non-cash charges: Depreciations and Amortizations (D&A), then deduct changes in net working capital (Δ NWC), capital expenditures (CAPEX) and, finally, add in the net borrowing (NB = New Debt – Debt Repayment):

$$FCFE = NI + D\&A - \Delta\ NWC - CAPEX + NB \qquad (7)$$

Now, discounting in the same way that we did for the FCFF but using Ke instead of WACC, we will reach a similar formula and the same reasoning applies for the terminal value formula. Overall we will reach a final Present Value of Equity show by equation 8:

$$Firm's\ Present\ Value = \sum_{T=1}^{N} \frac{FCFEt}{(1+Ke)^t} + \frac{\frac{FCFE*(1+g)}{Ke-g}}{(1+Ke)^N} \qquad (8)$$

2.1.3 Adjusted Present Value

Using WACC in the DCF methodology has some limitations: the main one being that capital structures are considered stable over the years and, although that can be true for some companies, for many it is not the case, as leverage can be very unstable for a firm depending on its investments and projects. Luehrman (1997) considers that "the weighted-average cost of capital (WACC) is now obsolete. Today's better alternative, adjusted present value (APV), is especially versatile and reliable." So, the APV is created as a more recent method that allows improvements in the DCF model, because it captures changes in the capital structure of a company and it is not discounted by a weighted average of cost of capital (WACC). APV is essentially the net present value of a company if solely financed with equity plus the present value of any financing benefits (effects of leveraging) minus the expected costs of financial distress (in cases of exaggerated leverage).

Therefore, the APV will calculate the value of a firm in three steps: Firstly, we need to compute the company's value as if it was totally financed with equity, using the unlevered cost of equity (Ke unlevered) to discount each FCFF.

Secondly, we will look at the benefits of leveraging a firm, namely the gains with the tax shields that a company holds by having some level of debt. Fernandez (2011) states that "The value of tax shields (VTS) defines the increase in the company's value as a result of the tax saving obtained by the payment of interest." These Interest Tax Shields (ITS) are discounted at cost of debt, although the literature has some different theories regarding this. Harris and Pringle (1985) propose discounting tax savings with the unlevered cost of capital (same in the first step). However, the most used and common is the cost of debt (Kd). If we see these tax benefits as a perpetuity, then its value is:

$$ITS = \frac{Tax\ rate * Kd * Debt}{Kd} = Tax\ rate * Debt \qquad (9)$$

The third and final step before computing the company's value is to discover the present value of financial distress costs or the expected bankruptcy costs. We will need to have a probability of default (PD), the direct and indirect costs of bankruptcy and the unlevered firm

value. Although the direct costs of bankruptcy can be easily estimated (legal, administrative and advisory fees paid by the firm in this scenario), the indirect costs are the ones most subjective and difficult to measure. The latter includes "lost sales, lost profits, and possibly the inability of the firm to obtain credit or to issue securities", (Gruber and Warner, 1977). Equation 10, shows the formula for the present value of financial distress costs (FD):

$$FD = PD*(Indirect + Direct\ costs\ of\ bankruptcy)*Unlevered\ Firm\ Value \qquad (10)$$

Finally, we just need to join the above steps into one final equation, like we did on the DCF WACC:

$$Firm's\ Present\ Value = \sum_{T=1}^{N} \frac{FCFFt}{(1+Ke\ unlevered)^t} + \frac{\frac{FCFF*(1+g)}{Ke\ unlevered-g}}{(1+Ke\ unlevered)^N} + ITS + FD \qquad (11)$$

Now regarding the methods that we are going to use on Ryanair, it is useful to note that the capital structure have been relatively stable historically and it is going to continue steady according to future projections. Therefore, the APV method is not as useful as the DCF using WACC and FCFF, which is the most relevant model to determine this company's value. In fact, using APV or WACC should grant a similar value.

2.2 Dividend Discount Model

The Dividend Discount Model (DDM) is somewhat close to the DCF model using FCFE in a way that we want to compute the value of equity as well. The difference here is that the cash flows are considered to be the dividends that the company is expected to pay. Gordon (1962) created this model where the value of a share would be all the future dividends per share (DPS) throughout perpetuity discounted at the cost of equity (Ke). The first DPS relates to the expected from the next period and the following DPS grow with a constant rate (g). However, this model only can be applied to companies in steady states with dividends growing at a rate that in theory can be sustained forever and cannot surpass the required cost of capital:

$$Stock\ Value = \frac{DPS_{t+1}}{Ke\text{-}g} \qquad\qquad (12)$$

Damodaran (2002) points out that any expected stock price "is itself determined by future dividends, the value of a stock is the present value of dividends through infinity." And so, the general model for the DDM should be like the following:

$$Stock\ Value = \sum_{t=1}^{t=\infty} \frac{E(DPS_t)}{(1+Ke)^t} \qquad\qquad (13)$$

Although this general model can be more accurate, as the DPS can be assumed to be inconstant through time, it's very hard to predict exactly what will be the future payout dividend policy for each company since this decision is very political and there can be extraordinary dividends declared. This model have another big drawback, as it doesn't take into consideration share buybacks and, nowadays, this is a more common practice. Firms use a mix of dividend and share repurchase policies, therefore the value of a stock should reflect the value of share buybacks as well.

Ryanair has an unstable dividend payout policy. Usually they distribute extraordinary dividends that don't follow a regular timeline and share repurchases. So, there is not any pattern about when and how much the dividends are distributed. Thus, we are not going to use the DDM to value Ryanair's target share price.

2.3 Economic Value Added

The Economic Value Added (EVA) is a method that uses profitability of a firm and "it is computed as the product of the "excess return" made on an investment or investments and the capital invested in that investment or investments"- Damodaran (2002).

We want to compute the asset value as well and, then, deduct the net debt in order to find the equity value. The asset value is calculated by the following formula, similar to the DCF:

$$\textit{Firm's EVA} = \sum_{T=1}^{N} \frac{(ROIC-WACC)*ICt}{(1+WACC)^t} + \frac{\textit{Terminal Value}}{(1+WACC)^N} \tag{14}$$

With a terminal value that follows the next equation:

$$\textit{Terminal Value} = \frac{(ROIC-WACC)*IC}{WACC-g} + IC_{last\ period} \tag{15}$$

Where IC is the invested capital, ROIC is the return on invested capital, WACC is the same weighted average cost of capital that we compute on the DCF and g is the profit growth in perpetuity. This terminal value is basically the net value of assets adding the economic value provided by future investments.

EVA creates the idea that a business is only profitable when it sets up wealth and returns for shareholders, therefore requiring performance above a company's cost of capital (measured by the WACC).

This method has its own flaws like every other. The assets and invested capital can be manipulated just to have a "better-looking" overall economic value added. Damodaran (2002) states that "economic value added is an approach skewed toward assets in place and away from future growth", thus, it is possible that managers attempt to increase economic value by reducing the capital invested or making riskier investments, at the expense of lower future growth.

However, we decided to use this method in order to see if there is creation or destruction in value, according to our forecasts. Looking at the final target price, we should expect a similar one compared to the DCF valuation as both models share the same mindset due to its mathematical and conceptual nature, yet, EVA yields less assumptions.

2.4 Multiples/Relative Valuation Model

Following Damodaran (2002) reasoning, "In discounted cash flow valuation, the objective is to find the value of assets, given their cash flow, growth and risk characteristics. In relative valuation, the objective is to value assets, based upon how similar assets are currently priced in the market". We can conclude that the relative valuation takes a different approach to value a company and in practice is much more simple and intuitive than a DCF approach. However, "they are also easy to misuse" and we should choose the most appropriate multiples based on our chosen company and its industry and competitors.

The most challenging part in this model is to find similar firms to ours, since there are no identical firms within the same industry. We have to be careful when choosing a criteria having into account the risk, growth potential and cash flow differences between peers.

There are pros and cons regarding the use of Multiples/Relative Valuation. In fact, it is a quick and easy method that relies in few assumptions, however, it can be challenging when there are no good direct peers or when these companies have negative earnings. Furthermore, this approach is easier to manipulate and assumes that the market is correct and we know that, often, it is a wrong assumption. Moreover, this model does not capture company-specific details, because it is based on other companies' valuations.

2.4.1 The Peer Group

Choosing the peer group is the most difficult but important step in any Multiples Valuation.

Koller et al. (2010) argue that the choice of peers should be based on companies within the same industry and then narrowing that list, refining "the sample to peers that have similar outlooks for long-term growth and return on invested capital (ROIC)".

So, we should not only select our peers just because the industry or the countries they operate are the same and they are direct competitors.

2.4.2 Different types of multiples

According to Suozzo et al. (2001) there are two types of multiples:

- **Equity multiples**: Also known as Price multiples, they express the market value of equity holders' stake in a firm, relative to a key statistic relating to that value. Examples of these multiples are the Price to Earnings Ratio (P/E), Price to Sales (P/S), Price to Book Value (P/BV) and Price to Cash Flow (P/CF).

- **Enterprise Multiples**: These are related to the Enterprise Value of a company, thus they evaluate the entire business in respect to a value driver related to the whole firm. Examples of these multiples are Enterprise Value to EBITDA (EV/EBITDA), Enterprise Value to Sales (EV/SALES) and Enterprise Value to EBITDAR (EV/EBITDAR).

The most popular multiples from the ones listed are P/E and EV/EBITDA.

The first one, is the most used since it links company value to profit and, usually, it takes into account risk and earnings per share (EPS) growth. However, whenever EPS is negative, it is very difficult to do a valuation. It is best to use when companies are more stable and surprises are not expected to occur.

The EV/EBITDA is the most popular among the enterprise multiples as it works like a price to cash flow multiple (EBITDA is a good proxy for operating CF). It is also more similar to a DCF valuation, because it uses the firm capacity to have a positive cash-flow and we perform an equity valuation by computing asset value and subtracting the net debt. The most significant drawback related to this multiple happens when the used current CF is negative and, therefore, it is impossible to do a valuation.

For the airline industry in specific, we can still use the P/E multiple since it is still widely used, however, the best enterprise multiple is the EV/EBITDAR. It is similar to EV/EBITDA, yet, it adds the aircraft renting costs to the EBITDA, meaning that we use the earnings before interests, D&A and rent/lease expenses. It is particularly useful, since this rent is also a non-

cash expense and, thus, it shouldn't be included when we look into an airline's operational performance.

Despite being a more static and inaccurate method, with all the other downfalls that we have discussed, we are still going to use the multiples model to value Ryanair's share value and compare it with the value from the DCF WACC, using the EV/EBITDAR and P/E multiples.

3. Overview

In this section we will discuss in detail the major issues and historical performance of the airline industry, with particular focus on the low-cost carriers. Then, we will compare these LCCs with the full-service airline and, to complete this macro environment study, we will do a Porter's Five Forces analysis related to this industry.

Afterwards, a brief company overview will be addressed as well, including a SWOT analysis, in order to analyze the impacts of historical data and future strategy on Ryanair's forecasts.

Both of these elements will be useful to understand our forecasts and the impact that can have in our assumptions.

3.1 Industry Overview

The airline industry is known for its intense competition between companies with a greater focus on the price and cost reduction, which leads to more efficiency. In terms of number of passengers, it has been rising since people are willing to travel more often. Huge reduction in fare tickets compared with previous decades shaped a new perception to the general public in which air travelling can be even cheaper than travelling by other mean of transportation. New business models and technological improvements, that lead airlines to achieve greater efficiency, have been helping this overall customer growth all around the world and, therefore, a rise in total market.

From the beginning of commercial air traffic, this industry have been growing a lot, and surpassing crisis times where recession had greater impact on other transportation industries (e.g. the automotive industry).

The air transportation industry has increased their revenues worldwide in the last ten years from 510 billion dollars in 2007 to around 754 billion dollars in 2017. As opposed to previous years until 2014, where net margins were negative or up to about 2%, profit margin increased from 1,8% in 2014 to 5% in 2015, and it has been more stable since then (4,6% in 2017):
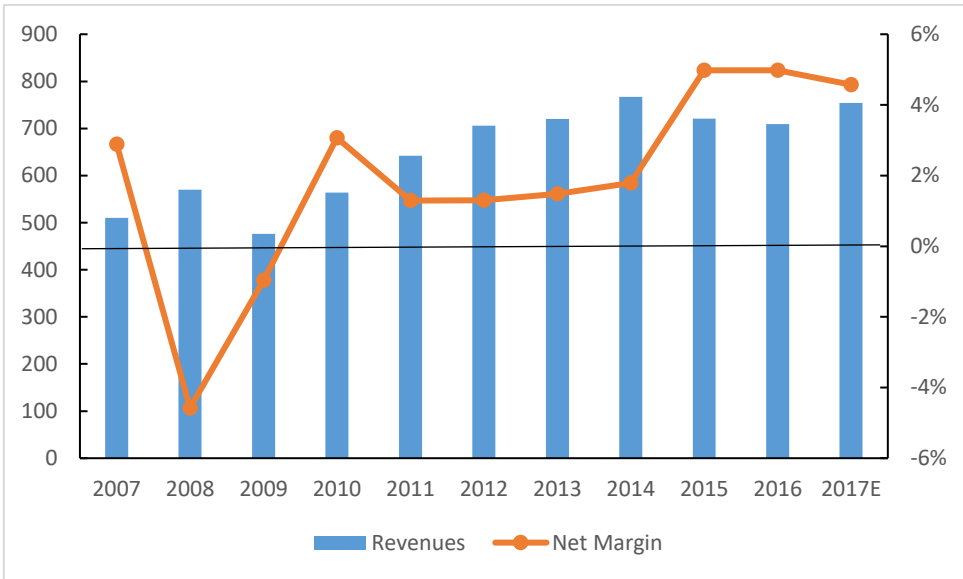
Graph 1: Evolution of Revenues (billions of dollars) and Net Margins (%) (source: IATA)

There is still a lot of room to improve since this value is not convincing enough, as an industry average. It occurs because of the intense competition between airlines (intense fares competition) and the high costs that the industry is subject to, mostly dependent on the high volatility in fuel and oil prices.

It was also since 2014 that investors finally saw their investment being returned on an average rate above its cost of capital. The following graph shows us that ROIC achieved an expected value of 8,8% in 2017 while WACC is expected to be 7,9% relatively to the whole return on capital invested in airlines all over the world:
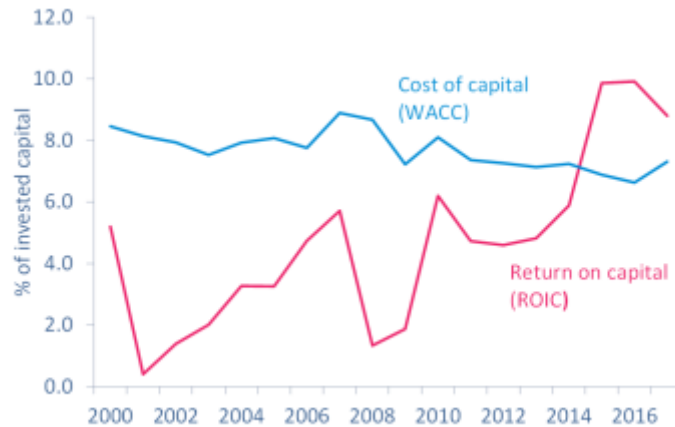
Graph 2: Evolution of WACC vs ROIC as a % of invested capital in airlines (source: IATA)

The decline in ROIC from 2016 to 2017 was driven by a rise in breakeven load factors, as unit costs are now rising, and a moderate fall in achieved load factors, as demand slows more than capacity growth. Nevertheless, the level of profitability is still very high for the standards of the industry and it's following the recent trends with much more focus on generating an adequate Return on Capital.

3.1.1 LCCs Market

Low Cost Carriers (LCCs) are one of the newest business models in the industry. They have been increasing its significance since the 1990s and have played a big role in the expansion of the airline industry. This low cost model focus on reducing costs: secondary airports, quick transfers in airports, no-frills fares and charges on all extra services, from reserved seat to early check in. LCCs usually fly on short-haul routes, so they can return to its hub and avoid unnecessary costs on other airports.

As explained before, LCCs are growing in percentage of total share of seats, but this number differs between regions:
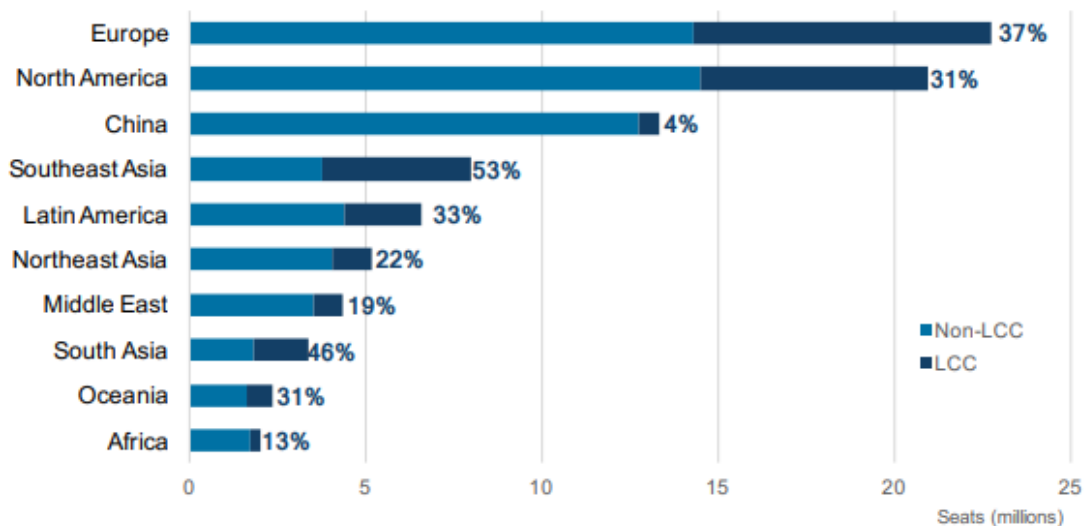
Graph 3: LCC share of total seats by region (source: Innovata 2017 FEB and Boeing)

Analyzing graph 3, we notice the predominance of budget airlines in Southeast Asia, which is the only region that has more LCCs than any other type of airline. In this region, the whole air transportation market is growing a lot due to tourism and the biggest LCC player is AirAsia.

In other regions like Europe, North America and Oceania (all developed economies), we can conclude that the LCCs have a good representation in market share of about one third of the whole market and it is expected to further increase in the upcoming years.

Africa, Middle East and China still have the highest room to improve as budget carriers are clearly not so relevant especially because of liberalized air spaces and market access barriers. If regulation in these regions change over time, we can expect a tremendous evolution of LCCs and less share of traditional airlines.

The three biggest companies in Europe – by order Ryanair, EasyJet and Norwegian - represent more than half of all LCC movements in this continent. It was rumored in 2017 that these three big players could partner and join forces in order to rival with Full Service Airlines like British Airways and Emirates and go to long-haul routes as well, but still keeping the low-cost model. These synergies could be useful and serve as a barrier for upcoming competition, however, Ryanair and Norwegian disagreed on this subject and the "low-cost alliance" didn't go through.

Regarding airports, we can highlight the top five with the largest numbers of LCC movements per day in Europe, according to EuroControl: Barcelona (with 201 000 flights), London Gatwick, London Stansted, Dusseldorf and Istanbul Sabiha Gokcen (with around 130 000 arrivals and departures).

A new segment is looming in this market: the low cost long haul segment. For instance, in the European market, some airlines are starting to operate long distance routes (mostly transatlantic for the moment) with low-cost operations. Norwegian, which had intentions to partner with the other big two as discussed, is the best known airline in this segment having bases in Norway and in the UK and flying to the USA directly. Most of these routes are operated from and to smaller airports to reduce operating costs. However, the gain in this segment compared to low-cost short-haul is much weaker due to flying time restrictions, taxes and working-time limits.

This novelty means that the market can change in the upcoming years with extended growth, leading to greater adaptability that airline firms will face, having into account possible mergers and new competitors.

3.1.2 LCCs vs FSAs

Full Service Airlines (FSAs), considered the traditional way of flying, still dominate this industry. The business model differs as it relies almost exclusively in the fare tickets that are sold (scheduled revenue) as opposed to the low cost carriers that rely heavily upon in-flight revenue as well. Although the competition is growing too, the FSAs usually practice higher fares than the LCCs, however, the in-flight service is more complete and the passenger gets more benefits that are already included in the price. Usually it has a distinction between economic and premium (business) seats and, relatively to the distance travelled, it can vary from short to medium to long haul distances, as opposed to the majority of LCCs where flights are short to medium haul.

As we can see in graph 4, LCC is growing very fast in the last years (around 10% growth from 20% in 2007 to 30% in 2016) as opposed to the FSAs, where its market share have been reducing almost symmetrically (from 60% in 2007 to around 50% in 2016). Moreover, Low

Cost carriers continued its growth in periods where the economy was low, as opposed to Traditional Scheduled carriers:
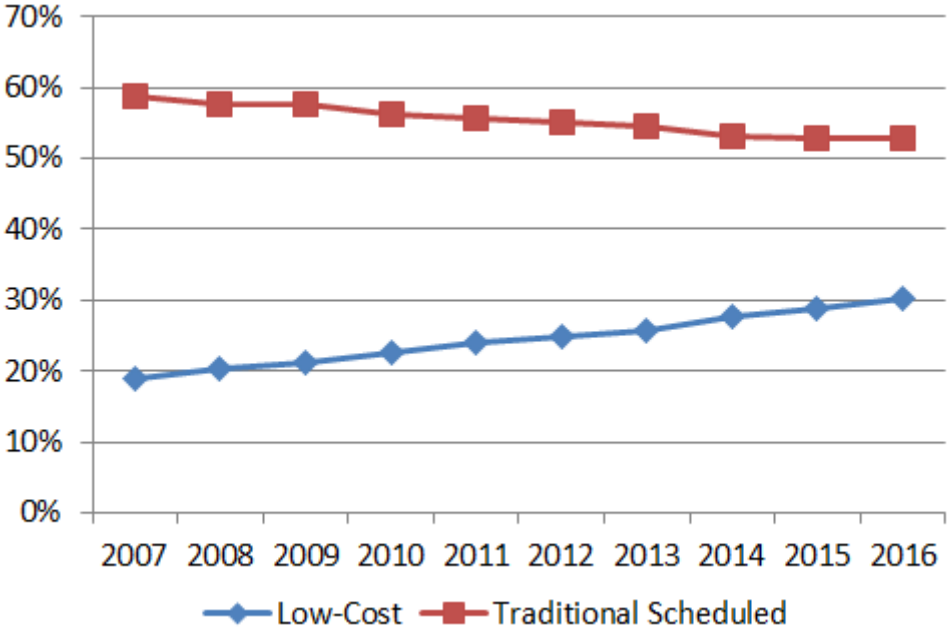
Graph 4: Evolution of LCCs vs FSAs in terms of market share (source: StatFor)

Nowadays, these Business models are adapting in both directions in order to achieve a higher stake on the market by attracting to more groups of customers. For instance, LCCs are increasingly flying from major airports to attract customers from the FSAs, and even Ryanair is now experimenting it with connecting flights. Meanwhile, Full Service carriers are increasingly unbundling their offers such as the ones from low-cost, like seat choice, checking baggage separately and food selling.

To conclude, airlines tend to be highly leveraged businesses, operationally and financially, therefore their earnings stream is quite volatile and may not reach investors' pockets. However, on more recent years, shareholders have been recouping their investments more frequently as airlines tend to be more attractive than before, with special focus to budget carriers since they continue to grow.

3.1.3 Porter's Five Forces Analysis

Bargaining Power of Suppliers is **high** due to the fact that the three most important inputs that airlines have - fuel, labor and aircraft - are all affected by the external environment. Fuel and oil prices are very volatile and hard to predict, labor is subject to the power of unions who often bargain and get costly concessions from airlines and the aircraft is always necessary whether to buy or to lease, meaning that airlines have to depend on few companies that provide these needs (in a market that is vastly dominated by Airbus and Boeing). So, airlines depend very much on their suppliers to perform well and in the most efficient way possible, thus, the switching costs would be high.

Bargaining Power of Customers is **high** because, nowadays, it is easy to compare fares between different airlines due to the proliferation of online ticketing and distribution systems and, hence, customers don't face switching costs. Despite some companies provide loyalty benefits, it's still free to choose another company to fly, and that can be more advantageous to the customer.

Threat of New Entrants is **low** mainly because of two big arguments. The first one is the high investment a new airline would need, not only on the aircraft but also on other high fixed costs and labor expenses. Also, new entrants will probably take losses for some years because the whole business model (whether it is budget or full service) takes time to learn and master. The second argument is related with slots and available routes: the most relevant airports usually have all their slots occupied and some routes have a maximum level of movements allowed per day. A new entrant would have to negotiate with companies in a secondary market for already occupied slots and that requires also a great amount of investment.

Threat of Substitutes is **low** because, nowadays, there is no other mean of transportation than can take people from one place to another so quickly and cheaply as an airplane. For medium to longer distances, the air travel will be necessary so this threat remains low, however, on short hauls, public transportation or car travelling can be cheaper (although slower). With the emergence of LCCs, sometimes, even short distances stand cheaper than travelling by other transport, but it always depends on the demand given a specific day and what it's more convenient to the customer. Still we consider this threat of substitutes to be more on the low side given all conditions.

Rivalry among existing competitors is **high**, mainly because of the quick growth and attractiveness of low cost carriers in the market. In this industry, there are several barriers to exit, such as sunk costs (fixed costs that are not recoverable in the case of an exit), high costs for staff layoff and long-term contractual obligations to suppliers. It is also common to have alliances or mergers between two or more firms so that they can better dominate a market. This means that airlines will remain in the business for a very long timeframe, even if it is not profitable and, so, competition stays really intense on every type of market in this industry.

3.2 Company Overview

Ryanair Holdings PLC is a private listed company in the Irish Stock Exchange. Founded in Dublin, Ireland, in 1984, it is currently the leading and the biggest individual airline in Europe, transporting more than 100 million of customers per year on over two thousand flights every day, connecting 215 destinations in 36 countries (mostly European, but also Morocco, Israel and Jordan). It is one of the most punctual airlines with 88% flights on-time in fiscal year 2018 (ended on March) and it is the airline that cancels fewer flights in Europe.

Ryanair is a single-line business company. Simply put, the firm looks to offer its customers the lowest possible fare by making sure that it is as efficient as possible in terms of costs. The intention is to continue the trend of lowering the average fares, despite the rise in fuel costs. Contrary to other LCCs, Ryanair will continue to pursue the lowest selling price even if costs do arise. From FY17 to FY18 the average fare fell 3% to 39,4 euros.

This airline also provides many ancillary services, which accounted for about 28% of total revenue in FY2018, from non-flight scheduled services to in-flight sale of food and beverages or providing accommodation and car renting services via their website.

Under the leadership of Michael O'Leary, CEO of the company since January 1994, the company achieved, in the 2018 fiscal year, a profit on ordinary activities after taxation of 1450,2 million euros and an average book passenger load factor of 96%, consolidating its position as the largest European airline by passengers transported, roughly tied with Lufthansa Group (currently around 130 million passengers in the most recent fiscal year).

Ryanair's strategy previously included flying to and from secondary airports (lower handling fees and taxes) which are not always the most convenient for customers from both a distance and cost perspective. However, Ryanair's strategy is evolving towards a stronger presence in primary airports, such as Frankfurt International or Amsterdam Schiphol. It is only possible to pursue this strategy if new slots at airports are acquired or if Ryanair can swap slots with other carriers. It requires big investments and trades but it's the only way to continue to expand destinations in Europe and possibly to other regions in the future.

Aircraft ownership and maintenance costs are relatively low as Ryanair have obtained very significant discounts from Boeing as it orders 100+ aircrafts at a time (e.g. ordered 110 in 2014 that will be delivered until 2024) exclusively Boeing 737-800, and now the new Boeing 737 Max, which should deliver an additional 16% improved fuel seat mile costs. These deals are win-win situations for Ryanair and Boeing and so, this is the reason why Ryanair prefers to own most of its fleet instead of leasing or renting. Only about 9% of all aircrafts are leased, contrary to the global average tendency that it had grown considerably until 2008 but stagnated since then until 2017, where it situates on about 45% leased fleet of all operating fleet:
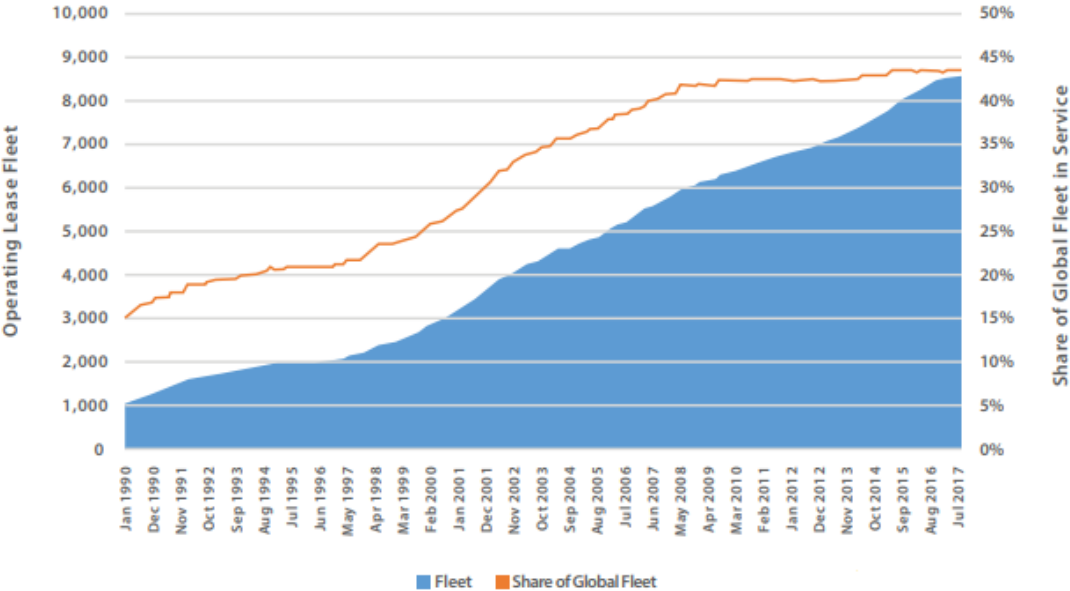
Graph 5: Operating lease fleet in absolute numbers and as a % of total fleet 1990-2017 (source: KPMG and Flight Ascend Consultancy)

For Ryanair, leasing is only preferred whenever there is some capacity shortage issue as it is the most convenient and quickest way to overcome the problem.

Since 2013, Ryanair has been growing on a sustainable way as we can observe in graph 6:

Graph 6: Ryanair's share price performance 2013-2018 (source: Thomson Reuters)

It has growing from a stock price of 6 euros at the end of FY13 to 16 euros at the end of the current fiscal year. Its maximum price was reached on August 2017, corresponding to 19,39€. Since then, price has been dropping to some extent, but we believe that in the future it will go much further. This drop in stock price is associated with flight cancellations that had to happen in order to cope with pilot shortages and to avoid punctuality issues. Ryanair is loyal to its business model and to improve its system-wide punctuality while dealing with pilot and air traffic control strikes, hundreds of flights from September until October were cancelled. Although labor issues have been damaging some reputation to Ryanair more recently, we believe that they will overcome those problems and continue its development like it's happening since the beginning of 2018.

3.2.1 SWOT Analysis

Ryanair's main **strength**, which is the core of its business, is its low fare policy and all low cost practices. Along with EasyJet, they are the most powerful budget carriers in Europe and they have an agreement not to compete against each other in the same routes. Ryanair also uses a single model aircraft (Boeing 737) that it's being expanded to more environmental friendly aircrafts like we discussed earlier, which allows them to practice economies of scale. Besides other strengths that we have pointed out before, we can highlight Ryanair's quick turnaround strategy between flights and their extensive online ticket reservation system in which customers can manage their itineraries without relying on a travel agent that translates into further cost savings.

Despite the fact that Ryanair is among the most successful low-cost airlines in the world, its cost conscious focus created a series of **weaknesses**. Firstly, the company's dependency on new taxes, regulation and oil commodity prices each year is real in order to keep the lowest prices. Secondly, Ryanair is accused of having tricky service agreements to increase ancillary revenues (e.g. ambiguous baggage policies) and unfair pricing practices that mislead customers. This issue downgrades the corporate's relation with media, as Ryanair is treated as an uncaring airline with poor customer service. Other major weakness comes from the fact that Ryanair is still operating its majority of flights through secondary airports, meaning that the client will have to ride bigger distances to reach his final destination on the city center.

In terms of **opportunities**, we can highlight the exploration of new markets, like the new segment: long-haul low cost. With the massive aircraft orders in 2014 (to be delivered over ten years) and the new agreements between US and Europe, transatlantic flights can be a possibility in the future for Ryanair and it can be the beginning of long distance region market's penetration. Furthermore, the opportunity to increase ancillary revenues and customer loyalty through the app MyRyanair is noticeable and it can be really important, in the future, to further reduce fares.

Regarding **threats**, first, we have the Brexit uncertainty and all the consequences it carries. Ryanair fears the possibility of UK leaving the EU Open Skies agreement, without clarifying negotiations in time, and this could result in a disruption of flights between Europe and UK for a period of months from April 2019 onwards (sales from the UK accounted for approximately 1/4 of total revenues in FY2017). Next, we have to mention the possibility of

labor strikes and the impact that might have on the reputation and credibility of the brand regarding staff management and customer management, because flights can be cancelled. Finally, fuel prices volatility, currency movements (in particular the pound's exchange rate against the euro) and any external event that influences the demand for air travelling (e.g. terrorist threats or an economic recession) can threaten Ryanair's future sustainability.

4. Forecasts

In this chapter we will talk about the main drivers of our valuation, explaining some assumptions used to predict each component of Ryanair's business. In order to value the company in the most accurate way, we focused on forecasts relative to the income statement, balance sheet and cash flow statement, clarifying all the computations made to get the best possible estimate.

Note: Since the Annual Report for FY18 has not been released yet, we are going to use unaudited data for this year, therefore, we shall refer to expected values.

4.1 Operating Revenues

Ryanair has been pursuing an exhaustive strategy with competitive prices in the last 10 years, as referred in the latest annual report. This strategy includes some leases, handbacks and, mainly, buying contracts with Boeing that will last at least until 2024. The major target of the company is to reach 200 Million passengers by 2024. As our results will show, we forecast this objective to be possible in 2024 as expected and, therefore, we will project our forecasts for the following six years (2019 to 2024), taking into account the latter as the final year of our explicit period (just before the steady state):

Year	2017	2018	2019F	2020F	2021F	2022F	2023F	2024F
Number of passengers (millions)	120,00	130,30	139,42	151,97	162,61	175,62	189,66	201,04
Δ change (%)	12,78%	8,58%	7,00%	9,00%	7,00%	8,00%	8,00%	6,00%
Average fare (€)	40,58	39,40	38,42	37,45	36,71	35,97	35,43	35,08
Δ change (%)	-13,05%	-2,91%	-2,50%	-2,50%	-2,00%	-2,00%	-1,50%	-1,00%
Scheduled Revenues (millions €)	4 868,20	5 133,82	5 355,86	5 691,94	5 968,57	6 317,13	6 720,16	7 052,14

Table 1: Forecast of Scheduled Revenues 2017-24 (source: Own computations)

In table 1, we can see the historical 2 years and the explicit period scheduled revenues as a product of the number of passengers and the average fare. We can expect an increase in the next years as Ryanair is always seeking to capture the most demand with its business model. Furthermore, with the expansion in routes and the expansion of aircraft fleet (until FY24 where the contract with Boeing expires), we believe that the airline is going to fulfill its objective by having 201 million passengers in FY24. Hence, from 2025 on, we should expect a slowdown in investments and passenger growth.

The average fare has been reducing over the past years, with special impact on FY16 to FY17 where it dropped 13%. It happened mostly because of the plunging British pound in relation to euro as a consequence of the Brexit referendum. This situation has stabilized and it's reflected in this fiscal year, where the average fare dropped 2,91%. For future years until 2024, we believe that fares will continue to decline, as it is the intention of Ryanair, however, it will drop at a lower rate since costs might arise. Afterwards, on the steady state, we think that fares may not change or can even increase.

Besides scheduled revenues, Ryanair's business model includes ancillary revenues as well like any other low-cost carrier. It includes non-flight scheduled services, in-flight sales and internet-related business. In the most recent FY it amounted to 39% of scheduled revenues and about 28% of total revenue. The airline wants to increase ancillary revenues by implementing many strategic initiatives to improve customer service offering, such as: reserved seating, car hire, priority boarding and on-board sales. Thus, we expect this source of revenue stream to grow up each year and, so, we used the FY18 percentage of scheduled revenues as the reference for future years' ancillary revenue:

Year	2017	2018	2019F	2020F	2021F	2022F	2023F	2024F
Scheduled Revenues (millions €)	4 868,20	5 133,82	5 355,86	5 691,94	5 968,57	6 317,13	6 720,16	7 052,14
Ancillary Revenues (millions €)	1 779,60	2 017,00	2 104,24	2 236,28	2 344,96	2 481,90	2 640,25	2 770,68
% of scheduled revenue	36,56%	39,29%	39,29%	39,29%	39,29%	39,29%	39,29%	39,29%
Total Revenue (millions €)	6 647,80	7 150,82	7 460,09	7 928,21	8 313,52	8 799,03	9 360,41	9 822,82
Δ change (%)	1,71%	7,57%	4,33%	6,28%	4,86%	5,84%	6,38%	4,94%

Table 2: Forecast of Total Revenue 2017-24 (source: Own computations)

4.2 Operating Expenses

Regarding operating expenses, Ryanair has eight different accounts and, the following pie chart, demonstrates the weight of each expense in relation to the total:
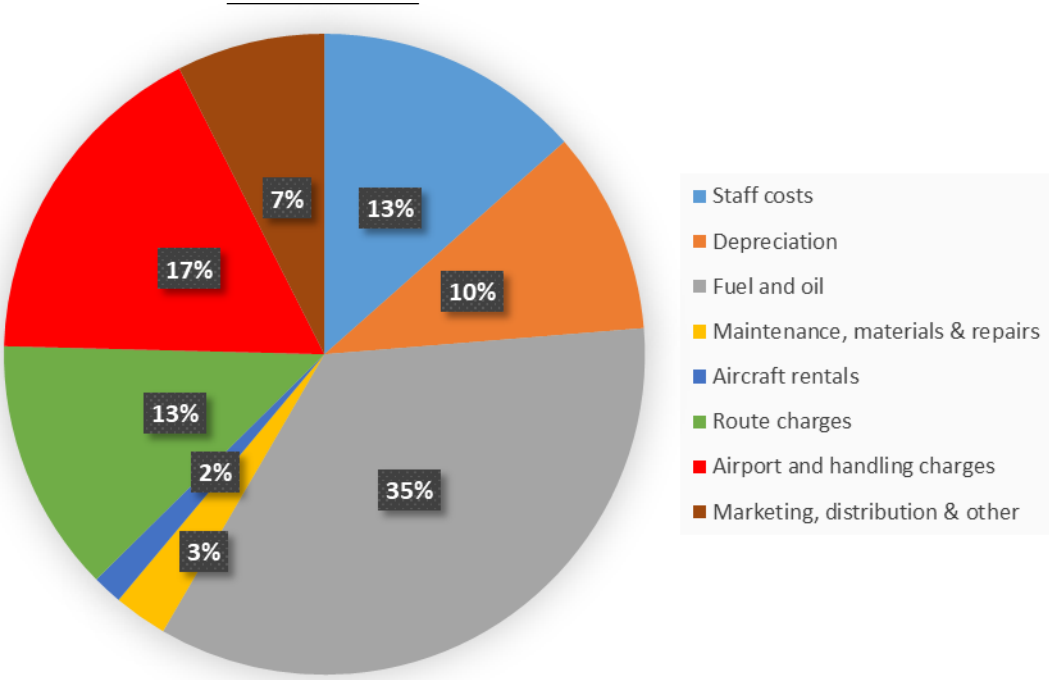
Graph 7: Weight of each expense on total operating expenses (Source: 2018FY Ryanair Results)

Staff costs, which consists primarily on salaries, wages and benefits, increased by 17% in the latest fiscal year, and 7% on a per passenger basis. These changes are related primarily to the increase in pilot salary since October 2017. We expect these costs to increase for the future and, so, we used a fixed percentage of revenues equal to the one in FY18.

In absolute terms, Ryanair's **depreciations** rose 13%. However, on a per passenger basis, it increased by 4%, which is in line with the increase in aircraft fleet. We forecast this category assuming an average % of depreciation and amortizations from the last five years (2014-2018).

Fuel and oil costs per passenger decreased 8%, while in absolute terms, they just fell by 1%. Ryanair has entered into contracts to protect itself from changes in fuel prices, generally by

signing forward contracts covering up to 24 months of anticipated fuel need. For example, on March 2018, Ryanair had already some arrangements to cover 90% of the fuel required until the end of March 2020. Despite expected decreases on the oil price exposing Ryanair to hedging losses, we assume the value would be similar to the last year % from total revenues, for 2019 and 2020. For the remaining years, we computed an average % of revenues for the previous 5 years (2016-2020), which means that fuel costs will arise from FY21 to FY24 and that's going to have a considerable impact to profits and generated cash flows.

Maintenance, materials & repairs costs consist, basically, on "the cost of routine maintenance provision for leased aircraft and the overhaul of spare parts". In absolute terms, these expenses increased by 5%, however they decreased by 3% on a per passenger calculation due to fewer leased aircraft in the fleet and the timing of checks.

Aircraft rentals is the category that we talked about in the company overview section. Since leased airplanes only accounts, currently, for 9% of all operating fleet, its costs are relatively small and they decreased 4% from last year to FY18 in absolute terms, while falling by 12% per passenger.

Route charges rose 7% to 701,8 million euros, in line with the 7% increase in sectors. Relatively to a per passenger analysis, this expense just dropped by 1%.

Airport and handling charges per passenger tend to be a regular item. Since this costs should increase in line with the traffic growth, then we can understand why they remained the same expense per passenger compared with FY17, increasing 9% in absolute terms just like the increase in passengers. Therefore, we forecasted future values based on the increase in traffic.

Ryanair's **marketing, distribution and other** expenses include some costs also applicable to ancillary revenues and it has majorly increased by 27% on the latest fiscal year (reflected with an increase by 17% on a per-passenger basis as well). These changes are mostly related with non-recurring costs from flight cancelations (September and October 2017), as "passengers have a higher propensity to claim than in prior years". We expect that these negative events and controversy may occur in the future, hence, we forecasted this item the same way we did with the staff costs.

Regarding previsions for Maintenance, Materials and Repairs, Aircraft Rentals and Route Charges, we computed a fixed rate based on the historical 5 year-average percentage of revenues.

Year	2017	2018E	2019F	2020F	2021F	2022F	2023F	2024F
Operating Revenue	6 647,80	7 151,82	7 460,09	7 928,21	8 313,52	8 799,03	9 360,41	9 822,82
Operating Expenses	5 113,80	5 483,70	5 794,32	6 191,79	6 652,15	7 058,10	7 529,72	7 892,33
Operating Profit	1 534,00	1 668,12	1 665,77	1 736,43	1 661,38	1 740,94	1 830,69	1 930,49

Table 3: Forecast of Operating Profit on absolute terms in M€ (source: Own computations)

In table 3, we can check that operating profit is steadily growing, with exception in FY21, where the impact of fuel expenses are most noticeable. However, if we repeat this study with a profit per passenger analysis, we can verify that the margins will drop in future years following the same trend since 2017. It means that the traffic is growing at a much higher rate compared to the EBIT:

Year	2017	2018E	2019F	2020F	2021F	2022F	2023F	2024F
Operating Revenue	55,40	54,89	53,51	52,17	51,13	50,10	49,35	48,86
Operating Expenses	42,62	42,09	41,56	40,74	40,91	40,19	39,70	39,26
Operating Profit	12,78	12,80	11,95	11,43	10,22	9,91	9,65	9,60

Table 4: Forecast of Operating Profit on a per passenger basis (source: Own computations)

4.3 Payout Policy

Since its incorporation as the holding company for Ryanair in 1996, this airline has only occasionally declared special dividends on both its Ordinary Shares and ADRs. Besides this, Ryanair distributes wealth to its shareholders through share buyback programs. Regular dividends are not a part of the firm's payout policy. The next table gives us a perception of how much money was distributed from FY14 to FY18:

Year	Capital Return	Amount (in M€)
FY18	Buyback 10	190
	Buyback 9	639
FY17	Buyback 8	550
	Buyback 7	468
FY16	Buyback 7	418
	Special Distribution	398
	Buyback 6	288
FY15	Buyback 6	112
	Special Div 3	520
FY14	Buyback 5	482

Table 5: Historical Ryanair's payouts (Source: 2018FY Ryanair Results)

We verify that the payout has been rising each year, with exceptions in 2016 and 2018. In FY16 the value is so high due to the special distribution related to the Aer Lingus' sale. In FY18 the payout lowered because of the Buyback 10. It is expected to be distributed a total of 750M € throughout the year, however, only 190 million have been allocated until March 2018. In general, these high payout ratios mean that the company prefers to distribute wealth instead of reinvesting in a higher rate:

Year	2014	2015	2016	2017	2018
Payout (M€)	482	632	1104	1018	829
Share Price at FY (€)	7,351	11,1691	14,165	14,525	16
Number of shares (M)	1414,6	1384,7	1341	1249,7	1193,5
Δ change in shares (%)	-1,97%	-2,11%	-3,16%	-6,81%	-4,50%
DPS (€ per share)	0,34	0,46	0,82	0,81	0,69
Dividend Yield (%)	4,64%	4,09%	5,81%	5,61%	4,34%

Table 6: Historical Payout, Number of shares, DPS and Dividend Yield (source: Own computations)

The historical amount of dividends per share has been rising as well (with exception for FY18) due to the fact that, not only payouts have been growing, but also the number of shares outstanding has been lowering (with an average variation of -3,71%). In the most recent year, the return on investment for a stock (dividend yield) is 4,34%. It is a good indicator for investors as it yields a high return for this industry (around 1,65% for the whole airline industry in Europe according to Damodaran) for every euro invested. This industry value only reports for dividends and not for stock repurchases. Therefore, if we account this ratio as a

"capital return" yield like we did with Ryanair, it would hold a higher value, yet, still lower than Ryanair's.

As we don't expect any similar event in the future, relative to the event happened in 2016 (and, thus, special distribution), we believe that the payout will grow more or less in line with the net income expansion. From FY19 to FY25, we decided to compute our payout predictions based on the last 5 years average payout ratio (payout/net income) and we ended up with a ratio of about 74%:

Year	2017	2018	2019F	2020F	2021F	2022F	2023F	2024F
Payout (M€)	1 018,00	829,00	1 037,90	1 080,89	1 029,44	1 078,70	1 133,79	1 197,05
Payout ratio	77%	57%	74%	74%	74%	74%	74%	74%
Retention Ratio	23%	43%	26%	26%	26%	26%	26%	26%

Table 7: Forecast of Payouts 2017-24 (source: Own computations)

4.4 Capital Expenditures

The main component of Capital Expenditures is the acquisition of new airplanes (main investment). Secondary investments include expenditures on hangar and buildings, plant & equipment, fixtures and fittings, motor vehicles. All of these expenditures affect Plant, Property & Equipment (PPE). Finally, we have long term financial investments as the third component of CAPEX.

On both primary and secondary investments, we computed CAPEX like this:

$$CAPEX(T)=PPE(T)–PPE(T-1)+D\&A(T) \tag{16}$$

We forecasted the value of Aircraft and Motor Vehicles based on the variation in the number of closing fleet expected by Ryanair's management:

Year	2018	2019F	2020F	2021F	2022F	2023F	2024F
Opening fleet	383	427	448	481	516	540	575
Deliveries under 2013 Boeing contract	50	29	-	-	-	-	-
Firm deliveries under 2014 Boeing contract	-	-	39	19	21	20	11
Option Aircraft under 2014 Boeing contract	-	-	8	25	28	25	14
Planned returns or disposals	-6	-8	-14	-9	-25	-10	-15
Closing fleet	**427**	**448**	**481**	**516**	**540**	**575**	**585**
Δ change (%)	12,62%	4,92%	7,37%	7,28%	4,65%	6,48%	1,74%

Table 8: Planned closing fleet 2018-24 (source: Ryanair 2017FY Annual Report)

For the remaining PPE items, we forecasted them based on the expected customer traffic growth.

The rate of depreciation was already explained before (6,9% for each PPE).

The value forecasted upon financial investments is always 0 since we assume that the company will not pursue financial investments like it happened in the last three fiscal years (it ended in 2015 due to the sale of the stake in Aer Lingus). Hence, the value of Capital Expenditures will be the same with or without this type of investments.

Below, we conclude that the value of CAPEX will decrease more in FY19 and FY24, especially due to the lesser amount of investments in aircraft (table 8), compared with the previous FY:

Year	2018E	2019F	2020F	2021F	2022F	2023F	2024F
Aircraft	1 457,3	978,1	1 247,2	1 330,4	1 154,2	1 407,0	948,9
Hangar and Buildings	10,0	7,9	9,8	9,3	10,6	11,5	10,7
Plant & Equipment	1,4	1,1	1,4	1,3	1,5	1,6	1,5
Fixtures and Fittings	2,0	1,6	2,0	1,9	2,2	2,3	2,2
Motor Vehicles	0,2	0,1	0,2	0,2	0,2	0,2	0,1
CAPEX w/o LT Investments	1 471,0	988,9	1 260,5	1 343,0	1 168,7	1 422,7	963,4
Long Term Financial Investments	0,0	0,0	0,0	0,0	0,0	0,0	0,0
CAPEX	**1 471,0**	**988,9**	**1 260,5**	**1 343,0**	**1 168,7**	**1 422,7**	**963,4**

Table 9: Forecast of Capital Expenditures 2018-24 (source: Own computations)

4.5 Net Working Capital

Net Working Capital is a measure of short-term liquidity and it is equal to the difference between current assets and current liabilities. However, current financial assets and financial debt are not included for this calculation, as they aren't related to the ongoing operations of the firm. Therefore, we removed items such as Restricted cash, Cash and cash equivalents and Current financial assets for the assets side and Current maturities of debt for the liabilities side.

Derivative financial instruments were included because they play an important role on the operational business activity as well, since Ryanair has already some fuel, oil and price peaks hedging contracts planned until 2024:

Year	2019F	2020F	2021F	2022F	2023F	2024F
Consumables	3,61	3,84	4,02	4,26	4,53	4,75
Current tax	0,00	0,00	0,00	0,00	0,00	0,00
Derivative Instruments	255,67	255,67	255,67	255,67	255,67	255,67
Trade receivable	72,30	76,84	80,57	85,28	90,72	95,20
Prepayments	203,23	215,98	226,48	239,70	255,00	267,59
Interest receivable	3,33	3,53	3,71	3,92	4,17	4,38
Total Current Assets	**538,13**	**555,86**	**570,45**	**588,83**	**610,08**	**627,59**
Δ Total Current Assets	28,13	17,72	14,59	18,38	21,26	17,51
Trade payables	267,29	284,07	297,87	315,27	335,38	351,95
Derivative Instruments	249,33	249,33	249,33	249,33	249,33	249,33
Current tax	650,43	677,36	645,12	676,00	710,51	750,16
Accruals	484,14	514,52	539,52	571,03	607,46	637,47
Unearned Revenue	1419,87	1508,96	1582,30	1674,70	1781,55	1869,56
Total Current Liabilities	**3071,06**	**3234,25**	**3314,15**	**3486,34**	**3684,25**	**3858,48**
Δ Total Current Liabilities	92,06	163,19	79,91	172,18	197,91	174,23
Net Working Capital	**-2532,93**	**-2678,39**	**-2743,71**	**-2897,51**	**-3074,16**	**-3230,89**
Δ Net Working Capital	**-63,93**	**-145,46**	**-65,32**	**-153,80**	**-176,65**	**-156,73**

Table 10: Forecast of Net Working Capital 2019-24 (source: Own computations)

Operational current liabilities are always much higher than current assets and they are growing at a higher rate (average 1,5% per year), meaning that the change in NWC is always decreasing. These negative values in NWC are very common in the airline industry, as most carriers collect the money at the time of booking which is considerably before the company provides the actual transportation service to customers. Hence, the value for unearned revenue will have a major impact as a current liability. Furthermore, since Ryanair is a large firm and has a considerable bargaining power to its suppliers, it can obtain longer credit periods.

4.6 Debt

Total Debt equals current maturities of debt (current portion of long-term debt) plus total long-term debt (non-current). In March 2018, Ryanair had a debt value of 3 964 M€ and in the Balance Sheet we can verify that this value does not follow the steady growth from previous years. We calculated future debt (both short-term and long-term debt) based on the average percentage of total assets from last five years. As the D/A ratio has been relatively stable historically (ranging from 0,32 to 0,37), we basically predicted future debt based on the 5-year average D/A that equals to 0,35.

On the opposite side, we have the interest expenses that have been decreasing throughout time. However, we forecasted future interest payments as the 5-year average % of total debt. Therefore, the interest expense is expected to rise in the future because the Debt will also increase in conformity with the Assets.

Regarding issued bonds, Ryanair has 2 450 million € in three unsecured Eurobonds issued in 2014, 2015 and 2017 with maturity dates between 2021 and 2023.

Finally, relatively to operating lease obligations, we don't know the value for this year, as debt details have not been released yet.

4.7 Tax Rate

Ryanair pays taxes in Ireland, thus it is acceptable to say that taxes will act according to the statutory Irish rate of 12.5%. Even though there are some fluctuations from last five years,

related with different taxable earnings, we will assume the statutory rate as the effective tax rate.

4.8 Key Metrics

Analyzing the table below, it is possible to conclude that the EBITDAR margins and net margins are both above the industry median, which gives us a positive sign in regard of the existence of strong cash-flow streams and healthy operational activity:

Year	2017	2018E	2019F	2020F	2021F	2022F	2023F	2024F	Industry median
EBITDAR margin	31,85%	32,32%	31,84%	31,50%	29,76%	29,47%	29,25%	29,11%	23,15%
Net Margin	19,79%	20,28%	18,78%	18,40%	16,71%	16,55%	16,35%	16,45%	5,62%
ROIC	14,66%	16,20%	14,86%	14,42%	12,77%	12,76%	12,59%	13,02%	10,02%
Return on Equity	29,75%	32,45%	31,59%	30,23%	25,98%	25,90%	25,38%	26,43%	20,50%
Debt/Equity	0,99	0,89	1,02	1,00	0,96	0,96	0,95	0,96	0,71
Interest Coverage ratio	22,83	26,78	22,70	22,15	19,93	19,90	19,68	20,20	15,99
Asset Turnover	0,55	0,58	0,57	0,57	0,56	0,57	0,57	0,58	0,95

Table 11: Forecasts for Key Metrics 2017-24 and industry comparison (source: Own computations and Thomson Reuters)

In terms of profitability, we have measures for ROIC and ROE (Return on Equity) and they currently give a positive sign relatively to the industry median, reinforcing the idea that Ryanair is a great airline company to return wealth and gains on investors' expenditures.

Ryanair is a relatively high levered company as we can see in the Debt to Equity Ratio. The industry median currently is 0,71 meaning that the majority of airlines has more equity than debt. However, Ryanair has almost the same debt as equity. Like we saw, these values can be explained due to the fact that the company distributes high payouts to shareholders and, hence, it has to raise more money from debtholders in order to finance its investments.

The interest coverage ratio determines how easily a company can pay interest on its outstanding debt. Ryanair has a really positive ratio being above the industry median, however this ratio will decrease through time as interest expenses are expected to increase at a higher rate than the EBIT.

Last but not least, we have the Asset Turnover ratio (Operating Revenue/Total Assets). It is below the industry median and, typically it could mean that the company is not performing

well since less revenue is generated per euro of assets. However, Ryanair has an unusual amount of belongings because almost all of aircrafts are bought upfront and not leased, like we have mentioned before. Therefore, they are recognized as assets and so it will generate a greater amount of total worth. For other companies in this industry, profit can be mostly affected if the strategy is to have a greater leasing fleet as it is recognized as expenses in the income statement.

For the future, we expect these metrics to change to some extent (except the Asset Turnover and Debt/Equity), with greater impact from FY21 to FY24, because of the already mentioned increase impact of fuel and oil expenses, which will lower the margins and will yield less returns on a yearly basis.

5. Valuation

In this section, we will conduct a Discounted Cash Flow valuation using the WACC method because we project a stable capital structure, as referred before. We will evaluate Ryanair since 31 March of 2018 and the explicit period will go until 31 March of 2024.

In terms of method that use profitability, we will focus only on the Economic Value Added and then compare it with the DCF value.

Finally, a multiples valuation was also used in order to strength the valuation based on peer companies.

5.1 DCF Valuation

5.1.1 Free Cash Flow to Firm

To start off, we must use the Free Cash Flow to Firm method, shown by equation 1 in the Literature Review section, and compute all FCFFs:

Year	2019F	2020F	2021F	2022F	2023F	2024F
Period	0	1	2	3	4	5
EBIT	1 665,77	1 736,43	1 661,38	1 740,94	1 830,69	1 930,49
Effective Tax Rate on EBIT	12,5%	12,5%	12,5%	12,5%	12,5%	12,5%
EBIT (after tax)	1 457,55	1 519,37	1 453,70	1 523,32	1 601,85	1 689,18
+ D&A	587,90	631,29	677,21	708,92	754,98	768,42
- Change in NWC	-63,93	-145,46	-65,32	-153,80	-176,65	-156,73
- CAPEX	-988,94	-1 260,48	-1 343,01	-1 168,73	-1 422,72	-963,41
FCFF	992,58	744,73	722,59	909,71	757,46	1 337,47

Table 12: FCFF calculations 2019-24 (source: Own computations)

The cash flows were quite unstable as we can observe, primarily, because of the variation in investments (CAPEX). As we saw, the change in aircraft is related with the expected fleet growth and, being the major item for Capital expenditures, we expect variations in FCFF according to it. FY20, FY21 and FY23 are the most affected, having more negative impact on the resulting cash flow and in 2024 we observe the highest value because CAPEX is expected to lower.

The after-tax EBIT is increasing, except for FY21, and depreciations are steadily growing, while changes in NWC are relatively regular.

5.1.2 Discount Rate

In order to compute the Net Present Value, we need to discount our FCFFs with the WACC:

$$WACC=Ke(levered)*\frac{E}{D+E}+Kd(levered)*\frac{D}{D+E}*(1-T) \tag{2}$$

5.1.2.1 Cost of equity

The basis for calculating the cost of equity (Ke) was applied by using the CAPM, following equation 3:

$$Ke(levered)=Rf+\beta(levered)*MRP \qquad (3)$$

To begin, we decided to choose the Risk Free Rate based on the 10-Year Eurozone Central Government Bond Yield at the exact day we are calculating our price (31 March 2018) and its value is 0,55%.

The β(levered) we decided to choose is the one from Thomson Reuters (5-year Beta) and it's equal to 0,94.

The Market Risk Premium is the variable that took more computations into account. Using Damodaran updated database, we added the Equity Risk Premium (implied for the S&P 500) for countries in which Ryanair operates with the Country Risk Premium for those same countries. Having the information about % of sales in Ireland, UK and other countries (almost all European) for FY17, we did a weighted average on each variable we mentioned (11% Ireland, 25% UK and 64% rest of countries). For the rest of countries we just did a simple average for each variable in order to find the value that afterwards would count for the final weighted average. These calculations gave us an Equity Risk Premium of 6,71% and a Country Risk Premium of 1,63%. Hence, the value of Market Risk Premium equals 6,71% + 1,63% = 8,35%.

Finally we have everything to compute the cost of equity (Ke):

$$Ke(levered)=0,55\%+0,94*8,35\%=8,40\% \qquad (17)$$

5.1.2.2 After Tax Cost of debt

Regarding the After Tax Cost of debt (Kd), we need to follow the same equation presented before and use the Default Spread, Risk Free Rate and the Tax Rate:

$$\textit{After tax Kd = (Default Spread+Rf)*(1-T)} \tag{4}$$

Knowing already the Rf and the effective Tax Rate, we just need to discover the Default Spread. We arrived into a value of 1,27%, according to the implied spread linked to credit ratings using the most updated Damodaran table (Ryanair bonds are rated at BBB).

The final value of Cost of Debt (after Tax) equals:

$$\textit{After tax Kd=(1,27\%+0,55\%)*(1-0,125) = 1,59\%} \tag{18}$$

5.1.2.3 Market Value of Equity and Debt

Regarding the Market Value of Equity we just multiplied the market share price at the end of March (16,0 €) with the number of shares outstanding at the end of the fiscal year (1194 million of shares). The final amount corresponds to 19 096 million €:

$$\textit{Equity MV=16*1193,50=19 096 M€} \tag{19}$$

Regarding the Market Value of Debt, it was obtained using three different methods. The first one is the Present Value of the amount outstanding of Ryanair's three different bonds, then the Debt Value of Operating Leases and, lastly, the conversion of non-traded debt into marketable debt.

To find the PV of the amount outstanding for the three bonds, we summed up the parts, having into account each amount outstanding (M), the interest coupon of each bond (coupon rate*amount outstanding), the Cost of debt pre-tax (Kd) and the years until maturity (N). Then, we follow the formula below:

$$PV\ Bonds=Coupon\ *\frac{\left(1-\left(\frac{1}{(1+Kd)^N}\right)\right)}{Kd}+\frac{M}{(1+Kd)^N} \tag{20}$$

The final PV of these three bonds equaled 2398,66 million euros, using the same Kd of 1,82% (1,27%+0,55%). All steps can be checked in table 13:

Bond	Maturity	Amount Outstanding	Coupon rate	Coupon	Years until maturity	Present Value
1	17/06/2021	850,00	1,875%	15,94	3,00	851,35
2	10/03/2023	850,00	1,125%	9,56	5,00	822,01
3	15/08/2023	750,00	1,125%	8,44	5,00	725,30
Total		2 450,00				2 398,66

Table 13: Present Value of Ryanair's bonds for FY18 (source: Own computations)

For the following two methods, we computed the Market Value for FY17, as we don't have information yet about the specifics of debt for the latest year. Therefore, we converted the final result to an expected number based on the variation in total debt from FY17 to FY18.

In order to deal with Operating Leases, we decided "To convert operating lease commitments into an equivalent debt amount" which "requires that we discount these commitments back to the present." - Damodaran (1999). In Damodaran's approach, he also discounted each commitment with the pre-tax cost of debt. Regarding the maturity as we have <1 year, 1-2, 2-5 and >5 years, we did an average for each period interval in order to have a single maturity number for our calculations. We arrived into a final Present Value of 177,14 M€:

Maturity	Average	Commitment	Present Value
< 1 year	0,5	77,10	76,41
1 - 2 years	1,5	53,50	52,07
2 - 5 years	3,5	54,60	51,26
> 5 years	7,5	0,00	0,00
Total		**185,20**	**177,14**

Table 14: Debt Present Value of Operating Leases for FY17 (source: Own Computations)

Finally, we got the Non-traded Debt (NTD). Its Book Value is equal to Total Debt (Total Debt = Long-Term Debt + Finance Leases) in FY17 minus the remaining debt items that we have just estimated. To find its market value, we are going to use again a Damodaran approach by converting "book value debt into market value debt" and "treat the entire debt on the books 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." The Book Value is equal to 1 808,70 million euros and, given the interest expenses, Kd and the average maturity we can compute the Market value of this "bond". The average maturity was calculated by doing a weighted average of each maturity with the percentage of the corresponding total debt commitment:

Maturity	Average	Long Term Debt	Finance Lease Obligations	Total Debt Commitment	% Total Commitment
< 1 year	0,5	325,60	130,20	455,80	10,40%
1 - 2 years	1,5	299,70	129,30	429,00	9,78%
2 - 5 years	3,5	1 541,10	197,00	1 738,10	39,64%
> 5 years	7,5	1 761,60	0,00	1 761,60	40,18%
Total	**4,6**	**3 928,00**	**456,50**	**4 384,50**	**100,00%**

Table 15: Total Debt commitment and Average maturity for NTD in FY17 (source: Own computations)

The final step is to apply the same equation used to obtain the Present Value of the three bonds (equation 20), but swapping the coupon for the interest expense in fy17 and M is now the BV of NTD:

$$MV\ NTD = 67,2 * \frac{\left(1 - \left(\frac{1}{(1+1,82\%)^{4,6}}\right)\right)}{1,82\%} + \frac{1808,70}{(1+1,82\%)^{4,6}} = 1\ 958,65\ M€ \qquad (21)$$

Now, we possess all three items needed to calculate the Market Value of Debt for the most recent fiscal year, by applying the following formula:

$$MV\ Debt\ 18 = (MV\ NTD\ 17 + MV\ Op\ leases\ 17)\ *\ \frac{BV\ Debt\ 18}{BV\ Debt\ 17} + PV\ bonds\ 18 = (1958,65 + 177,14)*\frac{3964}{4385} + 2398,66 = 4\ 329,40\ M€ \tag{22}$$

5.1.2.4 Weighted Average Cost of Capital

Now that we have both MV of Equity and MV of Debt, we can continue equation 2 and compute the final WACC that is going to be used to discount all FCFF and the terminal value. This value is 7,14%:

$$WACC = 8,4\% * \frac{19096,0}{19096,0+4329,4} + 1,59\% * \frac{4329,4}{19096,0+4329,4} *(1-0,125) = 7,14\% \tag{23}$$

5.1.3 Terminal Value

As Ryanair reaches a mature stage, the perpetuity growth cannot outperform the economy forever and, according to the International Monetary Fund forecasts, the real GDP growth for Europe in 2024 will be 1,70%. Therefore, we will assume a confident steady growth rate of 1,70% as the limit value for the economy. Assuming also a constant WACC of 7,14% and a perpetuity over the Free Cash Flow to the Firm when reaching the final explicit year, we achieved a terminal value of 25 007,09 million of euros (using equation 5):

$$Terminal\ Value = \frac{1337,47*(1+0,017)}{7,14\%-1,70\%} = 25\ 007,09\ M€ \tag{24}$$

5.1.4 Estimated Price

To get to the final DCF price, we need now to discount all FCFF and the terminal value, subtract the net debt and, finally, divide it by the number of shares in fy18.

We started to find each year's discount factor, following the equation below:

$$Discount\ Factor = \frac{1}{(1+WACC)^N} \qquad (25)$$

Where N is the period corresponding to each year (starting in N=0 for 2019 and ending in N=5 for 2024). Then, we multiplied each discount factor with each cash flow:

Year	2019F	2020F	2021F	2022F	2023F	2024F
Period	0	1	2	3	4	5
FCFF	992,58	744,73	722,59	909,71	757,46	1 337,47
Terminal Value						25 007,09
Discount Factor	1,00	0,93	0,87	0,81	0,76	0,71
Discounted FCFF	992,58	695,10	629,50	739,70	574,86	947,41
Discounted Terminal Value						17 714,12

Table 16: Discounted Terminal Value and FCFFs calculations 2019-24 (source: Own computations)

Summing up all discounted FCFF and discounted Terminal Value, we got a NPV of 22 293,28 M€. Up next, we subtracted the net debt (Total debt – total financial assets: current financial assets; restricted cash; cash and cash equivalents) that totaled 283 M€ and we reached an equity value of 22 010,28 M€.

The total number of shares outstanding we already mentioned (1 194 million) and so dividing the equity for this number, we get a final price of 18,44 euros, representing an upside of around 15% compared to the market price on 31 March 2018 (16,00 euros).

5.1.5 Sensitivity Analysis

A sensitivity analysis was performed to stress test past valuations and to expose some vulnerabilities of Ryanair. We will explore some effects on the estimated price achieved through this methodology, by changing some values both on financial (WACC and Growth Rate) and on operational segments (Fuel and Oil and Route Charges).

On the **financial segment**, we focused on variables which have high impact for the computation of the estimated price. We analyzed the impact of variations of +/- 0.3% on the terminal growth rate, which can occur because the future macroeconomic conditions can change into some extent, and +/- 0.5% variation relatively to the reference Weighted Average Cost of Capital. It is the main discount factor which includes many assumptions related with costs of debt and equity:

		Growth Rate						
		0,80%	1,10%	1,40%	**1,70%**	2,00%	2,30%	2,60%
	5,64%	21,40	22,63	24,03	25,64	27,53	29,75	32,40
	6,14%	19,34	20,33	21,43	22,69	24,13	25,80	27,75
	6,64%	17,64	18,45	19,34	20,35	21,48	22,77	24,25
WACC	**7,14%**	16,22	16,89	17,62	**18,44**	19,35	20,38	21,54
	7,64%	15,01	15,57	16,18	16,86	17,61	18,44	19,37
	8,14%	13,97	14,45	14,96	15,53	16,15	16,84	17,60
	8,64%	13,07	13,47	13,92	14,40	14,92	15,49	16,12

Table 17: Financial sensitivity analysis for DCF (source: Own computations)

Analyzing the results from table 17, we can show that the estimated price can vary between 13,07€ on the pessimistic side and a really optimistic value of 32,40€, representing a 29% downside and a 76% upside potential when compared to the initial estimated price of 18,44€. This huge variation can be explained because of the Terminal Value discounts. As WACC lowers, the impact of the growth rate will be higher, decreasing the gap between WACC and g to find the terminal value. Therefore, a growth rate of 2,6% and a WACC of 5,64% will have greater impact for the estimated price than the minimum growth rate and the maximum WACC that we chose.

On the **operational segment**, we focused on two variables representing part of the most important expenses to Ryanair: Fuel and Oil represents the biggest slice of all costs and Route

Charges which are expected to represent almost 10% of revenues for future years. The Variation on Fuel and Oil will only begin in FY2021 as it will start the period with more instability and hedging policies on these commodities will be reviewed. We will assume a variation of +/- 2% based on the original value of 28,06% of total revenues (2021-2024). For Route Charges we will assume a variation starting in FY2019 and ending in FY2024. It will vary +/- 1% of total revenues as well. This time, we have got a symmetrical variation in the worst possible scenario and the best one since these are linear changes.

The combination of both variables demonstrates that the share price can vary from 8,11€ (56% downside) to 28,78€ (56% upside relatively to the initial estimated price):

		Fuel and Oil						
		22,06%	24,06%	26,06%	**28,06%**	30,06%	32,06%	34,06%
	6,85%	28,78	26,55	24,32	22,10	19,87	17,65	15,42
	7,85%	27,56	25,33	23,11	20,88	18,65	16,43	14,20
	8,85%	26,34	24,11	21,89	19,66	17,43	15,21	12,98
Route Charges	**9,85%**	25,12	22,89	20,67	**18,44**	16,22	13,99	11,76
	10,85%	23,90	21,68	19,45	17,22	15,00	12,77	10,54
	11,85%	22,68	20,46	18,23	16,00	13,78	11,55	9,33
	12,85%	21,46	19,24	17,01	14,79	12,56	10,33	8,11

Table 18: Operational sensitivity analysis for DCF (source: Own computations)

5.2 Economic Value Added

As we saw in the literature review, resembling calculations that we used for DCF will be done in order to value Ryanair with the EVA model.

Firstly, we calculated the Invested Capital (IC) for each year and it is defined as the sum of total equity with the total non-current liabilities, following the Thomson Reuters formula, since they are a measure of long-term capital from both shareholders and debtholders.

The Return on Invested Capital (ROIC) we took out from the Key Metrics table 11. It is the net income divided by the IC.

The WACC is exactly the same as the one used for DCF and the value of each economic profit (from N=0 until N=5) is given by equation 26:

$$Value=IC*(ROIC\text{-}WACC) \tag{26}$$

Secondly, we calculated the Terminal Value and we used an IC of 12 412,91 M€, a perpetuity ROIC of 13,02%, a perpetuity WACC of 7,14% and a terminal growth rate of 1,70%:

$$Terminal\ Value=\frac{12412,91*(13,02\%-7,14\%)+12412,91}{7,14\%-1,70\%}=25\ 824,14\ M€ \tag{27}$$

Year	2019F	2020F	2021F	2022F	2023F	2024F
Period	0	1	2	3	4	5
Invested Capital	9 425,48	10 116,60	10 882,20	11 410,59	12 153,67	12 412,91
ROIC	14,86%	14,42%	12,77%	12,76%	12,59%	13,02%
WACC	7,14%	7,14%	7,14%	7,14%	7,14%	7,14%
Value	727,94	736,62	612,52	641,30	662,59	729,47
Terminal Value						25824,14

Table 19: Economic profit and Terminal Value calculations 2019-24 (source: Own computations)

5.2.1 Estimated Price

Applying the same method as in DCF, we started to find each year's discount factor, following equation 24, using the same N periods.

Then, we multiplied each discount factor with each economic profit and the terminal value to obtain all discounted values. The final NPV will be the sum of these:

Year	2019F	2020F	2021F	2022F	2023F	2024F
Period	0	1	2	3	4	5
Value	727,94	736,62	612,52	641,30	662,59	729,47
Terminal Value						25 824,14
Discount Factor	1,00	0,93	0,87	0,81	0,76	0,71
Discounted Value	727,94	687,54	533,61	521,45	502,86	516,73
Discounted Terminal Value						18 292,89
Present Value (NPV)	21 783,03					

Table 20: Net Present Value of economic profits calculations (source: Own computations)

Above, we check a NPV of 21 783,03 M€. Up next, we subtracted the net debt (283 M€) and we reached an equity value of 21 500,03 M€.

The total number of shares outstanding is the same as well and by dividing the equity with it, we get a final price of 18,01 euros, representing an upside of around 13% when compared to the market price on 31 March 2018 (16,00 euros).

Comparing DCF with EVA, we conclude that the DCF yielded a related but higher price than EVA. This difference in value may arise from one of EVA's flaws, as this model is based on performance measures rather than cash flows.

According to our forecasts, there is value created and we can conclude that fact by analyzing this model. The ROIC is always above the WACC and, hence, every year we observe positive returns to investors.

5.2.3 Sensitivity Analysis

Like it happened for DCF, we are going to apply a sensitivity analysis for this model, in order to stress how much the estimated stock price would be affected by variations in the considered inputs.

In this case, it only makes sense to deal with a **financial segment** analysis and so, we choose the following two variables: the WACC and the perpetuity ROIC. The same variation of +/-

0.5% was applied to the WACC and +/- 1% variation was applied to the last year ROIC which will serve as the perpetuity for the Terminal Value as well:

		Perpetuity ROIC						
		10,02%	11,02%	12,02%	**13,02%**	14,02%	15,02%	16,02%
	5,64%	19,29	21,37	23,46	25,54	27,63	29,71	31,80
	6,14%	17,01	18,83	20,65	22,46	24,28	26,09	27,91
	6,64%	15,20	16,81	18,41	20,01	21,61	23,21	24,82
WACC	**7,14%**	13,73	15,16	16,58	**18,01**	19,44	20,87	22,30
	7,64%	12,50	13,79	15,07	16,35	17,64	18,92	20,20
	8,14%	11,47	12,63	13,79	14,95	16,12	17,28	18,44
	8,64%	10,58	11,64	12,70	13,76	14,82	15,88	16,94

Table 21: Financial sensitivity analysis for EVA (source: Own computations)

On table 21, we can verify that the estimated price varies between 10,58€ on the pessimistic side and 31,80€ on the best scenario, representing a 41% downside and a 77% upside potential when compared to the initial estimated price of 18,01€. Just like the financial scenarios on the DCF, we expect a wider upgrade than downgrade in relation to the base case.

We can relate to similar effects as in DCF because the ROIC only affects the terminal value just like the perpetuity growth and the WACC affects every year of the explicit period.

5.3 Multiples

The multiples/relative valuation chapter is entirely dedicated to test the consistency of the DCF and EVA estimations. This chapter will be divided into two sub-chapters: the reasoning behind the choice of the peer group and the results obtained from the peers using two different multiples.

5.3.1 Peer Group

In order to choose the most appropriate peer group we decided to do a cluster analysis with a pre-selection of other nine companies within the same industry.

The initial sample comprised the three largest LCCs in the world by total passengers carried (Southwest Airlines, Ryanair and easyJet), the three largest low-cost carriers in Europe by passengers carried as well (Ryanair, EasyJet and Norwegian Air Shuttle) and, finally, the largest European airlines in Europe to complete the remaining six firms (Lufthansa Group, Ryanair, IAG, Air France-KLM Group, easyJet, Turkish Airlines, Aeroflot Group, Norwegian Air Shuttle and SAS).

Regarding the most convenient level of similarity, we decided to compare Ryanair with the other airlines by using the ROIC for FY17 and sales growth from FY16 to FY17 for each company. These variables were, then, standardized and it was obtained three distinctive, non-overlapping, clusters. Ryanair shares its cluster around centroid 3 with four other companies: Southwest Airlines, easyJet, Aeroflot and the International Airlines Group (IAG), as we can infer in graph 7:
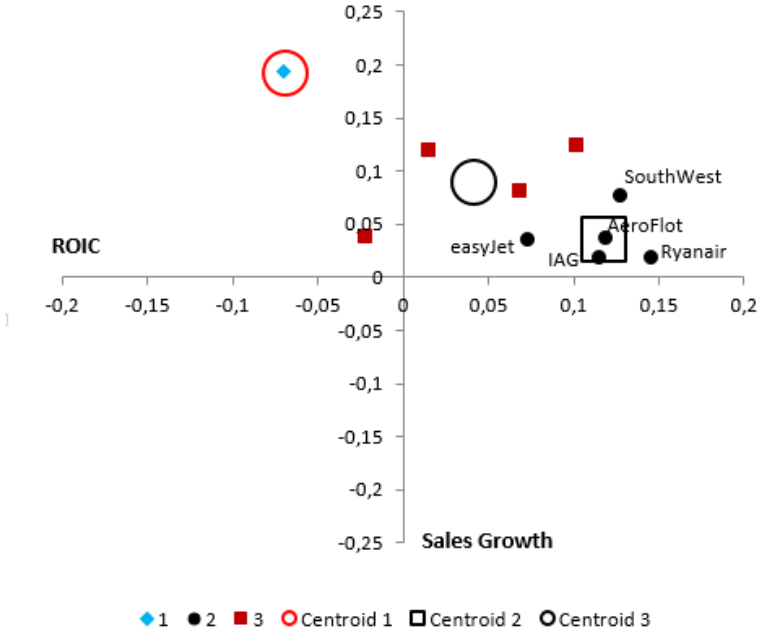
Graph 8: Peer Group selection (source: Own computations)

5.3.2 Estimated Price

To start off, let's analyze the EV/EBITDAR multiple:

Multiples Peer Group	EV (31 Mar 18)	EBITDAR	EV/EBITDAR (31 Mar 18)	P/E (31 Mar 18)
SouthWest	33 817,48	4 931	6,86	16,60
IAG	18 886,25	4 679	4,04	7,53
Aeroflot	3 919,39	2 112,61	1,86	7,17
EasyJet	8 431,73	949,78	8,88	21,37
Average from Peers	**16 263,71**	**3 168,10**	**5,41**	**13,17**
Ryanair	24 120,80	2 311,42	10,44	13,35

Table 22: EV/EBITDAR and P/E multiples from peers (source: Thomson Reuters)

Regarding the EV/EBITDAR ratio, we achieved a final stock price of 10,20€, which is clearly below the current market price (36% downside) and further below the DCF and EVA valuations. This can be explained due to the fact that Ryanair constantly outperforms its peers, containing an EBITDAR relatively low (2 311,42 vs. 3 168,10 M€) but an Enterprise Value very high when comparing to the other peers (24 120,80 vs. 16 263,71 M€), which is not usual for airlines. The value for this ratio in the most recent Fiscal Year amounted to 10,44 which is almost twice the average from peers. By multiplying the actual EBITDAR of Ryanair with the average peer ratio we achieve an Enterprise Value that, afterwards, has to be deducted the Net Debt to find the Equity. So, the same reasoning as the other methods apply here, also having to account for the number of shares to reach the estimated price:

EV / EBITDAR Multiple	Value
Ryanair EBITDAR	2 311,42
Average Peers EV / EBITDAR	5,41
Ryanair EV (from peers)	12 497,46
Ryanair Net Debt	318,00
Ryanair Equity (from peers)	12 179,46
Nr. Shares Outstanding	1 194
Estimated Price	**10,20**

Table 23: Estimated price from EV/EBITDAR (source: Own computations)

In terms of the P/E multiple, we got exactly the same value as the current market price of 16,00€. It's also noticeable that this ratio is much closer to Ryanair's (Ryanair's P/E is 13,35

vs 13,17 from peers). We can conclude that this ratio is very accurate in terms of explaining the firm's market price, given the Earnings per Share and the Share Price from the most similar competitors.

To arrive into the price, we just made a simple calculation, multiplying the Ryanair's EPS with the average P/E from peers:

P/E Multiple	Value
Ryanair target EPS	1,22
Average Peers P/E	13,17
Estimated Price	**16,00**

Table 24: Estimated price from P/E (source: Own computations)

5.4 Final Target Price

Based on the complexity and number of assumptions we made, we decided to give different relative weights when reaching the final estimated price for Ryanair.

Primarily, we boost the importance and relevancy of the Discounted Cash Flow method which made us increase its strength for the final estimated share price. Secondly, we gave a medium importance to the EVA model and finally we gave the same importance for each multiple but less relevance for the target price. Thus, we decided to give a relative weight of 50% to the DCF, 30% to the EVA and the remaining 20% to the Relative Valuation (10% each). Our target price for 12 months is equal to 17,25€ (upside of 8% relatively to the current price) and so we recommend investors to "Hold" Ryanair's stock in their portfolios.

6. Credit Suisse Research Comparison

The Credit Suisse Research valuation is based on a DCF model assuming the WACC/FCFF approach and a Multiples model assuming the EV/IC and EV/EBITDAR multiples. The report's date of publication was on the 23rd January 2018 and, thus, the research team only worked with actual data up until the first half of the FY18. According to this bank

recommendations, Ryanair's shares are "Neutral", which means the security is expected to perform in accordance with the average total return of the stocks on the market until 22 January 2019, the price target end date. Following their reasoning, investors should "Hold" or "Equal weight" their positions, just like us.

It was reached a final target price of 17,91€ and, given the price at the time (22 January 2018) of 16,50€, it resulted in 9% upside. This valuation didn't include the Economic Value Added methodology.

Regarding key indicators we decided to compare this dissertation with Credit Suisse in terms of Operating revenues, Operating Profit margins, EBITDA and Net Income:

Year	2019F	2020F	2021F	2022F	2023F	2024F
Operating Revenues						
Dissertation	7460	7928	8314	8799	9360	9823
Bank	7706	8355	9041	9785	10595	--
Operating Profit margin						
Dissertation	22%	22%	20%	20%	20%	20%
Bank	22%	22%	22%	22%	23%	--
EBITDA						
Dissertation	2254	2368	2339	2450	2586	2699
Bank	2325	2520	2723	2987	3277	--
Net Income						
Dissertation	1401	1459	1389	1456	1530	1616
Bank	1456	1576	1707	1847	2000	--

Table 25: Forecasts comparison between Dissertation and Credit Suisse 2019-24 (source: Own computations and Credit Suisse Equity Research)

We can check that the bank's forecasts are always more optimistic than ours. It is more noticeable in the operating revenues and the net income where we see a much larger rate of growth on a yearly basis until 2023 (end of the explicit period for the bank). However, the target price achieved for the DCF was a bit lower than our predictions (18,04 euros). This fact can be explained because other factors were more pessimistic, especially variables for the discount rate and the CAPEX. The FCFFs were lower because the Capital Expenditures were strong (1500 for 2019, 1800 for remaining years and 1200 M€ for perpetuity). Furthermore, our estimated WACC was 7,14% but Credit Suisse estimated a WACC of 8,5% which is considerably higher and it will affect negatively the discounted FCFFs. The EBIT margins were the same (ours averaged 20% vs. 20% of long-term EBIT for bank). On the opposite

side, the growth rate for the Terminal Value differs significantly (1,70% vs. 3%), meaning that it can partially offset the high cost of capital (if we stress this exact same scenario with a WACC of 8,5% and a g of 3%, we reach a price of 17,51 euros by using our DCF model).

In relation to Multiples, we have information about Ryanair's peers but not why they have chosen it. The peer group included only Air Berlin and easyJet. Therefore, the value obtained for the average from peers on the EV/EBITDAR multiple was very different than this dissertation's (5,41 for us against 9,00), which resulted in a share price of 17,89€. The Enterprise Value/Invested Capital was the other multiple chosen by the bank's team and the estimated price provided a value of 17,66€.

We can conclude that the range of values for the bank was very tight in relation to the DCF and both multiples, unlike our study, where we have greater values from the DCF and EVA, a medium value for the P/E multiple and a low valuation provided by our EV/EBITDAR multiple.

The final target price of 17,91€ was reached by attributing a 50% weight to the DCF/WACC model (18,04€), 25% to the EV/IC (17.66€) and 25% to the EV/EBITDAR (17,89€) multiples approach. We opted for different weights based on the carrying amount of assumptions, like we explained before:

Research Team	Dissertation	Bank
Method	DCF (WACC)	DCF (WACC)
Relative Weight	50%	50%
EBIT Margin	21%	20%
WACC	7,14%	8,50%
Terminal Growth Rate	1,70%	3,00%
Estimated Price	**18,44**	**18,04**
Method	Multiples	Multiples
Relative Weight	20%	50%
Estimated Price	**13,10**	**17,78**
Method	EVA	EVA
Relative Weight	30%	N/A
Estimated Price	**18,01**	**N/A**
Final Estimated Price	**17,25**	**17,91**
Current Market Price	16	16,5
Upside/Downside	8%	9%

Table 26: Valuation comparison between Dissertation and Credit Suisse 2019-24 (source: Own computations and Credit Suisse Equity Research)

7. Conclusion

To sum up this dissertation, it is possible to recognize that working on different approaches will result in different outputs for the same objective: the value of each stock of Ryanair. DCF, EVA and Relative methods have different assumptions that will affect forecasts and, therefore, the final target price.

Our recommendation is for investors to "Hold" their positions. We achieved a final target price (until 31 March 2019) of 17,25 euros, which corresponds to a 8% optimism relatively to the current share price of 16,00 euros. A similar recommendation was given by the Investment Bank's Research team ("Neutral"), as their final estimated price was 17,91 euros and their forecasts overall were a bit more optimistic.

Despite positive indications for the future, Ryanair needs to be aware for future threats. The negative news related with labor strikes can negatively affect investors' expectations and attract more negative publicity which can have influence on future demand for Ryanair's clients. Also, the still unknown outcome of Brexit can induce problems for flights between UK and EU, so an agreement should be reached as soon as possible, in order to lower this threat and continue smoothing operations.

8. Appendixes

Appendix 1: Income Statement 2017-24 in M€ (source: Ryanair FY18 Results and own source)

Year	2017	2018E	2019F	2020F	2021F	2022F	2023F	2024F
Period End Date	31/03/2017	31/03/2018	31/03/2019	31/03/2020	31/03/2021	31/03/2022	31/03/2023	31/03/2024
Scheduled Revenues	4 868,2	5 133,8	5 355,9	5 691,9	5 968,6	6 317,1	6 720,2	7 052,1
Ancillary revenues	1 779,6	2 017,0	2 104,2	2 236,3	2 345,0	2 481,9	2 640,3	2 770,7
Total Revenue	**6 647,8**	**7 151,8**	**7 460,1**	**7 928,2**	**8 313,5**	**8 799,0**	**9 360,4**	**9 822,8**
Staff costs	633,0	738,5	770,3	818,7	858,5	908,6	966,6	1 014,3
Depreciation	497,5	561,0	587,9	631,3	677,2	708,9	755,0	768,4
Fuel and oil	1 913,4	1 902,8	1 984,8	2 109,4	2 332,7	2 468,9	2 626,4	2 756,1
Maintenance, materials & repairs	141,0	148,3	162,3	172,5	180,9	191,5	203,7	213,7
Aircraft rentals	86,1	82,3	121,7	129,3	135,6	143,5	152,7	160,3
Route charges	655,7	701,8	734,9	781,0	818,9	866,7	922,0	967,6
Airport and handling charges	864,8	938,6	1 004,3	1 094,7	1 171,3	1 265,0	1 366,2	1 448,2
Marketing, distribution & other	322,3	410,4	428,1	455,0	477,1	504,9	537,1	563,7
Total Operating Expense	**5 113,8**	**5 483,7**	**5 794,3**	**6 191,8**	**6 652,1**	**7 058,1**	**7 529,7**	**7 892,3**
EBIT (Operating Profit)	**1 534,0**	**1 668,1**	**1 665,8**	**1 736,4**	**1 661,4**	**1 740,9**	**1 830,7**	**1 930,5**
EBITDA	**2 031,5**	**2 229,1**	**2 253,7**	**2 367,7**	**2 338,6**	**2 449,9**	**2 585,7**	**2 698,9**
EBITDAR	**2 117,6**	**2 311,4**	**2 375,4**	**2 497,1**	**2 474,2**	**2 593,4**	**2 738,4**	**2 859,2**
Finance income	4,2	4,2	9,8	10,4	11,1	11,6	12,4	12,7
Interest payable on bank loans	(67,2)	(62,3)	(73,4)	(78,4)	(83,4)	(87,5)	(93,0)	(95,6)
G/L on Invest. HFS, Maturity & Trading	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Foreign exchange (loss)	(0,7)	2,1	(1,2)	(1,2)	(1,2)	(1,2)	(1,2)	(1,2)
Total other Income	**(63,7)**	**(56,0)**	**(64,8)**	**(69,1)**	**(73,4)**	**(77,0)**	**(81,8)**	**(84,0)**
Net Income Before Taxes	**1 470,3**	**1 611,3**	**1 601,0**	**1 667,3**	**1 587,9**	**1 663,9**	**1 748,9**	**1 846,5**
Provision for Income Taxes	154,4	161,1	200,1	208,4	198,5	208,0	218,6	230,8
Net Income	**1 315,9**	**1 450,2**	**1 400,9**	**1 458,9**	**1 389,4**	**1 455,9**	**1 530,3**	**1 615,7**
Income Available to Com Incl ExtraOrd	1 315,9	1 450,2	1 400,9	1 458,9	1 389,4	1 455,9	1 530,3	1 615,7
Basic Weighted Average Shares	**1 250**	**1 194**	**1 149**	**1 107**	**1 066**	**1 026**	**988**	**951**
Δ change	-6,81%	-4,50%	-3,71%	-3,71%	-3,71%	-3,71%	-3,71%	-3,71%
EPS	**1,05**	**1,22**	**1,22**	**1,32**	**1,30**	**1,42**	**1,55**	**1,70**
Share Based Payments	5,7	6,4	5,1	5,4	5,6	6,0	6,3	6,7

Appendix 2: Balance Sheet 2017-24 (source: Ryanair FY18 Results and own source)

Year	2017	2018E	2019F	2020F	2021F	2022F	2023F	2024F
Period End Date	31/03/2017	31/03/2018	31/03/2019	31/03/2020	31/03/2021	31/03/2022	31/03/2023	31/03/2024
Assets (€ Millions)								
Consumables	3,0	4,0	3,6	3,8	4,0	4,3	4,5	4,8
Current tax	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Derivative financial Instruments	286,0	212,0	255,7	255,7	255,7	255,7	255,7	255,7
Restricted cash	12,0	35,0	36,5	38,8	40,7	43,1	45,8	48,1
Financial Assets - Current	2 905,0	2 131,0	2222,9	2362,3	2477,1	2621,8	2789,1	2926,9
Cash and cash equivalents	1 224,0	1 515,0	1580,3	1679,5	1761,1	1863,9	1982,9	2080,8
Trade receivable	54,0	58,0	72,3	76,8	80,6	85,3	90,7	95,2
Prepayments	221,0	235,0	203,2	216,0	226,5	239,7	255,0	267,6
Interest receivable	1,0	1,0	3,3	3,5	3,7	3,9	4,2	4,4
Total Current Assets	**4 706,0**	**4 189,0**	**4377,8**	**4636,5**	**4849,4**	**5117,6**	**5427,8**	**5683,3**
Landing Rights	47,0	47,0	47,0	47,0	47,0	47,0	47,0	47,0
Available for sale financial assets	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Aircraft	7 146,0	8 047,5	8 443,3	9 065,3	9 724,9	10 177,2	10 836,9	11 025,3
Hangar and Buildings	49,0	55,2	59,0	64,4	68,9	74,4	80,3	85,1
Plant & Equipment	7,0	7,9	8,4	9,2	9,8	10,6	11,5	12,2
Fixtures and Fittings	10,0	11,3	12,0	13,1	14,1	15,2	16,4	17,4
Motor Vehicles	1,0	1,1	1,2	1,3	1,4	1,4	1,5	1,5
Derivative Financial Instruments	23,0	3,0	38,3	38,3	38,3	38,3	38,3	38,3
Total Non-Current Assets	**7 283,0**	**8 173,0**	**8 609,4**	**9 238,6**	**9 904,4**	**10 364,2**	**11 031,9**	**11 226,9**
Total Assets	**11 990,0**	**12 362,0**	**12 987,2**	**13 875,0**	**14 753,7**	**15 481,8**	**16 459,7**	**16 910,2**
Liabilities (€ Millions)								
Trade payables	294,0	250,0	267,3	284,1	297,9	315,3	335,4	351,9
Current maturities of debt	456,0	435,0	490,6	524,2	557,4	584,9	621,8	638,8
Derivative Instruments	2,0	191,0	249,3	249,3	249,3	249,3	249,3	249,3
Current tax (incl. Indirect taxes and duties)	579,0	650,2	650,4	677,4	645,1	676,0	710,5	750,2
Accruals	348,0	390,8	484,1	514,5	539,5	571,0	607,5	637,5
Unearned Revenue	1 333,0	1 497,0	1 419,9	1 509,0	1 582,3	1 674,7	1 781,6	1 869,6
Total Current Liabilities	**3 012,0**	**3 413,0**	**3 561,7**	**3 758,4**	**3 871,5**	**4 071,2**	**4 306,1**	**4 497,3**
Total Long Term Debt	3 929,0	3 529,0	4 033,2	4 309,0	4 581,9	4 808,0	5 111,7	5 251,6
Derivative financial instruments	3,0	416,0	177,0	177,0	177,0	177,0	177,0	177,0
Provisions	138,0	138,0	148,0	148,0	148,0	148,0	148,0	148,0
Deferred Tax	473,0	395,0	593,5	618,1	588,6	616,8	648,3	684,5
Other Creditors	12,0	3,0	38,8	38,8	38,8	38,8	38,8	38,8
Total Non-Current Liabilities	**4 555,0**	**4 481,0**	**4 990,9**	**5 290,8**	**5 534,3**	**5 788,6**	**6 123,8**	**6 299,9**
Total Liabilities	**7 567,0**	**7 894,0**	**8 552,6**	**9 049,2**	**9 405,8**	**9 859,8**	**10 429,8**	**10 797,2**
Total debt	**4 385,0**	**3 964,0**	**4 523,9**	**4 833,1**	**5 139,2**	**5 392,8**	**5 733,5**	**5 890,4**
D/A	0,37	0,32	0,35	0,35	0,35	0,35	0,35	0,35
Shareholders Equity (€ Millions)								
Treasury Shares	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Issued share capital	7,0	7,0	7,0	7,0	7,0	7,0	7,0	7,0
Share premium account	719,0	719,0	719,0	719,0	719,0	719,0	719,0	719,0
Other undenominated capital	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0
Retained earnings	3 457,0	4 078,0	4 441,0	4 818,9	5 178,9	5 556,2	5 952,7	6 371,3
Other reserves	237,0	(338,0)	(735,4)	(722,2)	(560,0)	(663,1)	(651,8)	(987,2)
Total Equity	**4 423,0**	**4 469,0**	**4 434,5**	**4 825,8**	**5 347,9**	**5 622,0**	**6 029,9**	**6 113,1**
Total Liabilities & Shareholders' Equity	**11 990,0**	**12 362,0**	**12 987,2**	**13 875,0**	**14 753,7**	**15 481,8**	**16 459,7**	**16 910,2**

Appendix 3: Cash Flow Statement 2017-24 (source: Ryanair FY18 Results and own source)

Year	2017	2018E	2019F	2020F	2021F	2022F	2023F	2024F
Period End Date	31/03/2017	31/03/2018	31/03/2019	31/03/2020	31/03/2021	31/03/2022	31/03/2023	31/03/2024
Cash Flow-Operating Activities (€ Millions)								
Net Income	1 315,9	1 450,2	1 400,9	1 458,9	1 389,4	1 455,9	1 530,3	1 615,7
Depreciation	497,5	561,0	587,9	631,3	677,2	708,9	755,0	768,4
Tax expense	154,4	161,1	200,1	208,4	198,5	208,0	218,6	230,8
Change in NWC	(40,6)	60,9	(63,9)	(145,5)	(65,3)	(153,8)	(176,7)	(156,7)
Cash from Operating Activities	**1 927,2**	**2 233,2**	**2 124,9**	**2 153,1**	**2 199,8**	**2 219,0**	**2 327,2**	**2 458,2**
Cash Flow-Investing Activities (€ Millions)								
Purchase of fixed Assets	(1 449,8)	(1 470,6)	(988,9)	(1 260,5)	(1 343,0)	(1 168,7)	(1 422,7)	(963,4)
Other Investing Cash Flow	157,8	774,0	(91,9)	(139,5)	(114,8)	(144,7)	(167,3)	(137,8)
Disposal of available for sale asset	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Decrease in restricted cash	1,2	(22,8)	(1,5)	(2,3)	(1,9)	(2,4)	(2,7)	(2,3)
Cash from Investing Activities	**(1 290,8)**	**(719,4)**	**(1 082,3)**	**(1 402,3)**	**(1 459,7)**	**(1 315,8)**	**(1 592,7)**	**(1 103,5)**
Cash Flow-Financing Activities (€ Millions)								
Shareholder returns	(1 017,9)	(829,1)	(1 037,9)	(1 080,9)	(1 029,4)	(1 078,7)	(1 133,8)	(1 197,1)
Net proceeds from shares issued	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Proceeds from long term borrowings	793,4	65,2	523,8	559,6	595,0	624,4	663,8	682,0
Repayments of long term borrowings	(447,1)	(458,9)	(483,9)	(517,0)	(549,7)	(576,8)	(613,3)	(630,1)
Cash from Financing Activities	**(671,6)**	**(1 228,2)**	**(998,01)**	**(1 038,27)**	**(984,13)**	**(1 031,16)**	**(1 083,23)**	**(1 145,12)**
Net Change in Cash	(35,2)	291,0	44,6	(287,4)	(244,0)	(127,9)	(348,8)	209,6
Net Cash - Beginning Balance	1 259,2	1 224,0	1 515,0	1 559,6	1 272,2	1 028,2	900,3	551,6
Net Cash - Ending Balance	1 224,0	1 515,0	1 559,6	1 272,2	1 028,2	900,3	551,6	761,2

Appendix 4: Change in Operating Expenses (%) 2017-24 (source: Ryanair FY18 Results and own source)

Year	2017	2018E	2019F	2020F	2021F	2022F	2023F	2024F
Staff costs	8,13%	16,67%	4,31%	6,28%	4,86%	5,84%	6,38%	4,94%
Depreciation	16,43%	12,76%	4,79%	7,38%	7,27%	4,68%	6,50%	1,78%
Fuel and oil	-7,63%	-0,55%	4,31%	6,28%	10,59%	5,84%	6,38%	4,94%
Maintenance, materials & repairs	8,21%	5,18%	9,45%	6,27%	4,86%	5,84%	6,38%	4,94%
Aircraft rentals	-25,20%	-4,41%	47,88%	6,28%	4,86%	5,84%	6,38%	4,94%
Route charges	5,27%	7,03%	4,71%	6,28%	4,86%	5,84%	6,38%	4,94%
Airport and handling charges	4,12%	8,53%	7,00%	9,00%	7,00%	8,00%	8,00%	6,00%
Marketing, distribution & other	10,11%	27,33%	4,31%	6,28%	4,86%	5,84%	6,38%	4,94%
Total Operating Expense	**0,75%**	**7,23%**	**5,66%**	**6,86%**	**7,44%**	**6,10%**	**6,68%**	**4,82%**

Appendix 5: Change in Operating Expenses on a per passenger basis (%) 2017-24 (source: Ryanair FY18 Results and own source)

Year	2017	2018E	2019F	2020F	2021F	2022F	2023F	2024F
Staff costs	-4,12%	7,44%	-2,51%	-2,50%	-2,00%	-2,00%	-1,50%	-1,00%
Depreciation	3,23%	3,85%	-2,06%	-1,49%	0,26%	-3,07%	-1,39%	-3,98%
Fuel and oil	-18,10%	-8,42%	-2,51%	-2,50%	3,35%	-2,00%	-1,50%	-1,00%
Maintenance, materials & repairs	-4,05%	-3,14%	2,29%	-2,50%	-2,00%	-2,00%	-1,50%	-1,00%
Aircraft rentals	-33,67%	-11,97%	38,21%	-2,50%	-2,00%	-2,00%	-1,50%	-1,00%
Route charges	-6,66%	-1,43%	-2,14%	-2,50%	-2,00%	-2,00%	-1,50%	-1,00%
Airport and handling charges	-7,68%	-0,05%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%
Marketing, distribution & other	-2,37%	17,27%	-2,51%	-2,50%	-2,00%	-2,00%	-1,50%	-1,00%
Total Operating Expense	**-10,67%**	**-1,24%**	**-1,25%**	**-1,96%**	**0,41%**	**-1,76%**	**-1,22%**	**-1,12%**

Appendix 6: Depreciations 2017-24 in M€ (source: Ryanair FY18 Results and own source)

Year	2018E	2019F	2020F	2021F	2022F	2023F	2024F
Aircraft	8 047,5	8 443,3	9 065,3	9 724,9	10 177,2	10 836,9	11 025,3
Hangar and Buildings	55,2	59,0	64,4	68,9	74,4	80,3	85,1
Plant & Equipment	7,9	8,4	9,2	9,8	10,6	11,5	12,2
Fixtures and Fittings	11,3	12,0	13,1	14,1	15,2	16,4	17,4
Motor Vehicles	1,1	1,2	1,3	1,4	1,4	1,5	1,5
Depreciation	561,0	587,9	631,3	677,2	708,9	755,0	768,4
% D&A	6,91%	6,90%	6,90%	6,90%	6,90%	6,90%	6,90%

Appendix 7: Sales by Geography FY2017 (source: Ryanair FY17 Annual Report)

	FY2017	%total
Ireland	739	11,12%
United Kingdom	1690,3	25,43%
Other Countries	4218,5	63,46%
Total	**6647,8**	**100,00%**

Appendix 8: Implied Default Spread by Credit Rating (source: Damodaran)

Rating is	Spread is
D2/D	18.60%
C2/C	13.95%
Ca2/CC	10.63%
Caa/CCC	8.64%
B3/B-	4.37%
B2/B	3.57%
B1/B+	2.98%
Ba2/BB	2.38%
Ba1/BB+	1.98%
Baa2/BBB	1.27%
A3/A-	1.13%
A2/A	0.99%
A1/A+	0.90%
Aa2/AA	0.72%
Aaa/AAA	0.54%

Appendix 9: Credit Suisse DCF model (source: Credit Suisse Equity Research)

€m	2019E	2020E	Stage 1 2021E	2022E	2023E	Long term performance	Terminal value
Revenue	7,706	8,355	9,041	9,785	10,595	10,913	
EBIT margin	22.1%	22.0%	21.8%	22.2%	22.6%	20.0%	30,469
EBIT	1,702	1,836	1,971	2,169	2,393	2,183	
Depreciation	622	685	751	818	884	911	Terminal
Operating cashflow (pre-working capital)	2,325	2,520	2,723	2,987	3,277	3,093	growth
Taxation	(181)	(194)	(211)	(233)	(259)	(266)	rate
Capex	(1,500)	(1,800)	(1,800)	(1,800)	(1,800)	(1,200)	
Disposals	0	0	0	0	0	0	3%
Other	0	0	0	0	0	0	
Free cashflow (pre WC/financing costs)	644	526	712	953	1,219	1,627	
PV of FCFs	547	412	514	634	810		

NPV Stage 1	2,917
Midcycle performance NPV	18,676
Enterprise value	21,592
Net cash (debt) at March 2018E	(141)
Equity value	21,451
Fair value per share (€)	18.04
WACC	8.5%

Appendix 10: Credit Suisse Multiples model (source: Credit Suisse Equity Research)

EV/IC methodology (€)		adj EV/EBITDAR methodology (€)	
FY19E invested capital	6,435	FY19E EBITDAR (m)	2,405
Midcycle multiple	3.3	Midcycle multiple	9.0
FY19E adj enterprise value (m)	21,236	FY19E adj enterprise value (m)	21,649
FY19E net cash (debt) (m)	596	FY19E net cash (debt) (m)	596
FY19E capitalised leases (m)	(647)	FY19E capitalised leases (m)	(647)
Equity value (m)	21,184	Equity value (m)	21,598
Equity value per share	17.66	Equity value per share	17.89
Average			17.78

€

Historical multiple-derived fair value	17.78

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