ISCTE Business School
Instituto Universitário de Lisboa

PHILIP MORRIS INTERNATIONAL: Equity Valuation

Luís Manuel Peças dos Santos

Project submitted as partial requirement for the conferral of

Master in Finance

Supervisor:
Prof. Luís Miguel da Silva Laureano, Assistant Professor ISCTE Business School,
Department of Finance

September 2019

ABSTRACT

The focus of this dissertation is on the equity valuation of Philip Morris International (PMI), Inc., the main publicly traded tobacco company. For that matter, the main goal of this paper is to determine how much PMI is worth and reach a fair price per share, which means to calculate how much the company worth given its assets and its position in the market.

As the objective of the thesis is to value only the equity part, the valuation approach followed the free cash-flow to the equity method. Additionally, is also done an overview of the principal equity valuation approaches, along with other topics considered as essential in a valuation methodology process.

Philip Morris International target share price is forecasted at 92$ and when compared with the price as of 31-Dec-18 of 66,76$, the last one is clearly undervalued.

Keywords: Equity Valuation, Free Cash-Flow to Equity (FCFE), Valuation Methodology, Undervalued

RESUMO

O objetivo desta dissertação é a avaliação de capitais próprios da Philip Morris International (PMI), Inc., a principal empresa de tabaco cotada em bolsa. Nesse sentido, o principal objetivo desta tese é determinar quanto vale a PMI e calcular um preço justo por ação. Esta análise é muito importante para os acionistas e todos os possíveis investidores, pois o mercado está em constantes alterações, o que torna difícil avaliar corretamente calcular o valor correto.

Visto que o objetivo da tese é avaliar o capital próprio, o método de avaliação utilizado foi o free cash-flow to the equity. Adicionalmente, é também feita uma análise geral acerca dos principais processos de avaliação, junto com outros tópicos considerados importantes num processo de metodologias de avaliação.

O "*share price*" calculado para a Philip Morris International é de 92$ e quando comparado com o preço a 31-Dez-2018 de 66,76$, este último está claramente subvalorizado.

Keywords: Avaliação de Capitais Próprios, Free Cash-Flow to Equity (FCFE), Metodologias de Avaliação, Subvalorizado

ACKNOWLEDGEMENTS

After two years of reconciling my professional life with the writing of this dissertation, many contributed to successfully overcome this stage. To my parents and girlfriend, thank you so much for all the patience and persistence over this time. To my great friends João and Filipa, I want to express my gratitude for all the support and follow up. Last but not least, I want to mention the name of Professor Luis Laureano for accepting to be my supervisor and for being available to give his advices and support over this time.

ABBREVIATIONS/ GLOSSARY

BS – Balance Sheet

CAGR – Compounded Average Growth Rate

CAPEX – Capital Expenditures

CAPM – Capital Asset Pricing Model

CoS – Cost of Sales

DCF – Discounted Cash Flow

DDM – Dividend Discount Model

EBIT – Earnings Before Interest and Taxes

EBITDA – Earnings Before Interests, Taxes, Depreciation and Amortization

EU – European Union

EURIBOR – Euro Interbank Offer Rate

EV – Enterprise Value

FCFE – Free Cash Flow to the Equity

FCFF – Free Cash Flow to the Firm

FY – Fiscal year

HDI – Human Development Index

MRP – Market Risk Premium

P/B – Price to Book Ratio

P/E – Price Earnings Ratio

PMI – Philip Morris International

Re – Cost of Equity

ROA – Return on Assets

ROE – Return on Equity

ROIC – Return on Invested Capital

TV – Terminal Value

WACC – Weighted Average Cost of Capital

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EXHIBIT INDEX

1. INTRODUCTION

Philip Morris International is a private tobacco company, headquartered in New York, with an Operation Center in Lausanne which products are sold in more than 180 markets. PMI is operating in six geographic segments: European Union Region ("EU"), Eastern Europe Region ("EE"), Middle East & Africa Region ("ME&A"), South & Southeast Asia Region ("S&SA"), East Asia & Australia Region ("EA&A") and Latin America & Canada Region ("LA&C"). This corporation has been growing over time and appears as one of the top players in the tobacco industry with around 14% of market share. Their brand portfolio is led by Marlboro and complemented with some medium-price brands such as L&M, Chesterfield and Philip Morris.

Regarding the financial indicators, Philip Morris International Net Revenues increased 11% from 2016 to 2018 to 29,6 billion dollars mainly driven by the increase of revenues from the reduced-risk products segment.

Currently the capital structure top 5 holders of institutional holdings are: Vanguard Group Inc. (125.492.442 shares), Blackrock Inc. (100.831.956 shares), State Street Corp. (59.840.584 shares), Capital World Investors (55.763.568 shares) and finally Capital Research Global Investors (37.541.038 shares).

The objective of this dissertation is to value the equity stake of Philip Morris International and get a fair price per share. Then, it will be compared this fair price with the price as of 31-Dec-18.

With the purpose of getting an appropriate valuation of the equity of the company, the valuation methodology that will be used is the Free Cash-Flow to Equity (FCFE).

All the information collected about the company (from Annual Reports, press-conferences, financial websites, etc) as much as the historical performance, were used to compute the forecasting analysis, which was the base to get the fair price per share.

Regarding the thesis structure, the first section (Chapter 2), the literature review, explains the different valuation methodologies and their key factors, the second section (Chapter 3) emphases is on the external environment of PMI, the tobacco industry and all the competitors. The third section (Chapter 4) gives an internal analysis of the company, the history of the firm, financial results, capital structure, etc. To conclude, in section four

(Chapters 5, 6 and 7) it is described all the valuation approach and all the assumptions made to get the fair price per share and then compare it with the price as of 31-Dec-2018.

2. LITERATURE REVIEW

2.1. Valuation Methodologies

Almost three decades ago, the financial experts were predicting an increase of importance of the firm's value estimation. Copeland (1991: 459) refers "how easy it is for the audience whether it's comprised of executives, graduate students, or undergraduate students, to fall into the pattern of viewing financial valuation as little more than an interesting sideshow." Indeed, the increase of the necessity of allocate the resources and take risky investments, led to a need of estimating the value of a company (Luehrman, 1997).

Through the Financial Literature Theories is clearly evidenced the existence of three major approaches to estimate the value of a company: the Discounted Cash-Flow methodology, the Relative Valuation (Valuation by Multiples) and the Contingent Claim valuation. There is not a perfect scenario or a perfect valuation method and, thus, different authors have contradictory opinions. For example, according to Lie and Lie (2002: 44), the DCF approach "is often abandoned in favor of valuation by multiples" because is difficult to estimate accurately the cash-flows and the best discount rate to better use this valuation method. However, in the opinion of Goedhart *et al.* (2005), "the discounted-cash-flow analyses as the most accurate and flexible method for valuing projects, divisions, and companies".

Back in the 70's, "discounted-cash-flow analysis emerged as the best practice for valuing corporate assets" (Luehrman, 1997: 132). According to Oded and Michel (2007) there are four methodologies to value an organization using this approach: I) adjusted present value, II) capital cash-flows. III) cash-flows to equity, and IV) free cash-flows to the firm. In the last methodology, the value of a business equals its expected future cash flows discounted to present value at the weighted average cost of capital (WACC) (Kaplan and Ruback, 1996; Luerhman, 1997). Also, the main differences between this methodologies are in the cash-flows to be discounted, the discount rate used and the tax shield related with the debt financing (Oded and Michel, 2007).

Relating the multiples valuation, Kim and Ritter (1999: 416) stated that "there is no clear-cut answer for which multiples be used" or according to Kaplan and Ruback (1995: 1067),

"there is no obvious method to determine which measure of performance – EBITDA, EBIT, net income, revenue and so on- is the most appropriate for comparison". There is not a multiple that could be uniformly accepted as "the one" to serve as the base of multiple valuation. Alford (1992) used the P/E multiple, Gilson *et al*. (2000) used various multiples to analyze the bankruptcy system, and Goedhart *et al*. (2005) used peers with similar prospects for ROIC and growth analyzes.

2.2. Discounted Cash-Flow Approaches

Discounted Cash-Flow valuation is based upon expected future cash-flows and discount rates (Damodaran, 2002). According to this author, this valuation methodology is easy to use for companies whose cash-flows are positive and can be estimated for the next periods. Luehrman (1997) divided this methodology into two steps: The first one, the business cash-flows should be forecast excluding the financial program (interest, dividends, etc.). Second, the discount rate should be adjusted, in which the WACC is the one of most common. To apply the fundamental DCF relationship to a business, the present value should equals the sum of the future cash-flows adjusted for timing and risk. Indeed, each cash-flow is deeply close to a risk assumption, that's why it implies the use of different discount rates.

2.2.1. Free Cash-Flow to the Firm

The Free Cash Flow to the Firm ("FCFF") covers the capital generated by the company that can be distributed to the company's equity and debt applicants. According to Damodaran (2002: 15: 0), this approach is "the sum of the cash-flows to all claim holders, which includes bondholders and preferred stockholders". This author also refers that are two ways of computing the FCFF:

$$FCFF = EBIT\,(1-T) - Variation\ on\ Net\ Working\ Capital - Capital\ Expenditures + Depreciation \quad (1)$$

This method consists in estimating the cash-flows before any of the claims mentioned before. It starts with the earnings before interest and taxes, net out taxes and reinvestment needs. This method also does not include any of the tax benefits due to interest payments.

$$FCFF = Free\ Cash - Flow\ to\ Equity + Interest\ Expense\ (1 - tax\ rate) + Principal\ Repayments - New\ Debt\ Issues + Preferred\ Dividends \quad (2)$$

In this method, Damodaran (2002) sums the cash-flow to the claim holders, cash-flows to lenders and cash-flows to preferred stock holders.

However, instead of splitting the free cash-flow model into two or three – stage models, it is possible to use a general version of this model (Damodaran, 2002):

$$Value\ of\ Firm = \sum_{t=1}^{t=\infty} \frac{FCFF_t}{(1+WACC)^t} \quad (3)$$

, where:

- $FCFF_t$ = Free Cash-Flow to firm in year t;

On the other hand, if the organization achieves a solid base and starts growing at a stable growth rate after that, it can be written as:

$$Value\ of\ Firm = \sum_{t=1}^{t=n} \frac{FCFF_1}{(1+WACC)^1} + \frac{FCFF_2}{(1+WACC)^2} + \cdots + \frac{[FCFF_t + TV_{t+1}]}{(1+WACC)^t} \quad (4)$$

Where Terminal Value can be written as:

$$TV_{t+1} = \frac{FCFF_t \times (1+g)}{WACC - g} \quad (5)$$

, where:

- g_n = Growth rate;

2.2.1.1. Cost of Capital

Thus, it is crucial to refer that these cash-flows should be discounted at the company's WACC (Massari *et al*., 2007). This indicator is a very important input into the capital budgeting process of firms because an organization should not take into account only the investment decisions but also the financing decisions, in each one is weighted by the portion of the capital structure it represents (Luehrman, 1997). Also, this WACC approach reflects that a firm's capital structure is equitable, which means that when the value of a future asset is uncertain, the worth of the future debt tax shield will also be indeterminate (Miles and Ezzel, 1980). However, the estimation of this rate is difficult

because many firms operate in many different industries (Kaplan and Peterson, 1998). According to Luerhman (1997), this discount rate is only suitable for the most common capital structures. Indeed, the reality is quite different, the WACC must be adjusted for the tax shields, issue costs, subsidies hedges, exotic debt securities, and dynamic capital structures.

Below it is presented the WACC's formula:

$$WACC = R_e \; x \; \frac{E}{E+D} + \; R_d \; x \; \frac{D}{E+D} \; x \; (1 - T_c) \quad (6)$$

, where:

- R_e is the cost of equity;
- R_d is the cost of debt;
- E is the equity;
- D is the Debt;
- And T_c is the corporate tax rate.

In fact, according to Luerhman (1997), the WACC – based standard is obsolete. With the improvement of the computer software's and the advance of the technology, along with new methodologies, better approaches appeared in the market, such as tools derived from option pricing or the adjusted present value. Also Kaplan and Ruback (1996) state that this approach is more difficult to implement because it involves the cost of capital to be calculated each period to contain the effect of changing leverage over time.

2.2.1.2. Cost of Equity

One of the most used theories about the estimation of the cost of capital is expressed by the Capital Asset Pricing Model (CAPM). This model was created by Sharpe (1964) and some years later was questioned by some authors, such as Fama and French (1996). Kaplan and Peterson (1998: 85) states that "CAPM defines a linear relationship between the firm's cost of equity (expected return) and the slope coefficient (beta) in a regression of the firm's equity returns on a market index". According to Sharpe (1964), this model was based in assumptions about the investor's utility functions, for instance the level of wealth and the risk aversion, given the same expected return. So, the return of an asset, according the Capital Asset Pricing Model is the risk-free rate plus the risk-premium (which depends from the beta) (Sharpe, 1964; Lintner, 1965).

Bellow it is presented the CAPM cost of equity (R_e) estimation:

$$R_e = R_f + \beta \text{ x } (R_M - R_f) \quad (7)$$

Where, R_f is the risk free rate, β is the relative risk of a specific asset, and $R_M - R_f$ is the risk required by investors to invest in a company with the same level of β, the market risk premium.

However, in the opinion of Fama and French (1996), mentioned before, there is a considerable uncertainty when estimating a firm's cost of capital which is similar to the risk faced when forecasting a project's cash flow.

2.2.1.2.1. Risk Free-Rate (Rf)

As shown before, the first input of the CAPM Model is the risk-free rate (Rf), which is the expected return on investment without risk (Oded and Michel, 2007). This means that when the risk of the investment is zero, the cost of equity (Re) is equal to the risk-free rate. According to Mukherji (2011: 75), "The risk-free rate is an important input in one of the most widely used finance models." This factor is an important input since it not only determines the intercept, but also affects the slope of the linear equation mentioned before.

2.2.1.2.2. Beta (β)

The second step of the CAPM Model is the measure of exposure to the systematic risk, which is the risk that the investment adds to a market portfolio (Damodoran, 2002). According to Kaplan and Peterson (1998), the estimation of a beta for an individual company holds a lot of statistical noise. Since the objective is to increase the accuracy, it is usual for the analysts to estimate the beta of a portfolio of a firm that operates in the "same line of business" as the company who is being valued (Kaplan and Peterson, 1998: 85). However, it is extremely difficult to find what Kaplan and Peterson (1998: 89) call "pureplay", since the precision of the beta estimation increases with a higher number of pure plays, finding a large number of companies specialized in the same business process is very hard. So, this authors propose an average beta for the industry, "Market-capitalization-weighted industry betas" (Kaplan and Peterson, 1998: 86).

Kaplan and Ruback (1996) proposes a valuation based on three different measures of systematic risk. The first one is a firm-based measure, using daily stock returns from the S&P 500. The second is an industry-based measure of systematic risk. The industry equity betas is computed betas using daily returns from a value-weighted portfolio of all New York and American Stock Exchange companies. Finally, the third measure is a market-based approach of systematic risk, which assumes that the systematic risk for all sample firms equals the risk of the assets of the market. This measure is computed calculating the leverage of non-financial and non-utility firms in the S&P 500.

2.2.1.2.3. Market Risk Premium ($R_M - Rf$)

The last parameter in the CAPM model is the Market Risk Premium, which denotes the difference between the Expected Return of the Market (R_M) and the Risk-Free Rate (Rf) cited before (Oded and Michel, 2007). According to Zenner *et al*. (2008: 1), this parameter **"**is one of the most critical metrics in finance", and reflects an incremental premium of, for example, a risk-free asset like U.S. Treasury Bonds to finance a diversified portfolio, required by the shareholders. Understand and quantify the MRP is an important segment of the value-creation process. As mentioned before, the decision-makers need an estimate of the market risk premium to determine their cost of capital to decide how much to pay for an acquisition, calculate the capital structure and to compare the costs of several sources of financing.

2.2.2. Free Cash-Flow to the Equity

The Free Cash-Flow to the Equity method permits to value only the equity stake of the company. Then, according to Damodaran (2002), is computed by discounting the expected cash flows to equity, which means the residual cash flows after subtracting expenses, reinvestments, tax obligations and interests and all the payments as you can see further:

$$\text{Free Cash-Flow to the Equity} = \text{Net Income} - (\text{Capital Expenditures} - \text{Depreciation}) - (\text{Change in Non-cash Working Capital}) + (\text{New Debt Issue} - \text{Debt Repayments}) \quad (8)$$

However, instead of splitting the free cash-flow model into two or three – stage models, it is possible to use a general version of this model (Damodaran, 2002). This value is then calculated by discounting all future cash flows at the cost of equity.

$$Value\ of\ Equity\ = \frac{FCFE_1}{(1+R_e)^1} + \frac{FCFE_2}{(1+R_e)^2} + \ldots + \frac{FCFE_t + TV_{t+1}}{(1+R_e)^t} \qquad (9)$$

Where:

- $FCFE_1$ – Expected FCFE in year t
- R_e – Cost of equity
- g – Perpetuity growth rate

Terminal Value can be expressed as the following:

$$TV_{t+1} = \frac{FCFE_t \times (1+g)}{R_e - g} \qquad (10)$$

2.2.3. Dividend Discount Model

2.2.3.1. Gordon Growth Model and Two-Stage Dividend Discount Model

According to Damodaran (2002: 13: 1), "the simplest model for valuing equity is the dividend discount model" that means that the value of a stock is the present value of expected dividends on it. This equity valuation also processes the cash available for shareholders after subtracting all the obligations but unlike the FCFE it also estimates the amount that will be distributed to investors.

The Gordon growth model computes value of a certain stock taking into account its expected dividends in the next time period as you can see below:

$$Value\ of\ a\ Stock = \frac{ED_t}{(R_e - g)} \qquad (11)$$

Where,

- ED_1 – Expected dividend in year t
- R_e – Cost of equity
- g – Perpetuity growth rate

On the other hand, since this formula does not take into account the changes of expected dividend growth rate (relies on a constant grow), emerged the two-stage dividend

discount model (Damodaran, 2002). This approach take in consideration different phases, the first where the growth rate is not stable for n years and the second phase where the growth rate stables forever.

$$Value\ of\ a\ Stock = \sum_{t=1}^{t=n} \frac{ED_t}{(1+R_{e,hg})^t} + \frac{P_n}{(1+R_{e,hg})^n} \qquad (12)$$

Where,

$$P_n = \frac{ED_{t+1}}{(K_{e,st} - g_n)^t} \qquad (13)$$

Where,

- ED = Expected dividend in year t
- R_e = Cost of Equity (hg: High Growth period; st: Stable growth period)
- P_n= Price (terminal value) at the end of year n
- g = Extraordinary growth rate for the first n years
- g_n = Steady state growth rate forever after year n

2.2.4. Adjusted Present Value

According to Myers (1974), the Adjusted Present Value methodology computes the value of the debt-related tax savings independently from the unleveraged firm value. For Luerhman (1997), the APV is based on the principle of *value additivity*, that means to divide the project into parts, value each piece and then sum them. The APV approach starts with the value of the firm without debt. As the debt is added, the net result on value reflects both the benefits and the price of borrowing. Then, the main advantage from borrowing is the tax profit and the price of borrowing is the add risk of bankruptcy (Damodaran, 2002).

Thus, the mechanism to value a firm according this approach is divided into three phases. The first step is to estimate the value of the organization if it was financed entirely by equity and discount the expected FCFF at the unlevered cost of equity. Then, compute the present value of the interest savings achieved by borrowing a certain amount of money. Lastly, is made an evaluation of the effect of borrowing money if the firm will go bankrupt, and the estimated cost of bankruptcy.

Value of Unlevered Firm with growing cash-flows at a constant rate of perpetuity:

$$\text{Value of Unlevered firm} = \frac{\text{FCFF}_0(1+g)}{\rho_u - g} \qquad (14)$$

, where:

- FCFF_0 is the current after-tax operating cash flow to the firm,
- ρ_u is the unlevered cost of equity
- g is the expected growth rate.

As shown, the computation is very similar to the FCFF approach. The single modification is about the discount rate used: in the APV methodology is used the unlevered cost of equity (ρ_u) instead the WACC. To estimate the unlevered cost of equity (ρ_u) it is necessary to calculate the unlevered beta of the firm.

$$\beta_u = \frac{\beta_{\text{current}}}{1 + (1 - t)\frac{D}{E}} \qquad (15)$$

, where:

- β_u = Unlevered beta of the firm
- β_{current} = Current equity beta of the firm
- t = Tax rate for the firm
- D/E = Current debt/equity ratio

The second phase of this methodology is about the calculation of the value of the tax shield which is a tax benefit discounted at the cost of debt:

$$\text{Value of the Tax Shield (if the tax savings are viewed as a perpetuity)} =$$
$$\frac{t_c\,(\text{Cost of Debt})(\text{Debt})}{Cost\ of\ Debt} = t_c \text{ x Debt} \qquad (16)$$

, where:

- t_c is the corporate tax rate;

According to Damodaran (2002), if the tax rate that changes over time is calculated in advance, the present value of tax benefits can still be computed. However, it is not possible to use the perpetual growth method used in the formula above. The rate these

financing cash flows should be discounted is object of discussion because their value can only be earned if the company has operating profits. As well as Damodaran (2002), Myers (1974) and Luehrman (1997) claims that the tax shield should be discounted by the cost of debt rate. In the opposite way, Milles and Ezzel (1980) believes that the cost of equity is the most suitable discount rate.

As well as the phases mentioned before, there is other crucial effect which can also considered to the all-equity firm value, the Expected Bankruptcy Costs and Net Effects. Thus, the last step pretends to estimate the effect of debt on the risk of a firm fall on default and take some expected bankruptcy costs. This calculation needs the probability of default with the additional debt and all the costs of bankruptcy. Then:

$$\text{Cost of Financial Distress} = (\text{Probability of Bankruptcy}) \text{ x } (\text{PV of BC}) = \pi_a \text{ x BC} \quad (17)$$

The probability of default (π_a) is highly variable across industries and can be computed based in two ways: the first is to estimate a bond rating and the second is to use a statistical approach, such as a probit to estimate the probability of default (Damodaran, 2002).

This valuation methodology has many advantages. According to Myers (1974), one of the biggest advantages of this model is that it helps the financial managers through many problems relying on the cost of capital. Also Luehrman (1997) argues that it allows valuing the several origins of value creation without the need of define a capital structure separately for each one.

2.2.5. Excess Return Models

Regarding Excess Return approach, according to Damodaran (2002), the value of a company can be expressed by the following formula:

$$\text{Value of a Firm} = \text{Capital invested currently in the firm} + \text{Present Value of dollar excess returns that the company expects to make in the future} \quad (18)$$

In this approach, the cash flows are considered normal return cash flows and the values higher or lower than the normal cash flows evaluated as excess return.

2.3. Relative Valuation (Multiples Valuation)

The method used to valuate private held companies is extremely more difficult and subjective than publicly companies. The private companies have not a visible and objective measure (a stock price for example) which will not allow to compare them between themselves because there are not "publicly observable market values" (Koeplin *et al*., 2000: 94). As mentioned before, the DCF approach is the supposed methodology to adopt when valuing any asset. However, according to Kaplan & Ruback (1995), even if the DCF approach allows to estimate a most reasonable value, the relative valuation provides the lowest valuation errors. The use of the DCF raises some problems, for example, if the same discount rate should be applicable for valuing public and private companies (Koeplin *et al*., 2000).

In the opinion of Goedhart, *et al*. (2005), the use of multiples is often misunderstood and misapplied. When firms with identical forecasts are matched, is not possible to compare its ratios directly because companies could have, for example, different expected growth rates and capital structures. However, a multiple analysis can generate insights to create value to a company. Many financial managers objective is to understand the reason why its multiples are different from the competitor. However, such comparison is only possible to achieve in the same industry or corporate segment (Lie and Lie, 2002).

To scope this it is very important to analyze the use of Multiples when estimating the value of a company. According to Kaplan and Ruback (1995), the use of comparables relies on two assumptions: When comparing two companies, their future cash flows and risks should be proportional and the performance measure (as EBITDA) is essentially proportional to value. As long as this assumptions are effective, this methodology will be much more accurate than any DCF approach because it already contains market expectations of future cash-flows and discount rates. Then, by the point of view of Goedhart, *et al*. (2005), there are four valid approaches that could help firms to use multiples correctly: the use of peers with similar ROIC and growth projections, of forward-looking multiples, and of enterprise-value multiples, as well as the adjustment of enterprise-value multiples for non-operating items. Otherwise, according to Damodaran (2002), there are two steps to relative valuation. The first consists in valuing the asset on a relative basis, the prices should be standardized to be converted into multiples. The second phase involves finding similar firms, which is very difficult because they probably

differ on risk, growth potential and cash flows, as mentioned before. Since the objective is to compare the values of similar firms in the market, it's necessary to standardize the values according to what is requested: "relative to the earnings firms generate, to the book value, the revenues that firms generate or to measures that are specific to firms in a sector" (Damodaran, 2002: 17: 2).

Once the financials for the comparable companies are defined, the next step of this methodology is to find the correct set of multiples to be used. According to Sharma and Prashar (2013:29), "the equity value of an asset or the value of the asset itself can be standardized using any of the formulas for P/E, value/EBIT, value/ EBITDA, P/B, value/book value of assets, and so on". According to Goedhart *et al*. (2005), P/E multiples have two major problems. The initial flaw is that P/E ratios are usually affected by changes in the capital structure. Companies entirely financed by equity cannot be compared with companies that are also financed by debt. Finally, this ratio is based on earnings which could comprise items that are not in the operational flow, such as write-off and restructuring charges. Alford (1992:96), also agrees with the idea mentioned before, "Adjusting *P/E* multiples for differences in leverage across comparable firms decreases accuracy; hence, my results do not support a recommendation to control for differences in leverage across comparable firms". On the other hand, the enterprise-value-to-EBITA multiple is less vulnerable by changes in the capital structure because the enterprise value also includes also debt and equity so variations in the structure will not have relevant effects (Goedhart *et al*., 2005).

2.4. Contingent Claim Valuation

The primarily characteristic of this approach is the recognition that a certain event could occur, or not. Damodaran (2002: 14: 2) refers, "Perhaps the most significant and revolutionary development in valuation is the acceptance, at least in some cases, that the value of an asset may not be greater than the present value of expected cash flows if the cashflows are contingent on the occurrence or non-occurrence of an event.".

Then, contingent claim valuation is based on option pricing methods that are used to quantify the value of assets that comprises certain option characteristics, that is, value an opportunity in the same way that values a financial option.

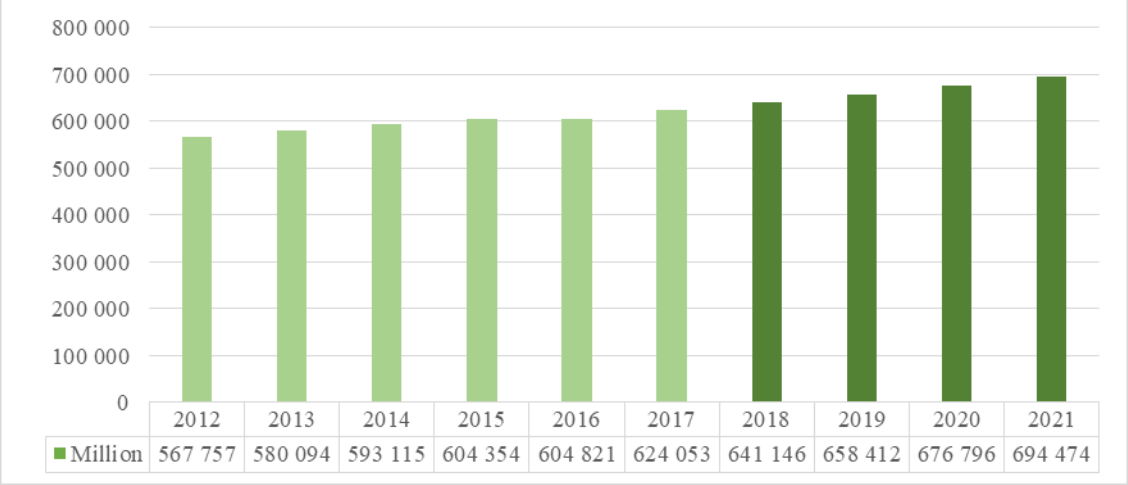
Investing in options is investing in a securities giving the opportunity (not the obligation) to buy or sell an asset under some specificities (Black *et al*., 1973). Also according Luehrman (1997: 137) refers that are similarities between value an opportunity and value a financial option “”if R&D proves that the concept is valid” is analogous to “if the stock price rises in the next few months.”.Similarly, “we’ll go ahead and invest” is analogous to “we’ll exercise the option.”.

3. SECTOR OVERVIEW

3.1. Global Tobacco Industry

The global tobacco sector's worth was estimated at approximately 604.354 million dollars in 2016 (see exhibit: 1). This industry grew 2,6% between 2012 and 2016 and the projections point towards a 2,8% CAGR until 2021, meaning that the sector will be worth approximately 694.474 million dollars by the end of 2021.

Exhibit 1 - Global tobacco market value: $ million, 2012-2021

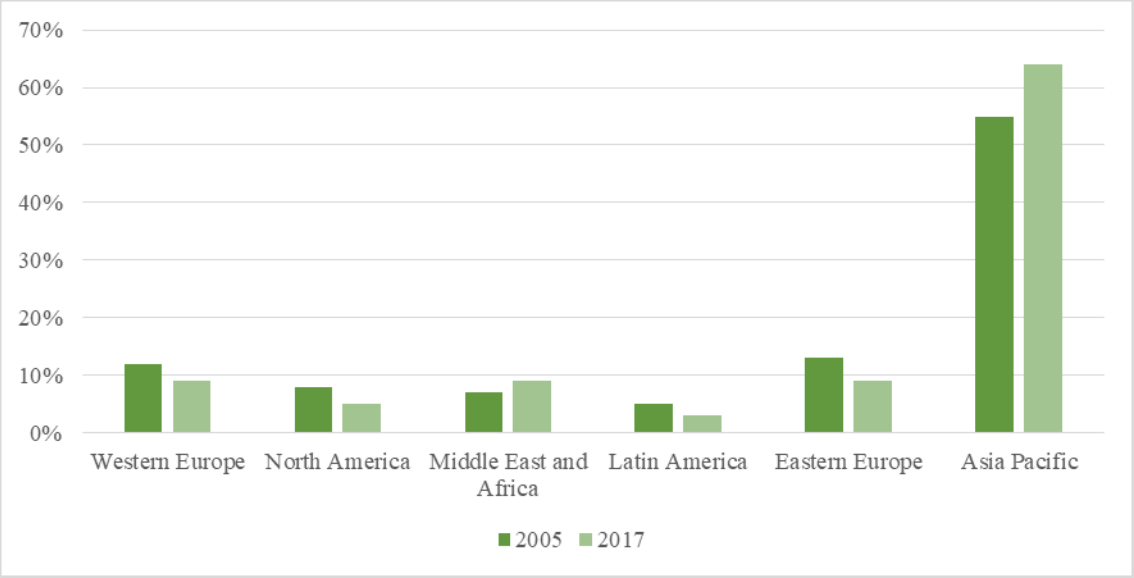


	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Million	567 757	580 094	593 115	604 354	604 821	624 053	641 146	658 412	676 796	694 474

Source: Marketline, 2017

Worldwide, cigarette consumption is growing in middle-income countries and decreasing in high-income countries. As we can see in Exhibit 2, from 2005 to 2017 the global cigarette market from the Middle East and Africa increased 2 pp and the Asian-Pacific increased 9 pp. The numbers are changing from developed markets (Europe for example), where smoking frequency is declining due to anti-tobacco policies forced by the governments. On the other hand, emerging markets are taking full advantage of low tax regulatory environments mixing with the growing population.

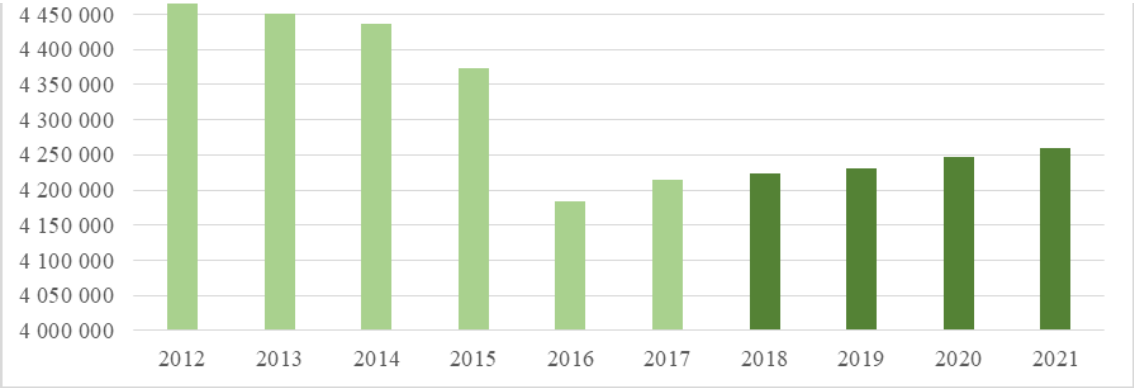
Exhibit 2 - Global cigarette market by region



Source: Campaign for Tobacco-Free Kids – The Global Cigarette Industry, 2018

In terms of market volume, the tobacco sector's consumption declined with a CAGR of -1,6% between 2012 and 2016, to a total of approximately 4.183.456 million pieces. See exhibit 3. By the other side, the industry's volume is expected to reach 4.259.856 million pieces by the end of 2021, which represents a CAGR of 0,4% for the forecasted period.

Exhibit 3 - Global tobacco market volume: million pieces, 2012 - 2021



Source: Marketline, 2017

3.2. Cigarette Consumption per Age, Region and Person

Back in 2016, more than 5,7 trillion cigarettes were consumed in the world. Even with a lower number than in previous years, the future of worldwide tobacco control is very uncertain. Despite the commitment of the biggest tobacco companies, there are some countries where control and illegal tobacco remain at extremely high levels. For example,

important reductions in the Australia, United Kingdom, and Brazil have been offset by lack of tobacco legislation in China.

According with Tobacco Atlas 5th edition, the future is not shining. It is expected a higher consumption of tobacco products in many low-and medium- HDI[1] countries, such as Indonesia with an increase of 24 million and Nigeria with 7 million from 2015 to 2025. As we can see in Exhibit 4, a person in Russia smokes approximately 2249,9 cigarettes per year. Some of other countries whose number is also very high are, Andorra, Luxemburg, Belarus, Macedonia, Albania, Belgium, Czech Republic, Jordan, Russia and Syrian Arab Republic.

Exhibit 4 - Number of cigarettes smoked per person per year: age >15, 2016

COUNTRY	HDI classification	Cigarette consumption by person per year
Andorra	Very high	6398,3
Lux.	Very high	6330,8
Belarus	High	2911,3
Macedonia	High	2784,9
Albania	High	2491,6
Belgium	Very high	2440,9
Czech Rep.	Very high	2427,9
Jordan	High	2306,1
Russian Federation	Very high	2294,9
Syrian Arab Rep.	Low	2291,7
Slovenia	Very high	2236,5
Greece	Very high	2078,5
Hungary	Very high	2060,3
China	High	2043

Source: Tobacco Atlas 5th edition, 2015

3.3. Largest Cigarette Markets

From the last Global Cigarette Industry report (2018) results, the five largest cigarette consuming regions were China, Indonesia, Russia, USA and Japan – resulting in a retail volume of 61,7% of the volume of all cigarettes sold in 2017.

[1] *Human Development Index*

Exhibit 5 - Cigarettes retail volume per country

Country	Retail Volume, 2017 (BN Sticks)
China	2368,9
Indonesia	308,2
Russia	258,9
USA	252,7
Japan	151,4
Turkey	106,2
Egypt	93,1
Bangladesh	88,9
India	81,3
Germany	79,0

Source: Campaign for Tobacco-Free Kids – The Global Cigarette Industry, 2018

- China is the biggest cigarette market in the world, which represents almost 2.400 billion sticks[2] sold, almost 213 billion dollars. Regarding these results, their sales are decreasing while sales of lower tar[3] cigarettes are increasing, according to 2018 Global Cigarette Industry results. In 2017, the sales volume increased 0,8% when compared to 2016, marking the first increase since 2013;

- Back in 2017, Russia was the third country with the highest retail volume, with almost 360 billion sticks sold. However, Russia cigarette sales by volume decreased by 25,2% between 2013 and 2017. Only between 2016 and 2017, retail volume declined 7,2%. With a 33,6% of market share, Japanese Tobacco is the market leader in this country;

- Indonesia cigarette market is very specific because their sales are influenced by Kreteks (a cigarette made by a blend of tobacco and cloves). Even with a retail volume of 308,2 billion sticks, Indonesia cigarette market decreased 2,5% between 2016 and 2017.

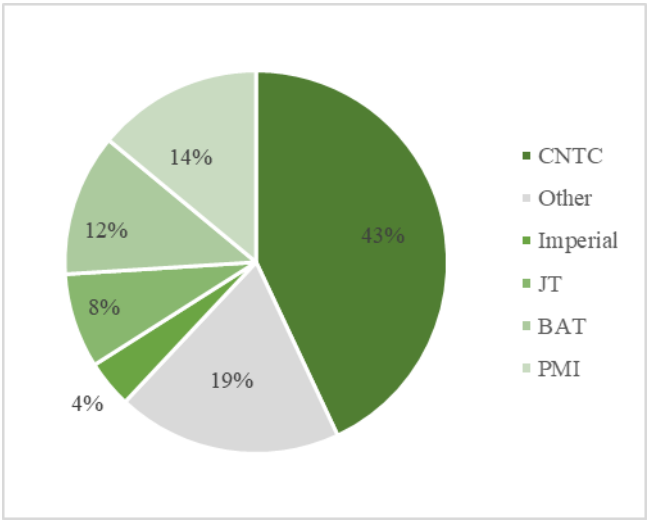
3.4. Tobacco Industry – Major Key Players

In an era that cigarette sales are increasing in a new market set, the tobacco industry market shares are consolidating and held by a group of companies. Back in 2001, five tobacco companies were responsible for approximately 43% of the market sales.

[2] Regular cigarette.
[3] A type of cigarette with less tobacco tar than a regular cigarette when smoked.

However, as you can see in Exhibit 6, in 2017 the same 5 companies dominate almost 80% of the market. These companies are British American Tobacco, Japan Tobacco Inc., Imperial Tobacco Group, China National Tobacco Corporation and Philip Morris International.

Exhibit 6 - Tobacco Company Shares of Global Cigarette Market, by retail volume in 2017



Source: Campaign for Tobacco-Free Kids – The Global Cigarette Industry, 2018

- The China National Tobacco Organization (CNTC), which produces almost half of the world's tobacco cigarettes, is the biggest tobacco company in the world. In the last few decades, their focus has been supplying the domestic market – China represents almost one-third of the world's smokers. However, since this market has become very saturated, CNTC focus became the expansion to new markets, although in a first phase only in Asia. It is also important to refer that CNTC was omitted from any more deep analysis because it operates in a different professional environment that makes the comparison unrealistic.

- British American Tobacco (BAT) is an international publicly traded tobacco company based in London who employ over 55.000 people globally. Their business is sale of tobacco products, cigarettes, cigars, e-cigarettes, tobacco heating products and other tobacco products. BAT is present in more than 200 markets, such as, markets in America, Western Europe and Asia-Pacific, and owns 11,8% of the global tobacco market. They have a portfolio of over 200 brands and their top selling brands are Rothmans, Kent, Dunhill and Lucky Strike.

Concerning the tobacco brands mentioned before, according to British American Tobacco 2017 Annual Report:

- Rothmans increased 14,3% mainly driven from Russia, Poland, Nigeria and Colombia Markets.
- Kent volume increased 11,2% driven by Japan, Turkey and Brazil;
- Dunhill market share has been growing consistently over the last years and already has a key role in BAT's growth strategy, which represents, 50% of all the cigarettes they sell;
- Lucky Strike market share and volume increased to 12,2% due to growth in Indonesia and Spain;

From 2016 to 2017, their revenue increased almost 38% and their total assets increased 254,6%, mainly due to the acquisition of Reynolds American Inc. (Reynolds America or RAI), which amplified both the scale and geographic reach of their business. In 2017, BAT cigarette volume from subsidiaries was 686 billion, an increase of 3,2% from the previous year.

Exhibit 7 - British American tobacco p.l.c – Financial Indicators

British American Tobacco p.l.c: Key Financials (Million GDP)						
	2012	**2013**	**2014**	**2015**	**2016**	**2017**
Revenues	15 190	15 260	13 971	13 104	14 751	20 292
Net Income (Loss)	3 797	3 904	3 115	4 290	4 648	37 533
Total Assets	27 327	26 881	26 167	31 515	39 773	141 038
Total Liabilities	19 548	19 946	20 353	26 483	31 367	80 012

British American Tobacco p.l.c: Key Financials Ratios						
	2012	**2013**	**2014**	**2015**	**2016**	**2017**
Profit Margin	25,0%	25,6%	22,3%	32,7%	31,5%	185,0%
Revenue Growth	-	0,5%	-8,4%	-6,2%	12,6%	37,6%
Asset Growth	-	-1,6%	-2,7%	20,4%	26,2%	254,6%
Liabilities Growth	-	2,0%	2,0%	30,1%	18,4%	155,1%
Debt/Asset Ratio	71,5%	74,2%	77,8%	84,0%	78,9%	56,7%
Return on Assets	13,9%	14,5%	11,9%	13,6%	11,7%	26,6%

Source: British American Tobacco Annual Report, 2017.

- Japan Tobacco Inc. (JT) is a leading tobacco company headquartered in Geneva, Switzerland. JT company also deals with pharmaceuticals and food businesses. With tobacco products present in more than 130 countries, it is the fourth largest

tobacco company, controlling approximately 8% of the global cigarette market. Their tobacco business is the JT group's growth accelerator, generating over 60% of the organization operating profit.

According to Japan Tobacco Inc. 2017 Annual report, they sold approximately 398,5 billion units in 2017 and 398,7 billion units in 2016, which represents a decline of 0.1%. Regarding their revenues, they increased 9,2% from 2012 to 2017, mainly due to their 60% market share in the Japanese Domestic Tobacco business.

Exhibit 8 - Japan Tobacco Inc. – Financial Indicators

Japan Tobacco Inc: Key Financials (Billions of Yen)						
	2012	**2013**	**2014**	**2015**	**2016**	**2017**
Revenues	2 120,2	2 399,8	2 259,2	2 252,9	2 143,3	2 139,7
Net Income (Loss)	316,0	428,0	391,4	398,5	421,7	392,4
Total Assets	3 852,6	4 616,8	4 704,7	4 558,2	4 744,4	5 221,5
Total Liabilities	1 960,1	2 020,7	2 082,2	2 036,7	2 216,3	2 379,5

Japan Tobacco Inc: Key Financials Ratios						
	2012	**2013**	**2014**	**2015**	**2016**	**2017**
Profit Margin	14,9%	17,8%	17,3%	17,7%	19,7%	18,3%
Revenue Growth	-	13,2%	-5,9%	-0,3%	-4,9%	-0,2%
Asset Growth	-	19,8%	1,9%	-3,1%	4,1%	10,1%
Liabilities Growth	-	3,1%	3,0%	-2,2%	8,8%	7,4%
Debt/Asset Ratio	50,9%	43,8%	44,3%	44,7%	46,7%	45,6%
Return on Assets	8,2%	9,3%	8,3%	8,7%	8,9%	7,5%

Source: Japan Tobacco Inc. Annual Report, 2017

Regarding JT's brand portfolio it is possible to highlight two tobacco brands, Winston and Camel:

- In 2017 Camel grew the volume and share for the fourth consecutive year. Only this brand sold 52,7 billion cigarettes, an increase of 1,1% from 2016. This magnificent performance was mainly driven by several emerging markets, such as the Brazilian, the Philippines and Tunisia.
- Winston is the leading brand of the Japanese Tobacco portfolio with a volume of 144,3 billion cigarette, more 3,5% when compared to 2016.

- Imperial Tobacco Group is a British tobacco company that controls approximately 3,7% of the global cigarette market. This company has businesses in more than 160 markets which represent a total group tobacco volume of 265,2 billion sticks,

minus 4,1% when compared to 2016. From 2016 to 2017, Imperial also increase their revenues by 9,5% mainly due to key growth markers, such as, Italy, Russia, Japan and Saudi Arabia.

Exhibit 9 - Imperial Tobacco Group p.l.c – Financial Indicators

Imperial Tobacco Group p.l.c: Key Financials (Million GDP)						
	2012	**2013**	**2014**	**2015**	**2016**	**2017**
Revenues	28 574	28 269	26 460	25 289	27 634	30 247
Net Income (Loss)	699	961	1 445	1 723	669	1 446
Total Assets	27 639	28 418	25 891	30 134	32 729	30 990
Total Liabilities	21 555	22 770	20 428	24 438	26 987	24 764

Imperial Tobacco Group p.l.c: Key Financials Ratios						
	2012	**2013**	**2014**	**2015**	**2016**	**2017**
Profit Margin	2,4%	3,4%	5,5%	6,8%	2,4%	4,8%
Revenue Growth	-	-1,1%	-6,4%	-4,4%	9,3%	9,5%
Asset Growth	-	2,8%	-8,9%	16,4%	8,6%	-5,3%
Liabilities Growth	-	5,6%	-10,3%	19,6%	10,4%	-8,2%
Debt/Asset Ratio	78,0%	80,1%	78,9%	81,1%	82,5%	79,9%
Return on Assets	2,5%	3,4%	5,6%	5,7%	2,0%	4,7%

Source: Imperial Tobacco Group p.l.c. Annual Report, 2017

Concerning Imperial Tobacco Group huge portfolio brands, it is possible to highlight John Player Special and Davidoff.

- John Player Special (JPS), Parker & Simpson and Fine growth in volume and share was driven by JPS and Parker & Simpson good numbers. The first in the UK and the second in Russia had an enthusiastic performance, supported by the introduction of new packaging formats
- Regarding Davidoff cigarettes brand, large investments in brand equity and activation led to a market share increase in Greece.

3.5. Reduced Risk Products – A new era

Before presenting this new segment, it is important to explain to the readers that in the "tobacco dialect", when we refer a reduced risk product, it is not a 100% risk-free product. Since FDA (US Food and Drug Administration) did not published their scientific opinion yet, it is essential to refer to these products by having a potential to be a reduced risk, which means that is not completely proved.

In the last few decades, all the big five tobacco companies have been investing in science and innovation to bring to the market some smoke-free products. Their goal was to replace the conventional cigarettes by smoke-free products.

According to British American Tobacco 2017 annual report, since 2012 they invested approximately 2,5 billion dollars in development and commercialization of what they call by "Next Generation Products" (NGPs). BAT is completely dedicated in creating a new range of products that may serve as an alternative to tobacco and nicotine products that do not burn tobacco but delivers the nicotine to the user. Their goal was, by the end of 2018, to generate over 1 billion GDP in revenue from NGPs and, by 2022, to have increased that number to 5 billion GDP. BAT next generation products could be segmented in two different categories: vapor and tobacco heating products. Their flagship tobacco heating product – glo – was created in the UK by over 100 experts and was already launched in Japan. In 2017, the NGPs portfolio contributed with approximately 500 million GDP of revenue, which is impressive for a new product in this segment.

JTI is really investing in this potential reduced risk tobacco segment and defined three key areas of change: Technology – An advanced range of e-cigarettes and tobacco products to match the consumer needs; Device Quality – being constantly improving the reliability of their product; and finally the Choice - give to the consumer the opportunity to choose from a huge range of flavors, liquids and nicotine levels.

Imperial Tobacco Group is also deeply committed in the transition of smokers to their thriving and expanding NGP portfolio. As mentioned before, NGP offers better and healthier alternatives to combustible tobacco and they divided this category in three main segments: heated tobacco, vapour and oral nicotine. Since the focus of this dissertation is in PMI business role (combustible and reduced-risk products), vapour and oral nicotine products will be excluded from further analysis. Heated tobacco products are devices that heat tobacco instead of burning it, which allows to release flavor and nicotine aerosol instead of smoke. Imperial also has their own tobacco device – blu – a vapour that has been tested in Asia and Europe but unlike some other tobacco companies they do not sell heated tobacco products. According to Imperial 2017 annual report, their net revenue from this segment was approximately 1.172 million GDP, an increase of 12,5% when compared to 2016.

4. PHILIP MORRIS INTERNATIONAL - INTERNAL ANALYSIS

4.1. Company overview

Philip Morris International Inc. was founded in 1847 in London as a tobacco seller and as cigarettes manufacturer. Nowadays is an important international tobacco company, headquartered in New York – United States of America, with an Operation Center in Lausanne – Switzerland and committed with the manufacture and sale of cigarettes, smoke-free products and related electronic devices and accessories.

Since day one and due to organic growth, competitor's acquisitions and geographic expansion, Philip Morris products are sold in more than 180 markets. They have a various range of premium products led by Marlboro, the best-selling tobacco brand in the world which represented around 36% of PMI's shipment volume in 2018.

PMI is also modifying the way how people smoke, its creating a smoke free world. According to PMI's CEO André Calantzopoulos in a press-conference given to *The-Times* in 2016 he says "One day I hope we won't sell cigarettes". This was a very strong sentence given by the boss of one of the largest publicly traded tobacco companies, the *Marlboro boss*. As such, PMI's *IQOS* smoke-free creation included heated tobacco and nicotine-containing aerosol products.

Exhibit 10 - PMI's facts across years

Year	Fact
1908	Marlboro brand is established and registered as a trademark
1950	PMI launched an international operating division to manufacture and market products around the world
1972	Marlboro becomes the world's number one selling cigarette
1987	PMI is incorporated as an operating company of Philip Morris Companies Inc.
2013	PMI establishes a strategic framework with Altria Group, Inc. under which Altria makes available its e-cigarette products to PMI for commercialization outside the US and PMI makes available two of its candidate reduced-risk products exclusively to Altria for commercialization in the US
2014	PMI pilots IQOS, its first heat - not - burn platform.

Source: Philip Morris International Website

Regarding the PMI capital structure, according to Yahoo Finance, the top-5 holders of institutional holdings are: Vanguard Group Inc., Blackrock Inc., State Street Corp., Capital World Investors and Capital Research Global Investors which all together perform approximately 24,4%.

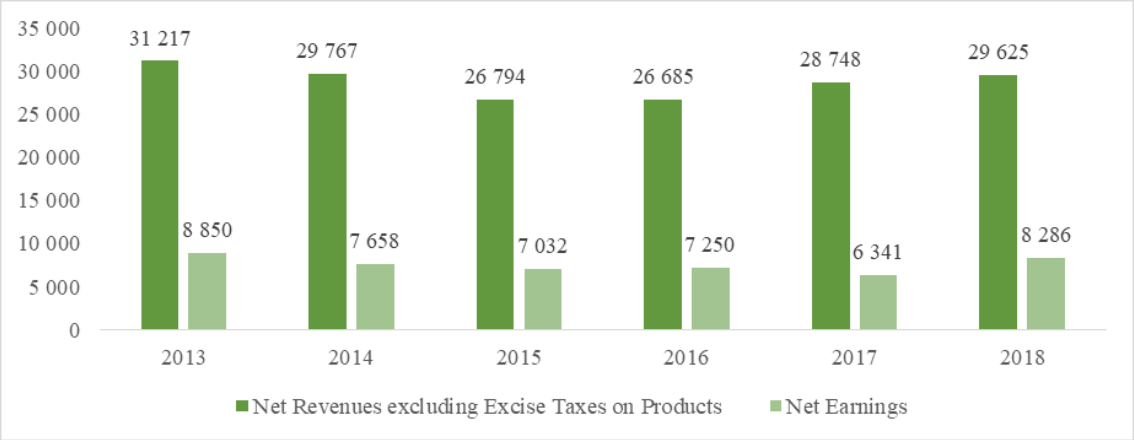
According to PMI annual report, since January 1, 2018, the company started a geographic transformation to improve the focus on both parts of their business – combustible and reduced-risk products:

- The European Union Region ("EU") is based in Lausanne, Switzerland and includes all the European Union countries.
- The Eastern Europe Region ("EE") is also based in Lausanne and comprises Southeast Europe, Central Asia, Russia and Ukraine.
- The Middle East & Africa Region ("ME&A") is also headquartered in Lausanne and covers African Continent and Middle East.
- The South & Southeast Asia Region ("S&SA") is based in Hong Kong and comprises Indonesia, Philippines and other markets in this area.
- The East Asia & Australia Region ("EA&A") is also headquartered in Hong Kong and includes Australia, Japan, South Korea, Malaysia and Singapore.
- The Latin America & Canada Region ("LA&C") is based in New York and covers South American Continent, Central America, Mexico, Caribbean and Canada.

4.2. Economic and Operating Performance - GEOGRAPHIC MIX

From 2013 to 2016, Philip Morris International Net Revenues excluding excise on taxes decreased 4.532 million dollars which represents a decrease of almost 15%. Net earnings followed the same trend, decreasing from 8.850 million dollars to 7.250 million dollars, a decrease of 18%. From 2016 to 2017 the Net Revenues increased almost 8% but net earnings decreased 12,5%.

Exhibit 11 - PMI's Net Revenues excluding excise taxes and Net Earnings, $ million

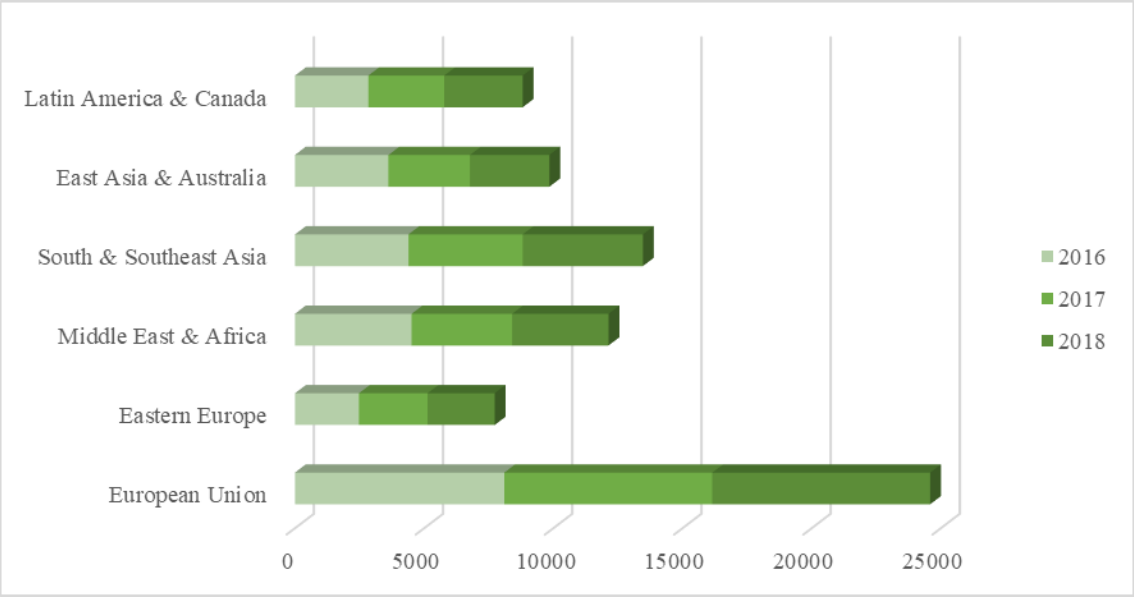


Source: Philip Morris International Annual Report, 2018.

From 2016 to 2018, PMI's net revenue increased around 11% overall, which is comprised by an increase of 458% driven from the reduced-risk products and a decrease of 1,6% from the combustible products.

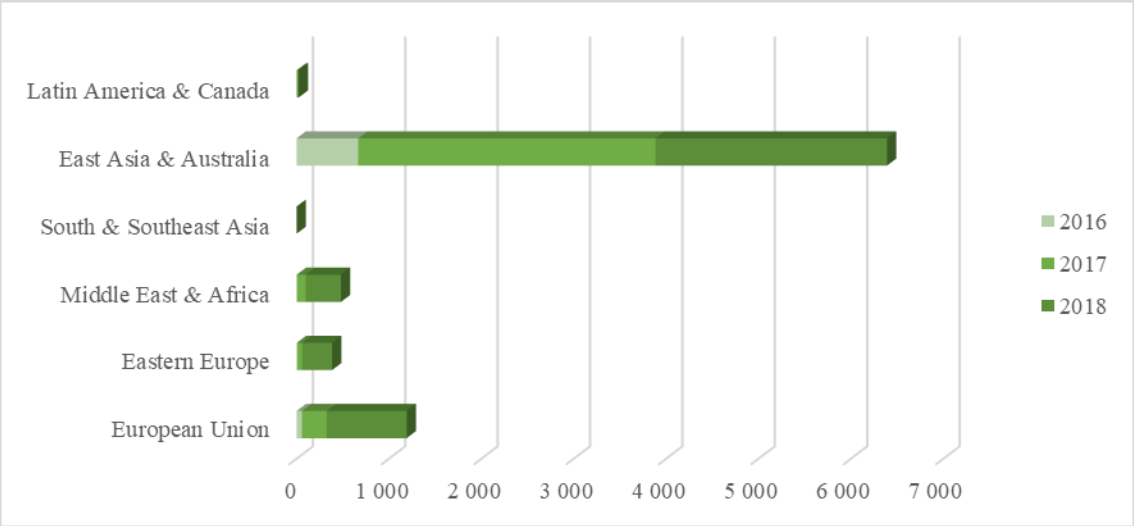
As mentioned before, PMI reports on six different segments according to the geographic area in which the consumer is: The European Union Region (EU), the Eastern Europe Region (EE), the Middle East & Africa Region (ME&A), the South & Southeast Asia Region (S&SA), the East Asia & Australia Region (EA&A) and finally the Latin America & Canada Region (LA&C).

Exhibit 12 - PMI's Combustible Products Net Revenue excluding excise taxes, by region - $ millions



Source: Philip Morris International Annual Report, 2018.

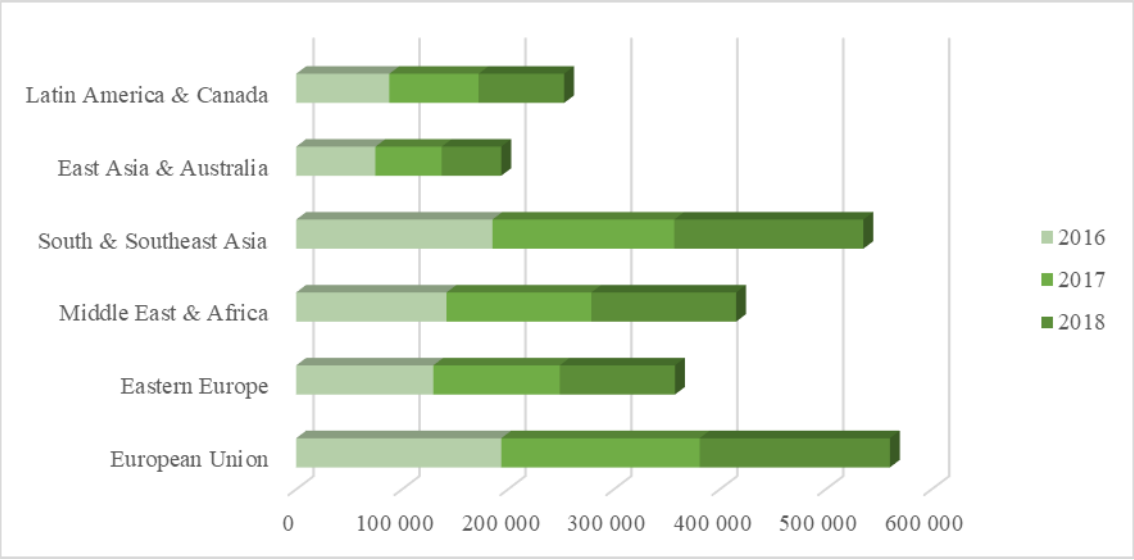
Exhibit 13 - PMI's Reduced-Risk Products Net Revenue excluding excise taxes, by region - $ millions



Source: Philip Morris International Annual Report, 2018.

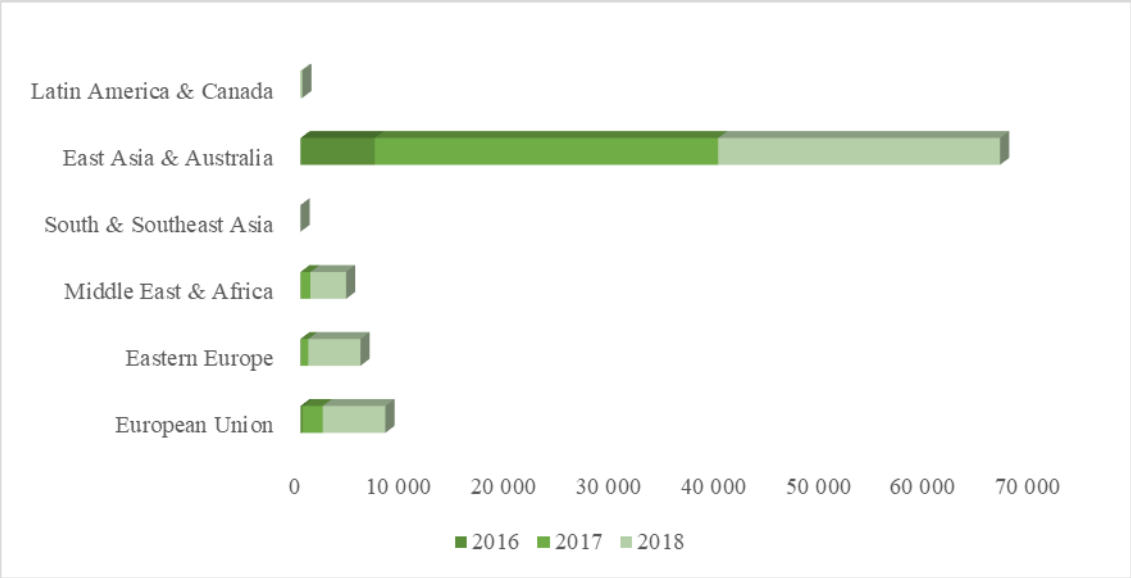
From 2016 to 2018, PMI's shipment volume decreased around 4,7% overall which is supported by an increase of 459% in the reduced-risk products volume and a decrease of 8,9% in the combustible products volume.

Exhibit 14 - PMI's Combustible Products volume by region – million units



Source: Philip Morris International Annual Report, 2018.

Exhibit 15 - PMI's Reduced-Risk Products volume by region – million units



Source: Philip Morris International Annual Report, 2018.

4.2.1. European Union

European Union (EU) segment has been the main biggest contributor of total PMI shipment volume, reporting around 179 thousand million units from combustible products and around 6.000 million units from reduced-risk products in 2018. Despite this numbers the EU region presents a downward trend about the combustible products shipment, reflected on a 3,3% decrease from 2016 to 2017 and a 7,2% decrease from 2017 to 2018. However, in the reduced-risk segment, EU region increased their volume around 2.568% from 2016 to 2018.

Concerning the EU region Net Revenues, represented around 31,4% of all PMI's net revenue in 2018. From 2016 to 2018 there was an increase of 4% of combustible products and an increase of 1.418% of the reduced-risk products segment in the same timeline.

4.2.2. Eastern Europe

Eastern Europe (EE) reported around 109 thousand million units from combustible products and around 5.000 million units from reduced-risk products. Despite these numbers the EE region presents a downward trend about the combustible products shipment, reflected on a 7,8% decrease from 2016 to 2017 and a 16% decrease from 2017 to 2018. However, in the reduced-risk segment, EE region increased their volume around 7.680% from 2016 to 2018.

Concerning the EE region Net Revenues, represented around 9,9% of all PMI's net revenue in 2018. From 2016 to 2018 there was an increase of 4,8% of combustible products and an increase of 5.300% of the reduced-risk products segment in the same timeline.

4.2.3. Middle East & Africa

Middle East & Africa (ME&A) reported around 136 thousand million units from combustible products and around 3.500 million units from reduced-risk products. Even though, the ME&A region presents a downward trend about the combustible products shipment, reflected on a 3,6% decrease from 2016 to 2017 and a 3,8% decrease from 2017 to 2018. However, in the reduced-risk segment, ME&A region increased their volume around 9353% from 2016 to 2018.

Concerning the ME&A region Net Revenues, represented around 13,9% of all PMI's net revenue in 2018. From 2016 to 2018 there was a decrease of 17,3% of combustible products and an increase of 9450% of the reduced-risk products segment in the same timeline.

4.2.4. South & Southeast Asia

South & Southeast Asia (S&SA) reported around 180 thousand million units from combustible products. According to the latest PMI's report, they pretend to introduce the reduced-risk products segment in this region in 2020. Even with these numbers the S&SA region presents a downward trend about the combustible products shipment, reflected on a 7,4% decrease from 2016 to 2017 and a 3,7% decrease from 2017 to 2018.

Concerning the S&SA region Net Revenues, represented around 15,7% of all PMI's net revenue in 2018 and from 2016 to 2018 there was an increase of 5,9% driven only from combustible products.

4.2.5. East Asia & Australia

East Asia & Australia (EA&A) reported around 56 thousand million units from combustible products, which represents 67,6% of the total volume shipped of this region and around 27 thousand million units from reduced-risk products – 32,4% of the total

volume shipped by this region. EA&A is, by far, the most influent region in the reduced-risk products segment, even by volume as by net revenues.

Also, EA&A region presents a downward trend about the combustible products shipment, reflected on a 16,2% decrease from 2016 to 2017 and a 24,9% decrease from 2017 to 2018. However, in the reduced-risk segment, ME&A region increased their volume around 280% from 2016 to 2018.

Concerning the EA&A region Net Revenues, represented around 18,8% of all PMI's net revenue in 2018. From 2016 to 2018 there was a decrease of 15,1% of combustible products and an increase of 276% of the reduced-risk products segment in the same timeline.

4.2.6. Latin America & Canada

Latin America & Canada (LA&C) reported around 81 thousand million units from combustible products and around 150 million units from reduced-risk products. The LA&C region presents a downward trend about the combustible products shipment, reflected on a 4,2% decrease from 2016 to 2017 and a 8,2% decrease from 2017 to 2018. However, in the reduced-risk segment, LA&C region increased their volume around 14.600% from 2016 to 2018.

Concerning the (LA&C) region Net Revenues, represented around 10,3% of all PMI's net revenue in 2018. From 2016 to 2018 there was an increase of 6,9% of combustible products and an increase of 1800% of the reduced-risk products segment in the same timeline.

5. VALUATION METHODOLOGY

The valuation of Philip Morris International was created taking into consideration financial historical information between 2013 and 2018. The historical information allows to understand the trend of the business as well as to eliminate possible non-recurring results.

Since the objective of this thesis is to value the equity stake of Philip Morris International and get a fair price per share, the price estimation was calculated by forecasting future cash flows computed from the expected business for the next five years (until 2023).

All the financial estimations were calculated based on financial information collected from multiple annual reports – since PMI is a listed company and all the information is published – and other relevant papers.

The valuation approach used was the Free Cash-Flow to the Equity followed by a sensitivity analysis under cost of equity and perpetuity rate variations assumptions.

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6. ASSUMPTIONS

6.1. General Assumptions

This section will focus on the assumptions made to forecast PMI key indicators. Financial estimations will expose the expected impact on the PMI share price. Since Philip Morris International is expecting to achieve a smoke-free future, sustained by its reduced-risk products, PMI is focusing resources on this business area.

The author analyzed a time range from 2013 to 2018 and provided detailed forecasts for the valuation period, taking into account the company annual reports, company conference calls and personal knowledge to properly estimate each of the items.

Other global assumptions were made to compute the FCFE approach, for example, all the investment in fixed and intangible assets was completely paid at the same year of the investment and the income tax was paid in the end of each year.

6.2. Income Statement Assumptions

6.2.1. Revenues

The Net Revenues were computed through que estimation present on the PMI annual report, where they have as growth target for the period 2019-2021 a CAGR ex-currency of 5%. This growth seems very reasonable when compared to the one predicted by Damodaran (2002) on the growth rate for the tobacco sector – 6,5%. Further details at Appendix section (Appendix 3).

6.2.2. Cost of Sales, and Marketing, Administration and Research Costs

The Cost of Sales has been increasing year after year, and therefore, it was assumed that the CoS for the next 5 years will remain as the weight against the net revenues after excise taxes (36,31%) plus the increase accounted from 2017 to 2018. Further details at Appendix section (Appendix 3).

A similar approach was assumed to compute the Marketing, Administration and Research Costs, based on the average weight of this rubric against the net revenues in the last 5

years, since there is no trend and the numbers have been increasing and decreasing over time. Further details at Appendix section (Appendix 3).

6.2.3. Depreciations and Amortizations

Since there are tangible and intangible assets, and for a better valuation, both rubrics were isolated and each value computed according to its nature.

The rubric Amortization of Intangibles was computed through the average of the weight against the Other Intangible Assets rubric in the last 2 years. This method was applied due the high increase from 2016 to 2017, followed by a decrease from 2017 to 2018. Further details at Appendix section (Appendix 1).

For Depreciation of Tangible Assets and since there is no identifiable trend since 2013, this rubric was computed through the average of the weight against the Property, Plant and Equipment rubric in the last 5 years.

6.2.4. Interest Expense, net and Provision for Income Taxes

The Interest Expense rubric computation was done as the weight against the percentage of debt (Short-Term Borrowings + Current Portion of Long-Term Debt + Long-Term debt) ,calculated in the Balance Sheet, from 2018 plus the average of the variation from 2015 to 2018, since there is not trend and the numbers were very volatile. Further details at Appendix section (Appendix 3).

For Provision for Income Taxes was considered 23%, according to the PMI estimation mentioned in the last annual report, for 2019, which was assumed that it would remain constant for the next years. Further details at Appendix section (Appendix 3).

6.3. Balance Sheet Assumptions

6.3.1. Cash and Cash Equivalents

This rubric was computed as the weight against the Net Earnings Attributable to PMI rubric. Since the numbers were too volatile in the last years, increasing and decreasing over time, it was assumed that the weight used to forecast for 2019-2023 would be

equivalent to 2018 and remain constant over time. Further details at Appendix section (Appendix 1).

6.3.2. Receivables

For Accounts Receivables and since there is no trend available since 2013, this rubric was computed through the average of the weight against the Net Revenues Excluding Excise Taxes rubric in the last 5 years. Further details at Appendix section (Appendix 1).

6.3.3. Inventory

Inventory rubric was computed also to follow the historical weight against Net Revenues Excluding Excise Taxes rubric, since their values depends on such account. Even with a more detach information about this rubric (Leaf Tobacco, Raw Materials and Finished Product), the whole Inventory was computed assuming the average from the past 5 years, since the numbers have been increasing and decreasing over the past years, showing a high volatility. Further details at Appendix section (Appendix 1).

6.3.4. Property, Plant and Equipment (Net), Goodwill, Other Intangible, net and Other Assets

For Property, Plant and Equipment (Net) and since there is no trend available since 2013, this rubric was computed through the average of the weight against the Net Revenues Excluding Excise Taxes rubric in the last 5 years. It is also important to mention the big investment done from 2016 to 2017 derived from the Reduced-Risck products factories implemented all across Europe. Further details at Appendix section (Appendix 1).

CAPEX was computed as the variation of the rubric Property, Plant and Equipment for each year minus the depreciation and amortization. As mention before, all the investment in fixed and intangible assets was fully paid at the same year of the investment.

Goodwill rubric was calculated assuming the average from the past 5 years since there is not any estimation mentioned from the last annual report.

The Other Intangible Assets, net, has been decreasing year after year, and therefore, it was assumed that Other Intangible Assets for the next 5 years will remain as the weight

against the Net Revenues After Excise Taxes (7,7%) plus the average of decrease accounted from 2013 to 2018. Further details at Appendix section (Appendix 1).

Other Assets account was computed as the weight against the Net Revenues Excluding Excise Taxes rubric and considering the last year with reliable data as the percentage used to the following years. Further details at Appendix section (Appendix 1).

6.3.5. Financial Liabilities

To estimate the amount of Financial Liabilities for the next 5 years, it was considered to analyze the historical behavior of them against EBITDA. As you can see in appendix 6, the percentage of EBITDA has been increasing since 2013 until 2017, when it decreases. Since the expectation is this value continues to decrease, the forecasting was computed taking into account the percentage of EBITDA in 2018 minus the average of the period between 2013 and 2014.

6.4. Discount Rate

6.4.1. Discount rate parameters

In order to calculate a precise share price it is required to compute the cost of equity, the return required by shareholders.

As already mentioned in the literature review, to compute the equity discount rate it was used the Capital Asset Pricing Model which is the risk-free rate plus the risk-premium (which depends on beta):

$$R_e = R_f + \beta \text{ x } (R_M - R_f) \quad (19)$$

Where, R_f is the risk free rate, β is the relative risk of a specific asset, and $R_M - R_f$ is the risk required by investors to invest in a company with the same level of β, the market risk premium.

6.4.2. Beta Computation

To compute the Beta of the company, the author computed the regression of the stock against NYSE Index historical prices with weekly data from the last 2 years, calculating

PMI's stock and market weekly returns on such period and applied the Beta regression formula, mentioned at Section 2.2.1.2.2.

To make beta regressions, all the historical price data of *PMI* and NYSE Index were gathered from Yahoo Finance.

6.4.3. Cost of Equity (CoE)

To compute the risk-free rate the author assumed the 2018 monthly 10 years Long-Term Government Bond Yields, gathered from Federal Reserve Economic Data.

Both, expected market risk premium and country risk-premium, were collected from Professor Damodaran's website regarding data as of 31st December 2018.

The results achieved were the following:

Exhibit 16 - PMI's Cost of Equity

Componets	NYSE	Period
Risk-free	2,91%	Monthly data, 2018
Equity risk premium	5,96%	Last updated: January 2019
Country risk premium	0,00%	Last updated: January 2019
Beta	1,020	daily data, 2017 and 2018
CoE	8,99%	

Source: Author

7. VALUATION

7.1. Free Cash Flow to the Equity

The approach used to estimate the value of the company was the Free Cash-Flow to the Equity method, which allows to value only the equity stake. The cash-flows projected for this thesis can be found Appendix section (Appendix 7).

Working Capital was computed by adding current liquid assets, such as, Inventories and Receivables. The Liabilities rubrics considered were the Accounts Payable.

For Financial Liabilities were considered the loans conceded with financial institutions, such as, Short-Term Borrowings, Current Portion of Long-Term Debt and Long-Term Debt

Net Earnings and Depreciations and Amortizations were collected from the Income Statement.

The computed cash-flows were discounted at the projected cost of equity concerning beta regression against NYSE Index and a perpetuity growth of 2 % was established, according to the Federal Open Market Committee (FOMC) longer-run goals and monetary policy strategy for the inflation rate.

Thus, it was calculated a suggested share price of $92.

Exhibit 17 - Free Cash Flow to the Equity valuation

Free Cash Flow to the Equity	**Units: Million Dollars**
NPV	36 009
Terminal Value	107 032
Discount Rate	8,99%
Perpetuity Growth Rate	2,00%
Equity Value	143 041
Shares Outstanding as of 31st December 2018	1 554,5
Value Per share	92,0

Source: Author

7.1.1. Sensitivity Analysis

Since the estimation of the return required by investors is a critical phase in the valuation process, it was calculated the impact that the cost of equity and perpetuity rates variations could have on the final value per share.

Exhibit 18 - Sensitivity Analysis

Perpetuity	Cost of Equity				
	6,99%	7,99%	8,99%	9,99%	10,99%
2,50%	142,6	116,1	97,7	84,2	74,0
2,25%	136,1	111,8	94,7	82,1	72,4
2,00%	130,3	107,9	92,0	80,1	70,9
1,75%	125,0	104,4	89,5	78,2	69,4
1,50%	120,2	101,1	87,1	76,4	68,0

Perpetuity	Cost of Equity				
	6,99%	7,99%	8,99%	9,99%	10,99%
2,50%	155%	126%	106%	92%	80%
2,25%	148%	122%	103%	89%	79%
2,00%	142%	117%	100%	87%	77%
1,75%	136%	113%	97%	85%	75%
1,50%	131%	110%	95%	83%	74%

Source: Author

As you can see at Exhibit 18, the value per share is much affected by changes in the cost of equity and changes in the perpetuity rate, supporting the idea that a correct discount rate computation is crucial for a proper equity valuation. It is also possible to evaluate the percentage variation based on the 92$.

Additionally was studied the impact of changes in the forecasted revenue estimated by PMI, keeping constant a stable perpetuity of 2%, which is the goal of FOMC for the long-run. As showed at Exhibit 19, the share price of PMI is also very vulnerable to revenues projections, due to the high impact from this rubric. Furthermore is also possible to estimate the percentage variation based on the main targeted price, 92$.

Exhibit 19 - Sensitivity Analysis with PMI revenue forecast impact

PMI Revenue	Cost of Equity				
	6,99%	7,99%	8,99%	9,99%	10,99%
7,00%	150,7	124,7	106,2	92,4	81,6
6,00%	140,2	116,1	99,0	86,1	76,1
5,00%	130,3	107,9	92,0	80,1	70,9
4,00%	120,8	100,1	85,4	74,4	65,8
3,00%	111,7	92,7	79,1	68,9	61,0

PMI Revenue	Cost of Equity				
	6,99%	7,99%	8,99%	9,99%	10,99%
7,00%	164%	136%	115%	100%	89%
6,00%	152%	126%	108%	94%	83%
5,00%	142%	117%	100%	87%	77%
4,00%	131%	109%	93%	81%	72%
3,00%	121%	101%	86%	75%	66%

Source: Author

8. CONCLUSION

As mentioned in the Sector Overview – the global tobacco industry has been increasing, projecting a 2,8% CAGR until 2021. Furthermore, globally, the cigarette consumption is irregular. In developed markets the smoking incidence is decreasing due to anti-tobacco policies, however in emerging markets the smoking frequency is growing due to low tax regulatory environments. Regarding market volume, the tobacco sector's expects a CAGR of 0,4% until 2021.

Concerning the Reduced-Risk Product era, all the tobacco industry key players have been putting money in this segment. British American Tobacco with glo, Japan Tobacco with a range of e-cigarettes and Imperial Tobacco with blu. Also PMI, in 2015, launched IQOS, the revolutionary reduced-risk which objective is to achieve a smoke-free future. For that reason, the company is conducting resources for the expansion of these products, with the purpose of decrease smoking rates because the costumers would be more aware of smoking related health issues.

The goal of this dissertation is to get a fair price per share for Philip Morris International and compare it with the price as of 31-Dec-18. In that way, PMI was valued through the Free Cash Flow to Equity (FCFE).

After all the assumptions made was forecasted a final price per share of 92$, much higher than the price per share as of 31-Dec-18 of 66,76$. As mentioned before at the sensitivity analysis, the computed price is also highly susceptible to changes in the cost of equity and changes in the perpetuity rate. As such, it is possible to affirm that at the end of 2018, the price per share is undervalued when compared with the computed price.

Finally, it is also important to refer the limitations, since the valuation methodology is not a linear process and it depends from internal and external factors there is the possibility to exist private data that is not being considered in this valuation approach.

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10. APPENDICES

Appendix 1 - Philip Morris International Balance Sheet (Assets)

Units: Million Dollars (except per share data)	2013	2014	2015	2016	2017	2018	2019E	2020E	2021E	2022E	2023E
Cash and cash equivalents	**2 154**	**1 682**	**3 417**	**4 239**	**8 447**	**6 593**	**7287**	**7654**	**8039**	**8444**	**8869**
Multiple of Net Income	0,25	0,22	0,50	0,61	1,40	0,83	0,83	0,83	0,83	0,83	0,83
Receivables	**3 853**	**4 004**	**2 778**	**3 499**	**3 738**	**3 564**	**3893**	**4088**	**4292**	**4507**	**4732**
As % of Revenues	12,3%	13,5%	10,4%	13,1%	13,0%	12,0%	12,5%	12,5%	12,5%	12,5%	12,5%
Inventories:	**9 846**	**8 592**	**8 473**	**9 017**	**8 806**	**8 804**	**9 386**	**9 856**	**10 348**	**10 866**	**11 409**
Leaf tobacco	3 709	3 135	2 640	2 498	2 606	2 318	2 541	2 668	2 802	2 942	3 089
Other raw materials	1 596	1 696	1 613	1 569	1 563	1 405	1 540	1 617	1 698	1 783	1 872
Finished product	4 541	3 761	4 220	4 950	4 637	5 081	5 570	5 849	6 141	6 448	6 771
As % of Revenues	31,5%	28,9%	31,6%	33,8%	30,6%	29,7%	30,2%	30,2%	30,2%	30,2%	30,2%
Deferred income taxes	**502**	**533**	**488**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
As % of EBT	4,0%	5,0%	5,1%	0%	0%	0%	0%	0%	0%	0%	0%
Other current assets	**497**	**673**	**648**	**853**	**603**	**481**	**717**	**753**	**791**	**830**	**872**
As % of Revenues	1,6%	2,3%	2,4%	3,2%	2,1%	1,6%	2,3%	2,3%	2,3%	2,3%	2,3%
TOTAL CURRENT ASSETS	**16 852**	**15 484**	**15 804**	**17 608**	**21 594**	**19 442**	**21 284**	**22 351**	**23 471**	**24 647**	**25 882**
Property, plant and equipment (NET)	**6 755**	**6 071**	**5 721**	**6 064**	**7 271**	**7 201**	**7 036**	**7 387**	**7 757**	**8 145**	**8 552**
As % of Revenues	21,6%	20,4%	21,4%	22,7%	25,3%	24,3%	22,6%	22,6%	22,6%	22,6%	22,6%
Goodwill	**8 893**	**8 388**	**7 415**	**7 324**	**7 666**	**7 189**	**7 596**	**7 596**	**7 596**	**7 596**	**7 596**
Other intangible assets, net	**3 193**	**2 985**	**2 623**	**2 470**	**2 432**	**2 278**	**2 234**	**2 346**	**2 463**	**2 586**	**2 715**
As % of Revenues	10,2%	10,0%	9,8%	9,3%	8,5%	7,7%	7,2%	7,2%	7,2%	7,2%	7,2%
Investments in unconsolidated subsidiaries	**1 536**	**1 083**	**890**	**1 011**	**1 074**	**1 269**	**1 065**	**1 065**	**1 065**	**1 065**	**1 065**
Deferred income taxes	**0**	**0**	**0**	**859**	**1 007**	**977**	**2 833**	**2 975**	**3 123**	**3 279**	**3 443**
As % of EBT	0%	0%	0%	8,7%	9,5%	9,2%	9,1%	9,1%	9,1%	9,1%	9,1%
Other assets	**939**	**1 176**	**1 503**	**1 515**	**1 924**	**1 445**	**1 517**	**1 593**	**1 673**	**1 756**	**1 844**
As % of Revenues	3,0%	4,0%	5,6%	5,7%	6,7%	4,9%	4,9%	4,9%	4,9%	4,9%	4,9%
TOTAL NON CURRENT ASSETS	**21 316**	**19 703**	**18 152**	**19 243**	**21 374**	**20 359**	**22 282**	**22 963**	**23 678**	**24 428**	**25 217**
TOTAL ASSETS	**38 168**	**35 187**	**33 956**	**36 851**	**42 968**	**39 801**	**43 566**	**45 313**	**47 149**	**49 076**	**51 099**

Appendix 2 - Philip Morris International Balance Sheet (Debt)

Units: Million Dollars (except per share data)	2013	2014	2015	2016	2017	2018	2019E	2020E	2021E	2022E	2023E
Short-term borrowings	**2 400**	**1 208**	**825**	**643**	**499**	**730**	**749**	**752**	**753**	**752**	**789**
Current portion of long-term debt	**1 255**	**1 318**	**2 405**	**2 573**	**2 506**	**4 054**	**4 162**	**4 176**	**4 181**	**4 176**	**4 384**
Accounts payable	**1 274**	**1 242**	**1 289**	**1 666**	**2 242**	**2 068**	**2 302**	**2 417**	**2 538**	**2 665**	**2 799**
As % of Costs	7%	7%	8%	11%	13%	11%	12%	12%	12%	12%	12%
Accrued liabilities:	**10 833**	**10 108**	**9 691**	**10 753**	**9 903**	**9 763**	**10 550**	**10 722**	**11 025**	**11 517**	**11 793**
Marketing and selling	503	549	640	575	708	732	656	689	724	760	798
As % of Marketing, administration and research costs	7,3%	7,8%	9,6%	9,1%	10,7%	9,9%	8,9%	8,9%	8,9%	8,9%	8,9%
Taxes, except income taxes	6 492	5 490	5 121	6 204	5 324	5 088	5 552	5 829	6 121	6 427	6 748
As % of Revenues	20,8%	18,4%	19,1%	23,2%	18,5%	17,2%	17,8%	17,8%	17,8%	17,8%	17,8%
Employment costs	949	1 135	903	800	856	794	985	1 035	1 086	1 141	1 198
As % of Revenues	3,0%	3,8%	3,4%	3,0%	3,0%	2,7%	3,2%	3,2%	3,2%	3,2%	3,2%
Dividends payable	1 507	1 559	1 589	1 621	1 669	1 783	2 013	1 759	1 614	1 636	1 417
As % of Net Earnings	17,6%	20,8%	23,1%	23,3%	27,7%	22,5%	23,5%	23,5%	23,5%	23,5%	23,5%
Other	1 382	1 375	1 438	1 553	1 346	1 366	1 343	1 410	1 480	1 554	1 632
As % of Revenues	4,4%	4,6%	5,4%	5,8%	4,7%	4,6%	4,3%	4,3%	4,3%	4,3%	4,3%
Deferred income taxes	**112**	**158**	**206**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
As % of EBT	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%
Income taxes	**1 192**	**1 078**	**970**	**832**	**812**	**576**	**638**	**671**	**706**	**743**	**780**
As % of EBT	9,5%	10,1%	10,1%	8,4%	7,7%	5,4%	5,4%	5,4%	5,4%	5,4%	5,4%
TOTAL CURRENT LIABILITIES	**17 066**	**15 112**	**15 386**	**16 467**	**15 962**	**17 191**	**18 402**	**18 739**	**19 203**	**19 853**	**20 545**
Long-term debt	**24 023**	**26 929**	**25 250**	**25 851**	**31 334**	**26 975**	**27 695**	**27 787**	**27 819**	**27 784**	**29 174**
Deferred income taxes	**1 477**	**1 549**	**1 543**	**1 897**	**799**	**898**	**2 482,4**	**2 606,5**	**2 736,9**	**2 873,7**	**3 017,4**
As % of EBT	11,8%	14,5%	16,0%	19,1%	7,5%	8,4%	8,0%	8,0%	8,0%	8,0%	8,0%
Employment costs	**1 313**	**2 202**	**2 566**	**2 800**	**2 271**	**3 083**	**2 848**	**2 990**	**3 140**	**3 297**	**3 461**
As % of Revenues	4,2%	7,4%	9,6%	10,5%	7,9%	10,4%	9,2%	9,2%	9,2%	9,2%	9,2%
Income taxes and other liabilities	**563**	**598**	**687**	**736**	**2 832**	**2 393**	**2 906**	**3 058**	**3 217**	**3 385**	**3 554**
As % of EBT	4,5%	5,6%	7,1%	7,4%	26,7%	22,4%	24,6%	24,6%	24,6%	24,6%	24,6%
TOTAL NON CURRENT LIABILITIES	**27 376**	**31 278**	**30 046**	**31 284**	**37 236**	**33 349**	**35 932**	**36 442**	**36 912**	**37 339**	**39 206**
TOTAL LIABILITIES	**44 442**	**46 390**	**45 432**	**47 751**	**53 198**	**50 540**	**54 334**	**55 181**	**56 115**	**57 192**	**59 751**

Appendix 3 - Philip Morris International Income Statement

Units: Million Dollars (except per share data)	2013	2014	2015	2016	2017	2018	2019E	2020E	2021E	2022E	2023E
Net Revenues	**80 029**	**80 106**	**73 908**	**74 953**	**78 098**	**79 823**	**83 814**	**88 005**	**92 405**	**97 025**	**101 877**
Excise taxes on produtcs	**48 812**	**50 339**	**47 114**	**48 268**	**49 350**	**50 198**	**52 708**	**55 343**	**58 110**	**61 016**	**64 067**
Net Revenue after excise taxes	**31 217**	**29 767**	**26 794**	**26 685**	**28 748**	**29 625**	**31 106**	**32 662**	**34 295**	**36 009**	**37 810**
Cost of Sales	**10 410**	**10 436**	**9 365**	**9 391**	**10 432**	**10 758**	**11 304**	**11 869**	**12 463**	**13 086**	**13 740**
As % of Revenues	33,35%	35,06%	34,95%	35,19%	36,29%	36,31%	36,34%	36,34%	36,34%	36,34%	36,34%
Gross Profit	**20 807**	**19 331**	**17 429**	**17 294**	**18 316**	**18 867**	**19 802**	**20 792**	**21 832**	**22 924**	**24 070**
Marketing, administration and research costs	**6 890**	**7 001**	**6 656**	**6 317**	**6 647**	**7 408**	**7 374**	**7 743**	**8 130**	**8 536**	**8 963**
As % of Revenues	22,07%	23,52%	24,84%	23,67%	23,12%	25,01%	23,71%	23,71%	23,71%	23,71%	23,71%
Asset impairment and exit costs	**309**	**535**	**68**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
As % of Revenues	0,99%	1,80%	0,25%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%
Amortization of intangibles	**93**	**93**	**82**	**74**	**88**	**82**	**81**	**85**	**89**	**93**	**98**
As % of Other Intangible Assets	2,91%	3,12%	3,13%	3,00%	3,62%	3,60%	3,61%	3,61%	3,61%	3,61%	3,61%
Depreciation of Tangibles	**789**	**796**	**672**	**669**	**787**	**907**	**832,4**	**874,1**	**917,8**	**963,6**	**1 011,8**
As % of Property, Plant and Equipment	11,68%	13,11%	11,75%	11,03%	10,82%	12,60%	11,83%	11,83%	11,83%	11,83%	11,83%
Operating Income - EBIT	**13 515**	**11 702**	**10 623**	**10 903**	**11 581**	**11 377**	**12 348**	**12 965**	**13 613**	**14 294**	**15 009**
Interest expense, net	**973**	**1 052**	**1 008**	**891**	**914**	**665**	**526**	**527**	**528**	**527**	**554**
As % of Debt	3,5%	3,6%	3,5%	3,1%	2,7%	2,1%	1,6%	1,6%	1,6%	1,6%	1,6%
Earnings before income taxes - EBT	**12 542**	**10 650**	**9 615**	**9 924**	**10 589**	**10 671**	**11 822**	**12 438**	**13 085**	**13 767**	**14 455**
Provision for income taxes	**3 670**	**3 097**	**2 688**	**2 768**	**4 307**	**2 445**	**2 709**	**2 850**	**2 998**	**3 154**	**3 312**
Effective Tax Rate	29%	29%	28%	28%	41%	23%	23%	23%	23%	23%	23%
Equity(income)/loss in unconsolidated subsidiaries, net	**22**	**-105**	**-105**	**-94**	**-59**	**-60**	**-67**	**-67**	**-67**	**-67**	**-67**
Net Earnings	**8 850**	**7 658**	**7 032**	**7 250**	**6 341**	**8 286**	**9 180**	**9 655**	**10 154**	**10 679**	**11 210**
Net Earnings attributable to noncontrolling interests	274	165	159	283	306	375	429	451	475	499	524
Net Earnings attributable to PMI	**8 576**	**7 493**	**6 873**	**6 967**	**6 035**	**7 911**	**8 751**	**9 203**	**9 679**	**10 180**	**10 686**

Appendix 4 - Depreciation and Amortization

Units: Million Dollars (except per share data)	2013	2014	2015	2016	2017	2018	2019E	2020E	2021E	2022E	2023E
Depreciation and Amortization	882	889	754	743	875	989	913	959	1 007	1 057	1 110
Operating Income - EBIT	13 515	11 702	10 623	10 903	11 581	11 377	12 348	12 965	13 613	14 294	15 009
EBITDA	**14 397**	**12 591**	**11 377**	**11 646**	**12 456**	**12 366**	**13 261**	**13 924**	**14 620**	**15 351**	**16 119**

Appendix 5 - CAPEX Computation

Units: Million Dollars (except per share data)	2013	2014	2015	2016	2017	2018	2019E	2020E	2021E	2022E	2023E
Property, plant and equipment (NET)	6755	6071	5721	6064	7271	7201	7035,68723	7387,4716	7756,84518	8144,68743	8551,921806
Depreciation and Amortization		-889	-754	-743	-875	-989	-913	-959	-1 007	-1 057	-1 110
CAPEX - Tangible Assets	-1200	-205	-404	-1086	-2082	-919	-748	-1310	-1376	-1445	-1517

Appendix 6 - FINANCIAL Computations

Units: Million Dollars (except per share data)	2013	2014	2015	2016	2017	2018	2019E	2020E	2021E	2022E	2023E
Short-term borrowings	**2 400**	**1 208**	**825**	**643**	**499**	**730**	**749**	**752**	**753**	**752**	**789**
As % of Total Loans	8,7%	4,1%	2,9%	2,2%	1,5%	2,3%	2,3%	2,3%	2,3%	2,3%	2,3%
Current portion of long-term debt	**1 255**	**1 318**	**2 405**	**2 573**	**2 506**	**4 054**	**4 162**	**4 176**	**4 181**	**4 176**	**4 384**
As % of Total Loans	4,5%	4,5%	8,4%	8,9%	7,3%	12,8%	12,8%	12,8%	12,8%	12,8%	12,8%
Long-term debt	**24 023**	**26 929**	**25 250**	**25 851**	**31 334**	**26 975**	**27 695**	**27 787**	**27 819**	**27 784**	**29 174**
As % of Total Loans	86,8%	91,4%	88,7%	88,9%	91,2%	84,9%	84,9%	84,9%	84,9%	84,9%	84,9%
Total	**27 678**	**29 455**	**28 480**	**29 067**	**34 339**	**31 759**	**32 607**	**32 715**	**32 753**	**32 712**	**34 348**

Units: Million Dollars (except per share data)	2013	2014	2015	2016	2017	2018	2019E	2020E	2021E	2022E	2023E
Total Loans	27 678	29 455	28 480	29 067	34 339	31 759	32 607	32 715	32 753	32 712	34 348
EBITDA	14 397	12 591	11 377	11 646	12 456	12 366	13 261	13 924	14 620	15 351	16 119
% of EBITDA	1,92	2,34	2,50	2,50	2,76	2,57	2,46	2,35	2,24	2,13	2,13

Appendix 7 - Free Cash Flow to Equity Computation

Units: Million Dollars (except per share data)	2013	2014	2015	2016	2017	2018	2019E	2020E	2021E	2022E	2023E
Net Earnings	8 576	7 493	6 873	6 967	6 035	7 911	8 751	9 203	9 679	10 180	10 686
Depreciations	882	889	754	743	875	989	913	959	1 007	1 057	1 110
CAPEX	-1 200	-205	-404	-1 086	-2 082	-919	-748	-1 310	-1 376	-1 445	-1 517
WC Assets	13 699	12 596	11 251	12 516	12 544	12 368	13 280	13 944	14 641	15 373	16 142
WC Liabilities	1 274	1 242	1 289	1 666	2 242	2 068	2 302	2 417	2 538	2 665	2 799
WC Variation		1 071	1 392	-888	548	2	-677	-549	-576	-605	-635
Financial Liabilities	27 678	29 455	28 480	29 067	34 339	31 759	32 607	32 715	32 753	32 712	34 348
Net Borrowings		1 777	-975	587	5 272	-2 580	848	108	37	-41	1 636
FCFE		11 025	7 640	6 323	10 648	5 403	9 087	8 411	8 771	9 146	11 279
FCFE NYSE Discounted							8 338	7 081	6 775	6 482	7 334

Appendix 8 - Sensitivity Analysis

Units: Thousands of Euros	2013	2014	2015	2016	2017	2018	2019E	2020E	2021E	2022E	2023E
Net Earnings	8 576	7 493	6 873	6 967	6 035	7 911	8 751	9 203	9 679	10 180	10 686
Depreciations	882	889	754	743	875	989	913	959	1 007	1 057	1 110
CAPEX	-1 200	-205	-404	-1 086	-2 082	-919	-748	-1 310	-1 376	-1 445	-1 517
WC Assets	13 699	12 596	11 251	12 516	12 544	12 368	13 280	13 944	14 641	15 373	16 142
WC Liabilities	1 274	1 242	1 289	1 666	2 242	2 068	2 302	2 417	2 538	2 665	2 799
WC Variation	0	1 071	1 392	-888	548	2	-677	-549	-576	-605	-635
Financial Liabilities	27 678	29 455	28 480	29 067	34 339	31 759	32 607	32 715	32 753	32 712	34 348
Net Borrowings	0	1 777	-975	587	5 272	-2 580	848	108	37	-41	1 636
FCFE	0	11 025	7 640	6 323	10 648	5 403	9 087	8 411	8 771	9 146	11 279
FCFE Discounted							8 494	7 348	7 162	6 980	8 046
							8 415	7 212	6 965	6 725	7 680
							8 338	7 081	6 775	6 482	7 334
							8 262	6 952	6 592	6 249	7 007
							8 187	6 828	6 415	6 027	6 697