

PHILIP MORRIS INTERNATIONAL INC.

CONSUMER GOODS - TOBACCO

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COMPANY REPORT

4 JANUARY 2019

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Smoke-Free Future Ahead

Leading the tobacco paradigm shift

- The investment recommendation for Philip Morris International stock is a **BUY**, given the FY19 target price of **\$105,83** per share. Combined with an estimated cash dividend of \$4,66, the implicit return on the investment, given the current share price of **\$66,76**, is **65,5%**. It is believed that the market is underestimating IQOS potential and consequent ability to capture market share.
- In an environment characterized by stricter regulation, **increasing taxes** and **declining volumes**, PMI is channelling its resources to expand its reduced-risk segment, as a solution to overcome these challenges and strengthen its position in the tobacco industry, exploring its **first-mover advantage** in several markets.
- The **Asian region** recorded a **fivefold revenue growth** in the reduced-risk products segment in 2017 and is expected to be the main growth driver with a forecasted revenue **CAGR of 3,2%**.
- **Moderate organic growth** is ensured for the following years, with a revenue **CAGR of 2,8%**, mainly supported by IQOS.
- PMI stock has proved to be considerably volatile, shown by its wide 52-week range and annualized volatility of **33,9%** in 2018. In the last two weeks, PMI's share price decreased by **19,1%**, resulting in a good opportunity to invest in the stock.

Company description

Philip Morris International is an international tobacco company engaged in the production and sale of cigarettes and other nicotine-containing products in 180 markets.

Recommendation: BUY

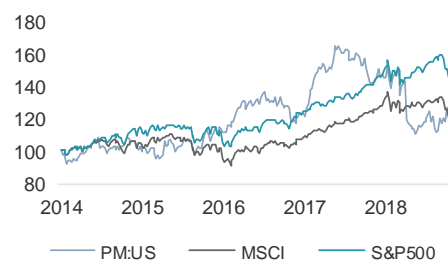
Price Target FY19: 105,83 \$

Price (as of 31-Dec-18) 66,76 \$

Reuters: PM.N, Bloomberg: PM:US

52-week range (\$)	64,67-111,25
Market Cap (\$B)	103,780
Outstanding Shares (M)	1554,524

Source: Bloomberg



Cumulative return in % based on 100%
Source: Bloomberg

(Values in \$ millions)	2017	2018	2019E
Revenues (excluding excise taxes)	28748	29535	30030
EBITDA	12378	12552	12578
EBITDA Margin	43,1%	42,5%	41,9%
Net Profit	7365	9492	9477
EPS (\$)	4,74	6,11	6,10
P/E (\$)	21,53	10,93	17,36

Source: Company Report; Analyst estimates

THIS REPORT WAS PREPARED EXCLUSIVELY FOR ACADEMIC PURPOSES BY ANTÓNIO FERTUSINHOS AND NUNO PAULINO, MASTER IN FINANCE STUDENTS OF THE NOVA SCHOOL OF BUSINESS AND ECONOMICS. THE REPORT WAS SUPERVISED BY A NOVA SBE FACULTY MEMBER, ACTING IN A MERE ACADEMIC CAPACITY, WHO REVIEWED THE VALUATION METHODOLOGY AND THE FINANCIAL MODEL. (PLEASE REFER TO THE DISCLOSURES AND DISCLAIMERS AT END OF THE DOCUMENT)

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Company Overview

Company Description



**PHILIP MORRIS
INTERNATIONAL**

Headquartered in New York, Philip Morris International Inc. (PMI) is an international tobacco company engaged in the production and sale of cigarettes and other nicotine-containing products in markets outside the United States. PMI's vision is to build **a future on smoke-free products** which are assumed to be a better consumer choice than continuing to smoke conventional cigarettes and ultimately extinct regular cigarettes to the benefit of adult smokers, society and its shareholders.¹

Until a spin-off in March 2008, Philip Morris International was operating under its parent company - Altria Group. As of today, PMI operates independently in more than **180 markets**, under the support of around 81000 employees and reaching more than **150 million consumers worldwide**.²

The company's core business is segmented in two main categories of products: **combustible products** and **reduced-risk products (RRPs)**. Combustible products are cigarettes and other tobacco products which include roll-your-own and make-your-own cigarettes, pipe tobacco, cigars and cigarillos. The company has a combustible portfolio of both international and local brands ranging from premium, mid-price and low-price categories. RRP is the term the company uses to refer to products that present or have the potential to present less risk of harm to smokers who switch to these products versus continued cigarette smoking.³ The main feature of these products resides in the fact that they do not burn tobacco, heating it instead, and therefore considered potentially less harmful. The **leading RRP brand, IQOS**, was first introduced in Nagoya (Japan) in 2014 as a pilot project and consists of an electronic device into which a heated tobacco unit (HTU) is inserted and heated to generate an aerosol.

The company is operating within four geographic segments: **European Union (EU); Eastern Europe, Middle East & Africa (EEMA); Asia; and Latin America & Canada**.

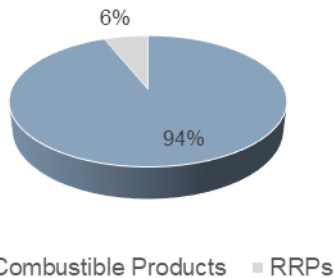
PMI uses the term net revenues to refer to its operating revenues from the sale of all their products, net of sales and promotion incentives. Furthermore, net revenues also include excise taxes billed to costumers, subsequently remitted to local governments.

¹ Company Report

² Company data

³ Company Report

Exhibit 1: Net revenues by product category (2018)

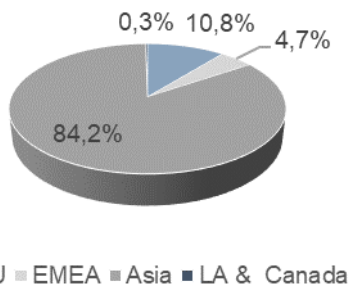


Source: Company Report

Analysing the historical evolution of net revenues since 2015, when the sale of IQOS began, PMI was able to increase them from \$73,9 to \$80,1 billion in 2018, mainly driven by the increased sales of RRPs that accounted for around 77% of net revenues growth. Consequently, the **share of RRP sales on net revenues reached 6,1% in 2018** (Exhibit 1), shifting from the 0,1% in 2015.

Notwithstanding the remarkable RRP growth, between 2014 and 2016, the company's net revenues excluding excise taxes (EET) decreased from \$29,8 to \$26,7 billion, mainly consequence of **declining volumes within the industry**. In 2017, net revenues EET increased to \$28,7 billion, despite a declining shipment volume, mainly due to price increases and favourable product mix. ⁴ Considering the four year period after IQOS launch, from 2015 to 2018, the company recorded a net revenues EET compounded annual growth rate (CAGR) of 2,46%.

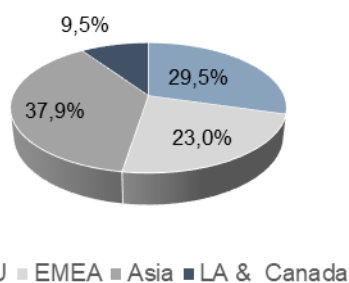
Exhibit 2: RRP net revenue by region (2018)



Source: Company Report

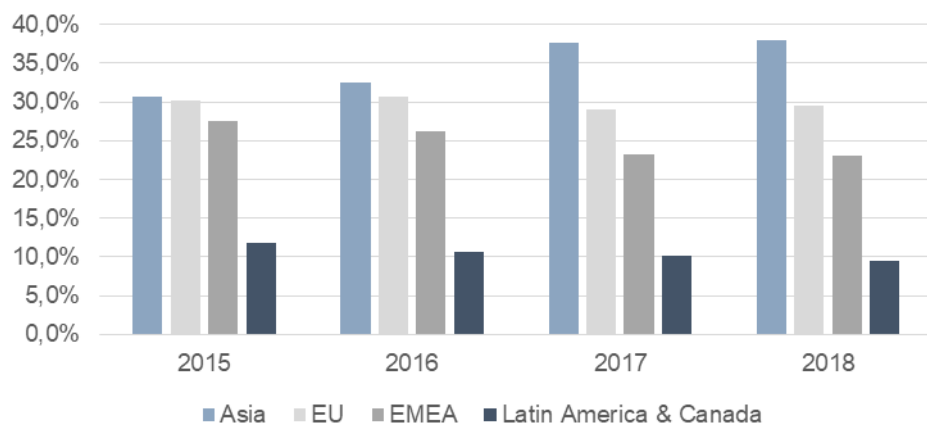
Regarding the historical evolution of RRP net revenues between 2015 and 2018, in the four geographic segments in which PMI operates, the main highlight consists in the **substantial growth experienced by Asia**. Accomplishing a RRP net revenue increase of around \$4 billion, reaching a 17,5% share of Asia's total net revenues and a 84,2% share of PMI's RRP revenues in 2018 (Exhibit 2). Moreover, the outstanding performance of the Asian region is reflected in the net revenues EET share, when to comparing to the remaining geographic segments, resulting in an approximate 7 p.p. increase to 37,9%, in comparison to 2015. Consequently, the share of all remaining geographic segments on PMI's total net revenues EET has been decreasing (Exhibit 3). As of 2018, **Asia remains the major revenue contributor, followed by the European Union** (Exhibit 4).

Exhibit 4: RRP net revenue by region (2018)



Source: Company Report

Exhibit 3: Net revenues distribution by region (2015 – 2018)



Source: Company Report

⁴ Company Report

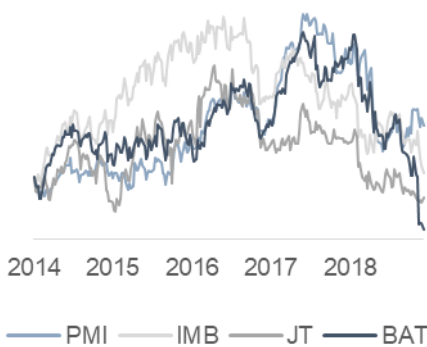
Share Performance

Exhibit 5: PMI stock performance against equity indices (2014 – 2018)



Source: Bloomberg

Exhibit 6: PMI stock performance against peers (2014 – 2018)



Source: Bloomberg

On March 19, 2008 Altria Group completed a spin-off of Philip Morris to its shareholders, resulting in the distribution all PMI shares in which each shareholder received one PMI share for every Altria common outstanding share. Since then, the stock began regular trading on the New York Stock Exchange (NYSE), as well as the NYSE Euronext Paris and SWX Swiss exchanges. Moreover, PMI has been a constituent of the S&P500 and the MSCI World indices.⁵

Between 2014 and 2016, Philip Morris' share price recorded a compounded annual growth of 6,9% mostly underperforming the market, partially due to its value nature being a high dividend stock, operating in a low growth mature industry. In the first two quarters of 2017, PMI's share price recorded a CAGR of 15%, outperforming the MSCI World and closing the gap to the S&P500, given the company's overwhelming performance in the Asian market. Since then, PMI's share price has been decreasing to past figures of 2016, due to the **growth slowdown** in the above-mentioned market⁶, however slightly reverting this trend in the last two quarters of 2018 (Exhibit 5).

Comparing to its peers, **Philip Morris recorded over the last five years a CAGR of 3,9%**, slightly outperforming Imperial Brands, Japan Tobacco and British American Tobacco which recorded 0,2%, -1,8% and -4,7% respectively. Philip Morris mostly underperformed its peers until the end of 2016, however, its outstanding performance in the following two quarters allowed PMI to slightly reduce the impact of the **generalized downwards trend felt across all industry** since then, reflecting the struggle to globally shift from regular cigarettes to reduced-risk alternatives, while industry volumes keep decreasing (Exhibit 6).⁷

Management Team

Philip Morris' executive team is composed by 22 members led by its Chief Executive Officer André Calantzopoulos, who has been at the company for more than 30 years. He was named CEO and elected to the Board of Directors on May 2013, after serving as Chief Operating Officer for more than 5 years. The Board is composed by 12 members, being Philip Morris' CEO the only executive one, with Louis C. Camilleri as Chairman, a former CEO of the company.

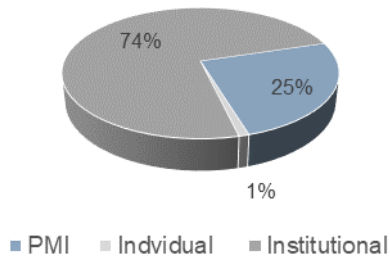
⁵ Altria 2008 press release

⁶ Company Report

⁷ Fortune

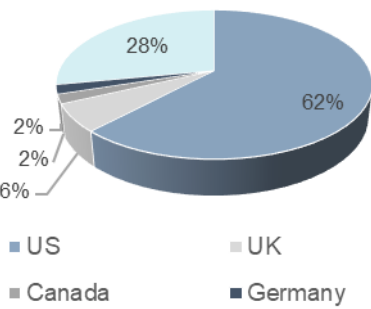
Shareholder Structure

Exhibit 7: Shareholder structure by investor type (2018)



Source: Thomson Reuters

Exhibit 8: Shareholder structure by geography (2018)



Source: Thomson Reuters

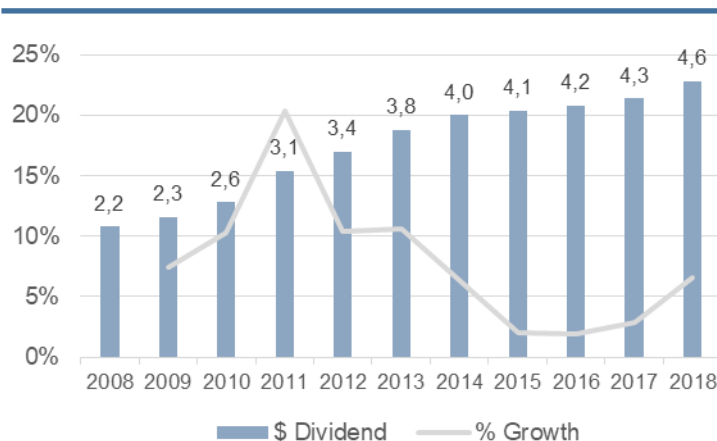
Philip Morris' current shareholder structure is mainly composed by institutional investors, counting with more than 1700 and representing the largest investor group holding 74% of all shares, whereas individual investors account for less than 1%. The two above mentioned groups account for more than 57000 shareholders. Philip Morris owns the remaining 25% through past repurchases as Treasury shares (Exhibit 7).⁸

At a geographical level, the **US market accounts for 62% of all investors** followed by the United Kingdom, Canada and Germany with 6%, 2% and 2% respectively (Exhibit 8). Within institutional investors, the asset manager Vanguard Group has the highest percentage of the outstanding shares at 7,65% followed by BlackRock at 4,18%, therefore **not existing an investor holding the majority of voting rights**.⁹

Dividend Policy

Dividend policy has been a key factor in the past with **PMI increasing annual cash dividend every year since becoming public** in 2008, at a CAGR of 9,5%. Having one of the highest dividend yields among large-cap stocks, investors are often concerned about the sustainability of the company's dividend payment as well as the high probability of a dividend cut.¹⁰ Therefore, **PMI does not follow a target payout ratio** has it aims at keeping a considerable dividend growth (Exhibit 9), not fully dependent of its performance. In the past, dividends have been higher than the company's net income to meet investors' expectations.

Exhibit 9: Cash dividend historical evolution (2008 – 2018)



Source: Company data

2018 is the eleventh consecutive year in which PMI has increased its dividend

⁸ Company Report and Thomson Reuters

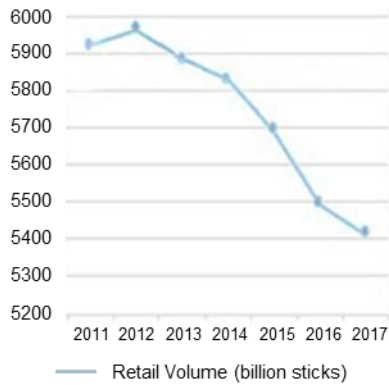
⁹ Thomson Reuters

¹⁰ Seeking Alpha

Industry Overview

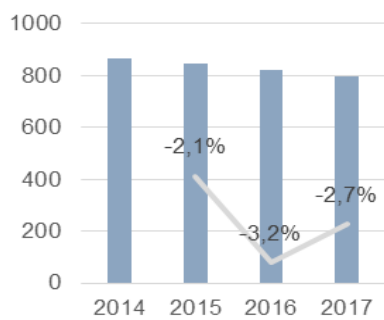
Sector Analysis

Exhibit 10: Global cigarette retail volume (2011 – 2017)



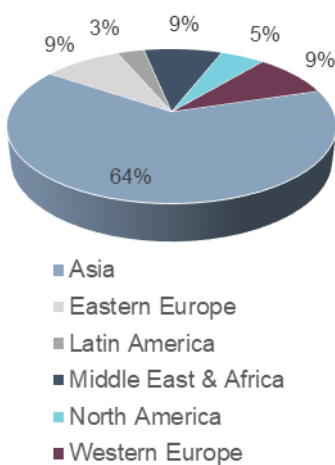
Source: Euromonitor International

Exhibit 11: PMI shipment volume (Billion units) and annual % change



Source: Company Report

Exhibit 12: Global cigarette market by region (2017)



Source: Euromonitor International

The most recent estimates for the global tobacco market indicate it is worth approximately \$760 billion (excluding Chinese market that consists of a monopoly controlled by a state-owned company), where more than \$680 billion come from the sale of conventional cigarettes¹¹.

It is estimated that more than 1,1 billion people smoke tobacco products, of which 840 million smoke cigarettes¹². Moreover, Euromonitor International estimates that international industry volumes, including cigarettes and heated tobacco units, were approximately 5,4 trillion units in 2017, a 1,3% decrease comparing to 2016. This downwards trend has been driven by the increase of society's health concern, illicit cigarettes sales, stricter regulation and higher taxation on tobacco products.

One of the industry's biggest concerns is related to the declining retail volumes that have intensified since 2012. According to a market research conducted by Euromonitor International, **retail volume decreased around 530 billion units**, resulting in approximately a 9% reduction from 2012 until 2017 (Exhibit 10). PMI's shipment volume has also been decreasing since 2014, contributing to the industry's declining volumes (Exhibit 11).

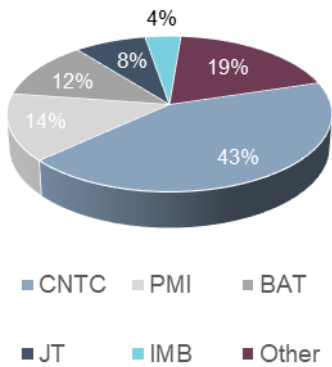
Currently, the **industry remits to governments over \$401 billion in taxes**, of which \$331 billion and \$70 billion are due to excise taxes and Value Added Tax (VAT), respectively. Furthermore, it is acknowledged considerable **asymmetries in tax structures amongst countries**, ranging from a 89,1% (Chile) to 2,3% (Afghanistan) tax per cigarette¹³. It is generally accepted that there is a positive correlation between taxes and illicit sales. The current high tax environment of the industry promotes the intensification of counterfeit cigarettes, which is estimated to already amount to 484 billion illicit cigarettes sold per year.¹⁴

Regarding geographical distribution, industry sales are heavily concentrated in Asia, totalling a 64% market share of the global cigarette market in 2017 (Exhibit 12).

The **tobacco industry is mainly controlled by 5 companies**, jointly detaining 81% of the global cigarette retail volume. China National Tobacco Corporation (CNTC), the state-owned company benefiting from a monopoly of the tobacco

¹¹ British American Tobacco estimates
¹² Company data
¹³ Company data
¹⁴ Company data

Exhibit 13: Retail volume shares of global cigarette market (2017)



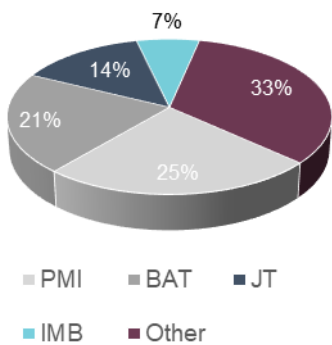
Source: Euromonitor International

market in China detains 43%, followed by PMI controlling the second largest retail volume share of 14% (Exhibit 13). Since CNTC operates in different business environment, the analysis mentioned before was replicated excluding the referred company (Exhibit 14). The concentration of the market is a consequence of the industry’s consolidation over the last decade, through a total of 261 mergers and acquisitions, amounting \$127 billion¹⁵. Thus allowing the main players to improve its market position and creating a form of **market that resembles to an oligopoly**.

The tobacco industry presents **high entry barriers** since newcomers would have to compete against very large conglomerates, benefiting from well-established economies of scale in manufacturing, branding, packaging and distribution network.¹⁶ Furthermore, the ban of tobacco advertisements could make it more cumbersome for smaller companies to widen their customer base.

Peer companies

Exhibit 14: Retail volume shares of global cigarette market excluding CNTC (2017)



Source: Euromonitor International

PMI’s peer group was established based on a review of key characteristics that were considered fundamental for a company to be recognized as a comparable company of PMI. First, it was considered essential that companies’ **core activity** was the manufacture and sale of cigarettes and other nicotine-containing products. Secondly, selected companies should operate at a similar **global scale**. Ideally, peer companies should have a **market capitalization** and **revenues** similar to PMI’s, however, given the considerable dimension of PMI, these two factors were not considered as determinant as the ones mentioned above. Also considered relevant metrics are the **Gross margin**, as well as the **EBITDA margin**. When these margins are similar, companies exhibit comparable production and operational cost structures, enabling a more accurate comparison.

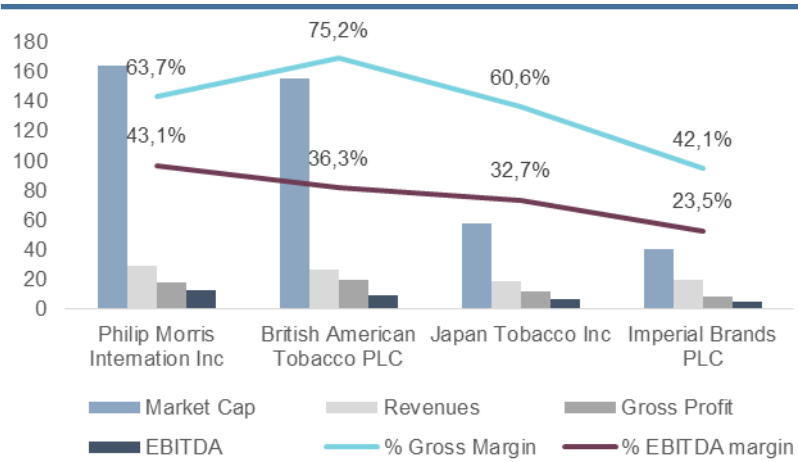
It should be noted that CNTC was excluded from this analysis since it operates in a completely different business environment that makes the comparison unfeasible. Furthermore, Altria Group was also excluded from the peer group since it is a holding company that includes a significant number of subsidiary companies which its core activity is non-tobacco related and focuses its operations mainly in the U.S.

The firms that fulfilled the above-mentioned requirements regarding similar core activity, global scale and revenues were therefore considered PMI’s comparables and are the following: **British American Tobacco PLC (BAT)**, **Japan Tobacco Inc. (JT)** and **Imperial Brands PLC (IMB)**. In terms of market size, BAT is the

¹⁵ Bloomberg
¹⁶ Forbes

closest to PMI, while the remaining two still have less than half their size. Regarding margins, BAT and JT present comparable figures whereas IMB still lacks improvements in its cost structure (Exhibit 15).

Exhibit 15: Financial metrics (USD billion) and % Revenues (2017)



Source: Bloomberg

British American Tobacco PLC is a publicly traded company based in London. BAT operates in over 200 markets and is market leader in more than 55 countries. The company strengthened its global presence even further in 2017 when acquired Reynolds American Inc., becoming one of the main players in the U.S. market and the third largest company in the global tobacco market, controlling an 11,8% market share. BAT has recently developed and incorporated heating tobacco products in their portfolio after launching a new device, Glo in December 2016. Moreover, the company expanded Glo to Canada and South Korea in 2017.

Japan Tobacco Inc. is a publicly traded company headquartered in Tokyo with presence in more than 130 countries. The company became the fourth largest in the industry, controlling 8,4% of the global cigarette market and doubled its size after acquiring UK based Gallaher in 2007. JT continues to follow its strategy to expand the presence in emerging markets through organic growth and acquisitions. In 2016, the company launched the first heated tobacco product, Ploom Tech, in Japan and expanded production capacity in 2018 to market the product nationwide.

Imperial Brands PLC is a publicly traded company headquartered in Bristol. It is present in 160 markets through its acquisition-driven strategy. IMB is the fifth largest company operating in the global tobacco market, controlling a 3,7% market share. The company's key growth markets are mainly developed



countries such as Italy, Russia, Japan and Saudi Arabia. At the moment, IMB does not have a heated tobacco portfolio.¹⁷

Key Drivers

Smoke-free Future

“Tobacco kills more than 7 million people each year” – World Health Organization

Philip Morris is **aiming to achieve a smoke-free future**, supported by its smokeless reduced risk products and ultimately eradicate conventional cigarettes. PMI is **channelling resources for the development of these products** (Exhibit 16), in order to revert declining smoking rates as consumers become more aware of smoking related health issues.

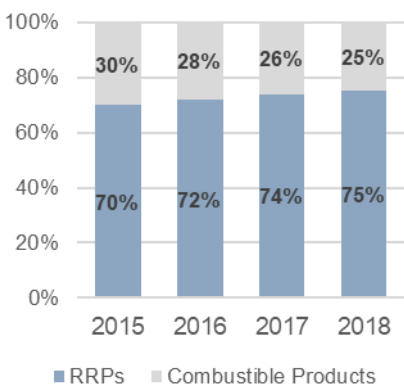
Launched in Japan in 2014, IQOS is now available in **43 markets** around the globe (Exhibit 17) with around 6 million users switching from conventional cigarettes. Although only operating in less than a fourth of PMI’s overall market, RRP’s already represent around 40% of marketing spending and are driving high capex (further discussed in the Capital Expenditures section) through the opening of new stores and increasing production capacity, emphasising the company’s commitment to this solution.¹⁸

Besides the above-mentioned approach, Philip Morris is also currently taking several steps towards improving reduced risk products’ performance, in the face of a weaker growth in some regions and increased competitive pressure:

- Introduction of the next generation IQOS devices by the end of 2018, with enhanced features, such as consecutive use, since current generation devices need to be charged for 6 minutes between uses;
- Launch of a new tasting RRP’s variant, closer to conventional cigarettes, to capture a greater share of the market;
- Launch of a lower price variant to attract price-sensitive consumers;
- Simplification of the registration process for new consumers, eliminating entry barriers for older smokers less used to digital;
- Marketing focused on more targeted and relevant communication content.¹⁹

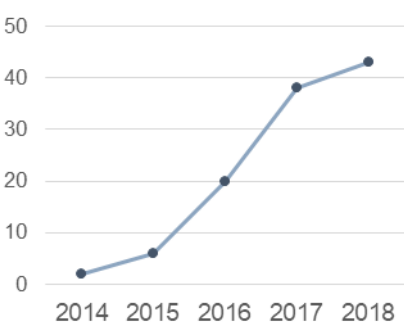
Consequently, PMI’s current strategy is expected to contribute with approximately \$2,45 billion in net revenues from 2019 to 2021, driven by an improved market positioning in several key markets.

Exhibit 16: R&D expense distribution by product type (2015 – 2018)



Source: Company Report

Exhibit 17: IQOS market presence evolution (number of countries)



Source: Company Report

¹⁷ “The Global Cigarette Industry”, Tobacco-Free Kids Campaign (2018), peer companies’ websites and annual reports

¹⁸ Company data

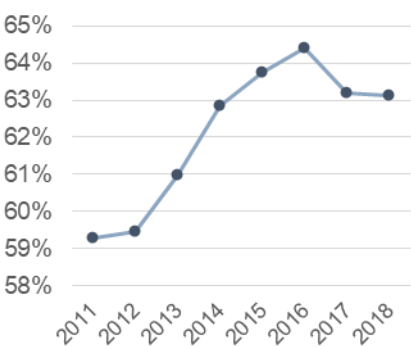
¹⁹ Forbes

“Approximately 10.000 people now switching from cigarettes every day” - PMI

The momentum of IQOS in several European key cities (main launch markets apart from Japan and Korea) remains favourable, result of Philip Morris’ successful marketing and digital initiatives. As the marketing is limited to selected areas in the EU launch markets, the regional market share of around 1% is not really reflective of IQOS’ performance in the region. Instead, analysing the numbers of IQOS users in this region, which has **increased by more than fourfold over the past year, to approximately 1.2 million**, it can better indicate the product’s success.²⁰

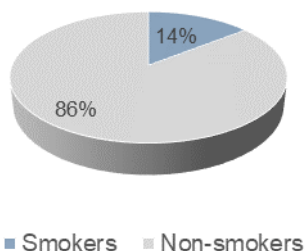
As a crucial step in achieving a smoke-free future, PMI is awaiting approval from several regulatory authorities, particularly the US Food and Drug Administration to commercialize its reduced products under a differentiated regulatory regime and **expects to enter the U.S. market in 2020**. This important short-term goal represents a new considerable sized market to explore, as well as a crucial step in achieving its vision, assuming this entry could be seen as a sign of trust and accelerate similar processes with other regulatory agencies.²¹

Exhibit 18: PMI’s total excise tax on products as % of net revenues (2011 – 2018)



Source: Company Report

Exhibit 19: Smokers as percentage of world population (2018)



Sources: World Health Organization, United Nations

Regulation

The health risks of smoking are well known by regulators whom have imposed year after year **higher excise taxes on cigarettes** (Exhibit 18). Moreover, costly regulation is applied in terms of packaging specifications, advertisement restrictions and smoking bans in enclosed public places.

With over 1,1 billion smokers worldwide, a considerable proportion of the world population (Exhibit 19), a ban on cigarettes would be hard to impose. Furthermore, it would not be probable as **taxes on cigarettes are a considerable revenue stream for governments**, therefore the prospect for this industry is one of higher excise taxes following the historical trend.

With the regulatory regimes applied to combustible products becoming significantly more demanding and representing a higher percentage of cigarette revenues every year, PMI believes that will be able to seek **more favourable regulatory regimes through reduced risk products** (lower overall excise tax rate observed in Exhibit 18 since 2017, driven by higher RRP volumes). As PMI CEO argues, tobacco products are not all the same and there is a need to educate consumers, reducing confusion about what these products are and what they stand for in terms of the potential benefits for their health (when compared to regular cigarettes).

²⁰Company data

²¹ Bloomberg Markets: Balance of Power

Regarding the pre-market regulatory assessments on tobacco products, these usually evaluate two major issues. Firstly, the potential of the product to reduce the individual risk for the consumer who permanently switched to it. Secondly, the impact on the population is evaluated regarding unintended uses or consequences of the product, for example, easier accessibility for underage or higher relapsing rates from people who already have quit.²²

With over 400 researchers dedicated to developing and improving these products, and **more than \$4,5 billion spent since 2008 in R&D**²³, PMI believes that regulatory agencies throughout the world will accept and understand the benefits of these products, when assessing the previous matters. With more favourable regulatory regimes, **IQOS could potentially be taxed at lower rates** and its advertising be less restricted in terms of content and channels, improving contribution to earnings and stock performance.

Economic Drivers

There is empirical evidence that **economic cycle has an impact in the performance of the tobacco industry**, as during recessions, cigarette consumption decreases.²⁴ In the context of an economic slowdown, unemployment rates increase and consequently lead to a reduction of disposable income, followed by a drop in consumption and therefore increase the relative price of tobacco products. Since cigarettes are not a primary good, it is expected that consumers trade down to cheaper alternatives and eventually quit smoking.²⁵ Economic conditions, through nominal GDP growth, are therefore considered a significant driver of the tobacco market.

Industry cyclicity combined with **low bargaining power of consumers** (due to its addictive nature, making **cigarette demand generally more price inelastic**) promotes the development of a strong pricing power that helps offsetting declining volumes (Exhibit 20), although partially during recessions.²⁶ Moreover, according to PMI, HTUs are sold at a price similar to premium combustible products, generally across all markets, and also maintaining a price inelastic behaviour. Therefore, as this type of product is becoming a representative segment in the tobacco market, despite declining volumes within the industry, the market size in USD is expected to steadily increase (Exhibit 21).

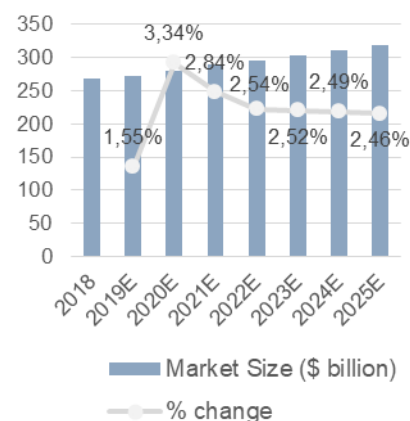
The development level of each country directly influences technological diffusion. In line with current PMI strategy, **IQOS' launches have been targeting**

Exhibit 20: Global cigarette market: Historical retail volume and current retail value (2011 – 2017)



Source: Euromonitor (2018)

Exhibit 21: Global tobacco market size (PMI operating markets, 2018 - 2025)



Source: Analyst estimates

²² CNN Money Switzerland: Executive Talk

²³ Company Report

²⁴ Kaiser, M. et al. (2017) Smoking and the Business Cycle: Evidence from Germany. IZA Institute of Labor Economics

²⁵ Company Report

²⁶ Value Line

developed countries and therefore, subsequent releases are expected to be prioritized to these types of geographies, with higher technology adoption propensity. Thus, after-launch **market conditions for developing countries are also expected to be less favourable, resulting in slower IQOS growth** when compared to developed ones.

Forecasting Assumptions

Revenues

PMI total revenues are segmented by four main regions, as reported by the company. Within each region, the segmentation is done at more precise level in which the most relevant reported countries are considered. The residual revenue from all remaining countries is analysed separately, maintaining a constant proportion relative to the reported countries, including the expansion component of RRP's in each region. Moreover, forecasts are driven by three main variables: **market size, market share** and **reduced-risk ratio**.

As mentioned before, **GDP growth is considered a main driver to forecast each country's tobacco market size**, being the latter the value of all tobacco products sold in USD. The relationship between GDP growth and market growth was regressed and proven to be statistically significant at a 10% significance level for homogeneous regions. Therefore, this driver forecasted until 2022, by the International Monetary Fund, is able to explain market behaviour and considered a relevant proxy (Exhibit 22).

PMI's **market share** in each country is forecasted based on recent **historical performance, country specific risks** and **competitors' performance** resulting in a short-term analysis going forward. For all major countries, except for Canada, Japan and Korea, PMI is dominating the heated tobacco segment facing no competition up to this date. Although competitors have entered the heated tobacco market in the three above mentioned countries, other market launches to occur within the short-term frame may not necessarily be successful in supplanting PMI's first-mover advantage, only ending the initial period of unchallenged dominance for IQOS. Therefore, **market shares are estimated from 2 to 3 years forward**, with changes resulting from PMI's first-mover advantage and strategy for its reduced-risk segment (referred in the Smoke-Free Future section). Thereafter, market shares are considered to stabilize, as a result of its peers' reaction.

Although only marketing IQOS in 43 markets worldwide, PMI's goal of achieving a smoke-free future implies increasing the reach of its heated tobacco products

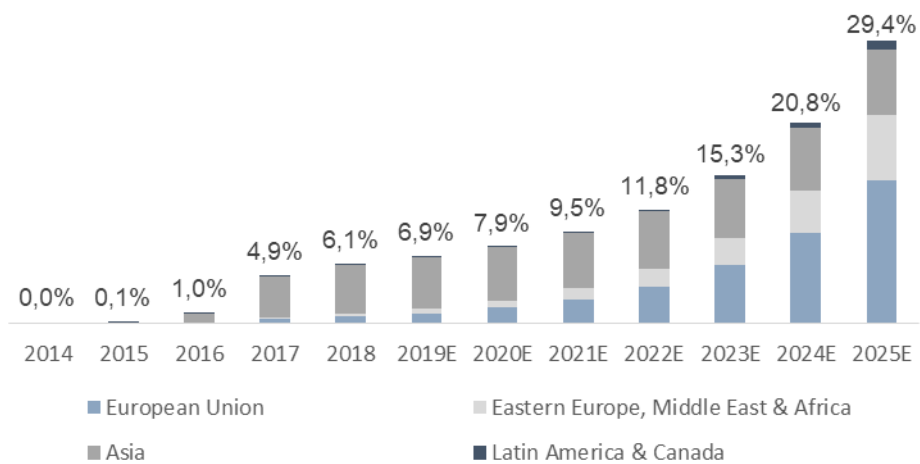
Exhibit 22: Relationship between GDP and tobacco market growths in the 16 forecasted countries (2015 – 2017)



Sources: Company Report, International Monetary Fund

at a global scope. According to the company’s estimates, PMI expects its revenue from reduce-risk products (excluding excise taxes) to be around \$17-\$19 billion in 2025, approximately 38%-42% of PMI total net revenues (at today’s pricing and excise taxes assumptions). Given this assumption, the **reduce-risk ratio** (RRP’s revenue as a percentage of total revenue) **is forecasted based on RRP’s ability to penetrate within each market**, keeping in mind an average target of 40% for 2025, reached at a compounded annual growth rate. Evidently, RRP’s performance and ability to convert regular cigarette consumers will vary between countries given their **intrinsic nature, values and openness to technological developments**. Consequently, less developed countries are not as likely to reach the set target whereas developed ones may surpass it. In 2025, the reduced-risk ratio estimate fell below PMI’s above-mentioned target reaching only 29,4% (Exhibit 23), driven by its expected inability to introduce IQOS in some of its key markets, mostly due to government bans.

Exhibit 23: Reduced-risk ratio segmented by region (2014 – 2025)



Source: Analyst estimates, Company Report

Exhibit 24: EU net revenue by product type (2015 – 2022)



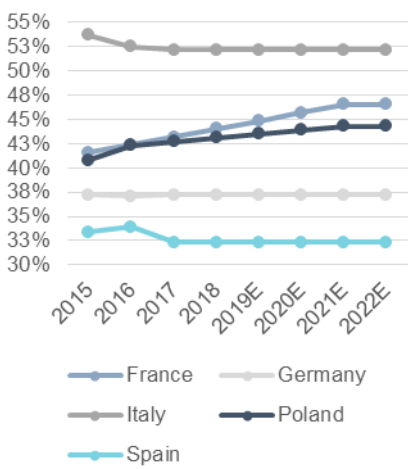
Source: Analyst estimates, Company Report

The combustible and reduced-risk products’ revenues for each country are computed through the combination of these aforementioned drivers.

▪ **European Union**

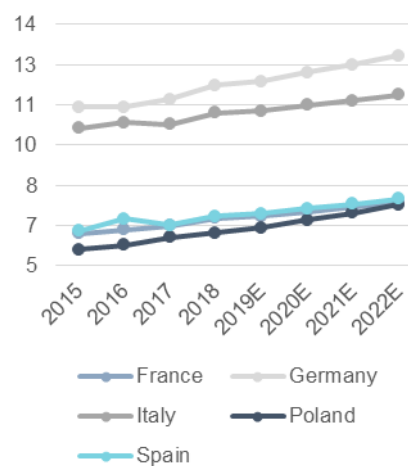
Within the European Union, heated tobacco products are expected to penetrate the market, mainly due to a substitution effect and, consequently, the reduced-risk ratio is estimated between 40% and 45% for 2025, based on IQOS historical performance and given the developed and homogeneous nature of these countries. Revenues are forecasted at a **10y CAGR of 2,4%** (Exhibit 24), mostly

Exhibit 25: EU market share by country (2015 – 2022)



Source: Analyst estimates, Company Report

Exhibit 26: EU market size in \$ billion by country (2015 – 2022)



Source: Analyst estimates, Company Report

Exhibit 27: EEMA net revenue by product type (2015 – 2022)



Source: Analyst estimates, Company Report

driven by a stronger market positioning and steady economic growth within the region.

Market share in **France** has grown 3,0 p.p. from 2014 to 2018, mostly driven by combustible products' strong performance in premium brands.²⁷ Furthermore, IQOS was launched in 2017, reaching sales of 32,5 million, enhancing the growth of the market share, even though up to this date, the distribution of IQOS is done only in 3% of tobacco shops in the country.²⁸ In this context, the market share is forecasted to grow from 44% in 2018 to 46,5% in 2021. In **Poland**, the market share is also expected to increase in the short-term, in line with the positive historical performance observed. In 2021, the market share is forecasted at 46,5% compared to the 44%, four years before. Regarding **Germany, Italy** and **Spain**, market shares have shown stagnation in the past and, given the inability of PMI to gain market share from its peers in an environment without HTU competition, they are expected to remain constant going forward.

▪ Eastern Europe, Middle East & Africa

EMEA forecasts for IQOS penetration and market presence are more conservative with reduced-risk ratio varying between 35% and 40%, mostly due to political instability, strong illicit trading presence within the region and the developing nature of some of its countries. Therefore, revenues are forecasted at a **10y CAGR of 2,2%** (Exhibit 27) in line with tobacco market growth.

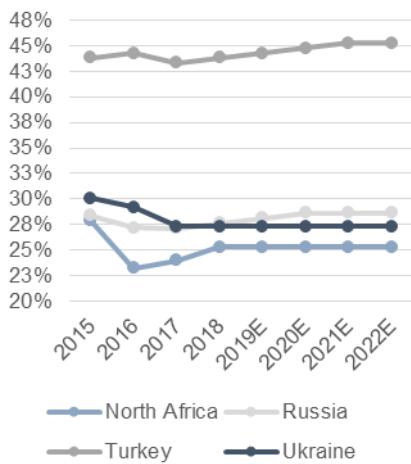
Philip Morris shows no plans of expanding its heated tobacco operations into the **North African region** in the short/medium term, relying on its combustible products. Market shares have been fluctuating around an average 25,3% in previous periods and therefore, expected to go forward in line with this figure.

Concerning the **Russian tobacco market**, PMI stands behind JT which is currently market leader.²⁹ However, JT and all other peers are not marketing heated tobacco products such as IQOS, enhancing the first-mover advantage of PMI. In this context, IQOS has shown a positive performance and expected to be pivotal in strengthening market positioning in this region with market share forecasted to increase by 1,0 p.p. until 2020.

Regarding **Turkey**, market share has shown stagnation, however, based on PMI's solo player competitive advantage in the HTU segment, coupled with a strong distribution network serving around 143.000 sales outlets in 81 cities throughout the country³⁰, market share is expected to grow 1,5 p.p. until 2021.

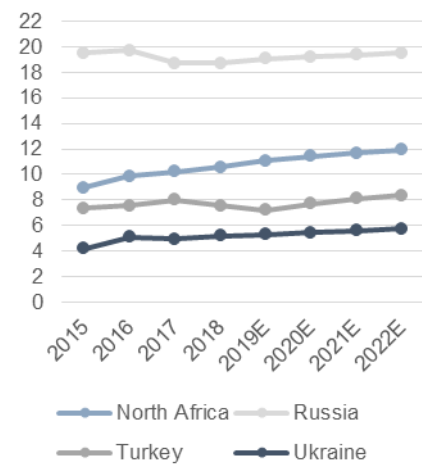
²⁷ Company Report
²⁸ ECigIntelligence - Market Report
²⁹ Bloomberg
³⁰ Source: Philip Morris International

Exhibit 28: EEMA market share by country (2015 – 2022)



Source: Analyst estimates, Company Report

Exhibit 29: EEMA market size in \$ billion by country (2015 – 2022)



Source: Analyst estimates, Company Report

Exhibit 30: Asia net revenue by product type (2015 – 2022)



Source: Analyst estimates, Company Report

In **Ukraine**, both Philip Morris and its peers have been losing market to illicit traders as a result of a repeated unpredicted increase in excise duty rates for cigarettes.³¹ Although showing a positive IQOS performance coupled with Ukrainian approved legislation in 2017 to fight illicit trade, given the country's political instability, market share is forecasted to remain stable into the future.

▪ **Asia**

Due to asymmetries in the countries belonging to Asia, this region shows no statistical evidence of a strong relationship between GDP growth and tobacco market growth, in contrast with all other regions. To overcome this issue, the relationship in this region was assumed to be similar to the one observed worldwide. Regarding IQOS penetration, it is highly significant for both Japan and Korea whereas for most countries, due to their cultural nature and legal constraints, reduced and/or non-existent. Driven by fundamentally strong combustible portfolio and strong IQOS performance in the above-mentioned countries, revenues are forecasted at a **10y CAGR of 3,2%** (Exhibit 30).

Launched in 2014, IQOS was firstly introduced in **Japan**, where it faced no competition in the heated tobacco segment until 2016, when BAT and JT launched similar products, Glo and Ploom Tech, respectively. This strong market positioning coupled with the ban on e-cigarettes (allowing IQOS to compete directly with regular cigarettes) and consumers preference for less harmful and more technologically advanced products, allowed PMI to experience an abnormal growth of 6,2 p.p. in the last four years. PMI's market share is forecasted to stabilize in the short-term due to the lower price at which these competitive products are marketed. According to its CEO, PMI is already implementing the right marketing and product measures, through a new line of cheaper devices, to reinvigorate growth in Japan, although not expected to pay-off until 2019.³² Furthermore, the reduced-risk ratio is expected to reach 70% by 2025, a 15,7 p.p. increase from 2018.

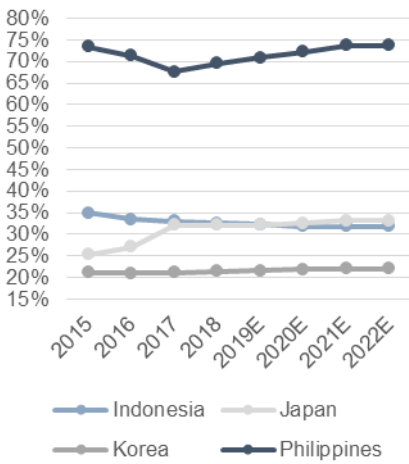
In June 2017, IQOS was launched in **South Korea** with an overwhelming performance, achieving in the same year \$145 million of RRP revenue, although competing with BAT's heated tobacco product - Glo. South Korean government claims to have found, in recent test results, harmful substances in heated tobacco products such as IQOS. Despite Philip Morris already filling a lawsuit opposing such claim³³, consumers became confused about using alternative tobacco products over conventional ones. Consequently, market share growth is

³¹ Source: Imperial Tobacco

³² Financial Times

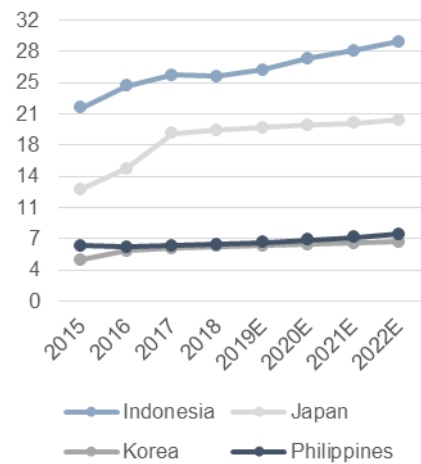
³³ Financial Times

Exhibit 31: Asia market share by country (2015 – 2022)



Source: Analyst estimates, Company Report

Exhibit 32: Asia market size in \$ billion by country (2015 – 2022)



Source: Analyst estimates, Company Report

Exhibit 33: Latin America & Canada net revenue by product type (2015 – 2022)



Source: Analyst estimates, Company Report

expected to slow down in the following years. Moreover, the reduced-risk ratio is expected to reach 40% by 2025, a 26,5 p.p. increase from 2018.

PMI's market share in **Philippines** has been decreasing in the past few years and lately, particularly in low price brands, due to the timing of competitor's price increases. In the third quarter of 2018, market share has already climbed to 69,5% and expected to increase by 4,1 p.p. until 2021, reaching recent historical figures.³⁴ PMI has been losing market share in **Indonesia** mainly due to the soft performance of some brand portfolios, higher levels of illicit trading and competitors' discounted product offerings, therefore, the market share is expected to follow this historical trend. For these last two mentioned countries, Philip Morris does not expect to launch IQOS, at least for the time being. In **Philippines**, PMI is focused on growing its combustible products portfolio, whereas in **Indonesia**, electronic smoking devices such as IQOS are government banned.³⁵

▪ Latin America & Canada

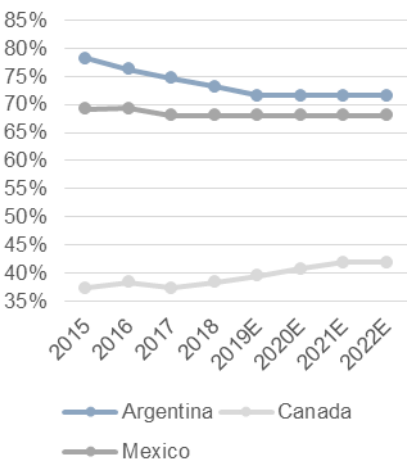
The low presence of reduced-risk products in this region comes as a consequence of legal constraints and economic instability. Canada remains pivotal as the main IQOS driver, currently deploying a countrywide expansion strategy. Revenues are therefore mainly driven by PMI's combustibles' portfolio with a **10y CAGR of 2,37%** (Exhibit 33).

IQOS was launched in **Canada** in 2016 followed by BAT's launch of Glo in 2017. Despite PMI's market share been fluctuation around 37,7% and with strengthened competition, the company is deploying an expansion strategy.³⁶ Based on a series of touchpoints that together create a unique ecosystem, PMI is opening owned retail stores, betting on online commerce, and working on partnerships in existing retail networks, resulting in an expected market share increase from 38,4% in 2018 to 41,8% in 2021. Additionally, the reduced-risk ratio is expected to reach 45% by 2025, a 44,2 p.p. increase from 2018.

In **Mexico**, market share has been slightly decreasing due to competitive pressure in the low-price segment *Delicados*,³⁷ however, this effect is not expected to be significant going forward, with the forecasted share remaining stable. IQOS is not expected to be launch in the above market as Mexican law forbids the use of electronic smoking devices.³⁸

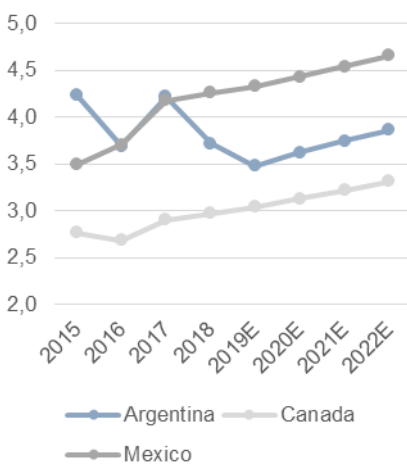
³⁴ Company Report
³⁵ Nikkei Asian Review, Tobacco Reporter
³⁶ Retail Insider
³⁷ Company Report
³⁸ Press Reader

Exhibit 34: Latin America & Canada market share by country (2015 – 2022)



Source: Analyst estimates, Company Report

Exhibit 35: Latin America & Canada market size in \$ billion by country (2015 – 2022)



Source: Analyst estimates, Company Report

Exhibit 36: Excise tax on products by region as % of net revenues (2018 – 2028)

European Union	69,84%
EEMA	62,88%
Asia	52,33%
Latin America & Canada	70,11%

Source: Analyst estimates

Regarding **Argentina**, revenues are expected to decrease as the economy faces a currency crisis resulting in high inflation.³⁹ Not only the tobacco market is expected to shrink during the next two years, but also PMI's market share is forecasted to decrease as consumers seek cheaper alternatives to premium brands, coupled with local manufactures' exemption from paying minimum excise tax in the low-price segment.⁴⁰ Similar to Mexico, Argentina also forbids the use of electronic smoking devices⁴¹, therefore IQOS is not expected to be released in this market in the foreseeable future.

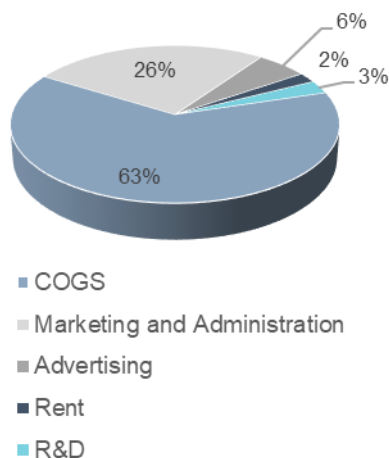
Excise Taxes

PMI argues that **excise taxes on reduced-risk products are generally lower than conventional combustible products' taxes**.⁴² In fact, countries have different attitudes and views towards reduced-risk products which results in asymmetric governmental actions when regulating and taxing these products. As mentioned before, several countries, particularly in Asia and Latin America demonstrate a conservative view towards RRP, implementing bans on their commercialization or taxes in line with cigarettes. On the other hand, countries within the European Union, must comply with a regulatory framework that enables them to tax RRP as they perceive to be fit, although above the harmonised minimum set by the European Commission Directive of 20% of the retail selling price. In contrast, cigarettes' minimum excise tax is set to be 60%. Currently, Japan, South Korea and three countries in the EU - Portugal, Italy and Hungary⁴³ - are among the ones that apply an excise tax rate for RRP lower than those applied for cigarettes.

PMI sets its expectations in a worldwide acceptance of lower taxes for reduced-risk products, on the basis that by reducing tobacco related externalities, these less harmful products should be taxed at lower rates. However, intergovernmental institutions and sovereign authorities still need to assess and ensure that RRP are significantly less harmful for consumers' health than combustible products, in order to materialize those expectations. Furthermore, tobacco excise taxes are a significant source of funds for many countries which leads to a **lobbying movement of governments against lower taxes** on tobacco products.

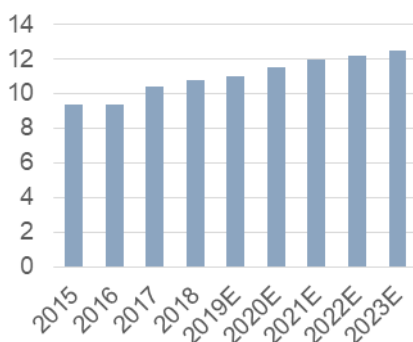
³⁹ Bloomberg
⁴⁰ Company Report
⁴¹ Fortune
⁴² Company data
⁴³ European Commission

Exhibit 37: Distribution of operating costs (2018)



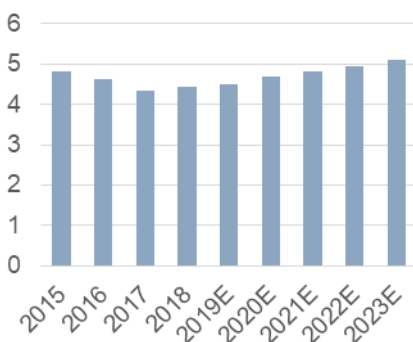
Source: Company Report

Exhibit 38: Cost of sales in \$ billion (2015 – 2023)



Source: Analyst estimates, Company Report

Exhibit 39: Marketing and administration costs in \$ billion (2015 – 2023)



Source: Analyst estimates, Company Report

In this context, **excise taxes** in percentage of revenues are **forecasted to remain constant going forward** (Exhibit 36) as these diverging forces are expected to offset each other, neutralizing the past upward trend (Exhibit 18).

Operating Costs

The company segregates its operating costs in 5 major captions: cost of sales (COGS), marketing and administration costs, advertising expenses, rent expenses and R&D (Exhibit 37).

Cost of sales are expected to **slightly increase as percentage of revenues in the short-term**, result of the company’s increasing capacity, reverting its economies of scale achieved in the combustible segment by switching a considerable part of production to RRPs. Moreover, this caption includes costs related to IQOS devices, produced by third-party manufacturers. These are marketed at lower margins given the competitors’ pressure through lower priced similar products. Notwithstanding, IQOS’ unit costs have already decreased by 15% in 2017, offset by introductory discounts of approximately 25%.⁴⁴

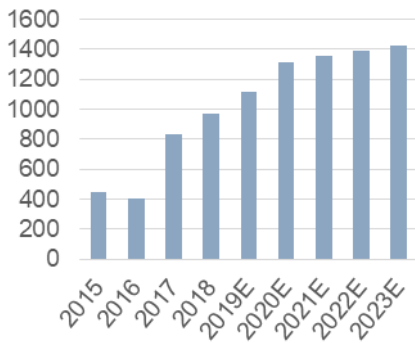
Further in the future, gross margin is expected to improve and revert to 63,7% by 2028, slightly below the industry median of 64,3%, as economies of scale in reduced-risk products are developed. This assumption is corroborated by Philip Morris, assuming that their **RRPs segment has the potential to reach margins in line with premium cigarette brands**.⁴⁵

Marketing and administration costs are mostly related to operations and management and have been following a downwards trend in the past few years, suggesting efficiency improvements within the business model. This caption as percentage of revenues remained stable from 2016 to 2018, and consequently **expected to remain constant at 15% of revenues going forward**, slightly below the industry median of 15,5%.⁴⁶

Advertising expenses are expected to **increase in the short-term** as the company is currently supporting heavily the marketing of reduced-risk products. In 2017, PMI spent an additional \$325 million in advertising, reflecting increased investment behind reduced-risk products. From 2021 onwards, advertising costs are **forecasted to remain constant at 4,2% of revenues**, as the company’s market positioning in the RRPs segment becomes strong and the product well established. **Rent expenses** are forecasted to follow a **slight increasing trend in line with PMI’s expansion plans** as the retail stores network grows, supporting the diffusion of its reduced-risk segment.

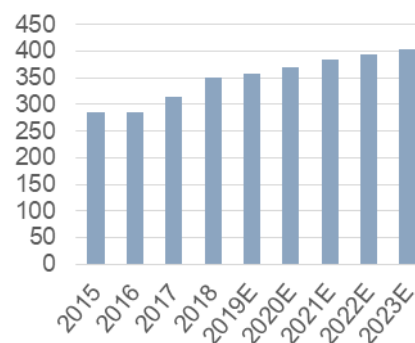
⁴⁴ Company data
⁴⁵ Company data
⁴⁶ Thomson Reuters

Exhibit 40: Advertising expenses in \$ million (2015 – 2023)



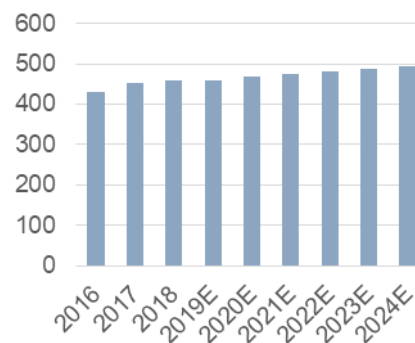
Source: Analyst estimates, Company Report

Exhibit 41: Rent expenses in \$ million (2015 – 2023)



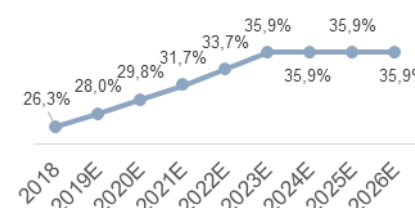
Source: Analyst estimates, Company Report

Exhibit 42: R&D expenses in \$ million (2015 – 2023)



Source: Analyst estimates, Company Report

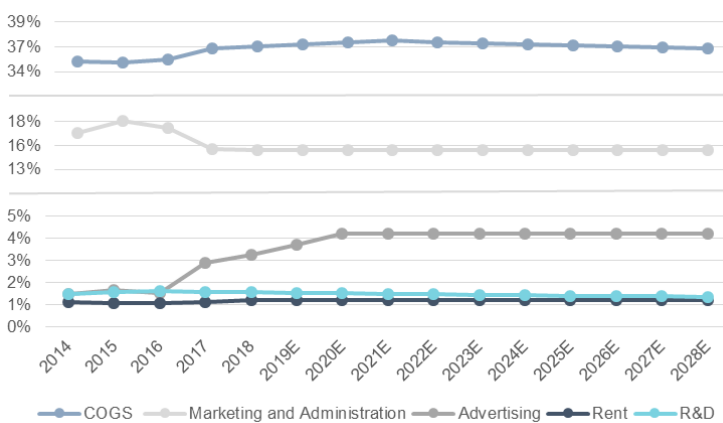
Exhibit 44: PP&E as % of revenues (2018 – 2026)



Source: Analyst estimates, Company Report

Since 2008, Philip Morris has been developing RRP's spending over \$4,5 billion in R&D. Being this product's success fundamental in achieving PMI's vision, the company expects to maintain investment levels on R&D at 1,5%, in line with the industry median of 1,6%, as new iterations of its products are already being marketed and developed. To prove consumers and authorities that these products are indeed less harmful than regular cigarettes, the company is committed to spending a considerable amount of its R&D budget on testing, a crucial step in achieving differentiated regulatory regimes.

Exhibit 43: Operating cost captions as % of revenues (2014 – 2028)



Source: Analyst estimates, Company Report

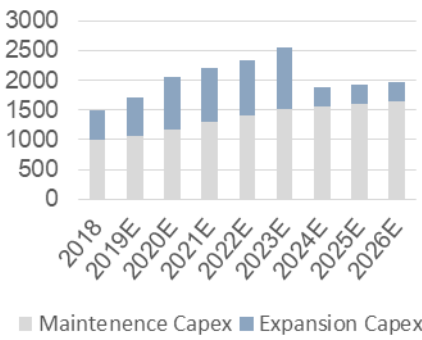
Capital Expenditures

Regarding **Capital Expenditures**, Philip Morris does not disclose forecasted figures other than the CAPEX for 2018 of approximately \$1,5 billion, already down 12% from the previously disclosed \$1,7 billion. This reduction reflects primarily lower spending on reduced-risk manufacturing equipment due to increased production efficiency, as well as lower spending on manufacturing plants due to dual-production flexibility at existing facilities.

Being 29% lower when compared to 2017, the 2018 CAPEX figure reflects the company's planned strategy for this year to consolidate its presence in the 43 established markets for IQOS, and thereafter increase its global reach. In contrast, in 2017, PMI spent more than \$2,0 billion on capital expenditures, result of the IQOS expansion to 18 new markets and a \$300 million investment to convert the cigarette manufacturing plant of Papastratos, PMI's affiliate in Greece, into a facility to produce the tobacco sticks to be used on IQOS.

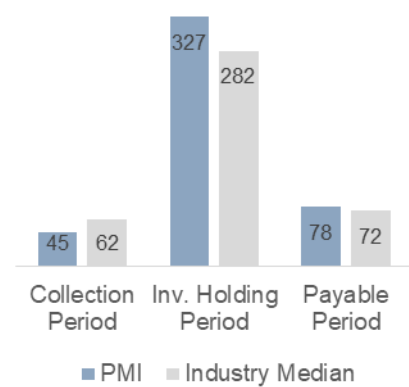
In 2018, reduced-risk related CAPEX already represents approximately 60% of total capital expenditures, despite reduced-risk revenues being only 6% of total PMI revenues. This allocation is expected to remain high and increase going forward as the company's vision of a smoke-free future depends on increasing

Exhibit 45: Capital expenditures in \$ million (2018 – 2026)



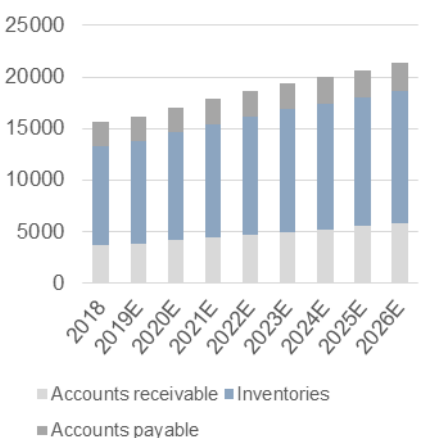
Source: Analyst estimates, Company Report

Exhibit 46: PMI against industry peers activity's efficiency ratios (2018)



Source: Analyst estimates, Company Report

Exhibit 47: Main NWC items in \$ million (2018 – 2026)



Source: Analyst estimates, Company Report

production capacity to match reduced-risk products' demand, as well as on a strong distribution network of owned physical retail stores. In the short-term, **capital expenditures are expected to increase due to its strong expansion component** (Exhibit 45), which is expected to decrease from the 2024 onwards, as PMI's reduced-risk segment achieves a stronger global presence.⁴⁷

Net Working Capital

As Philip Morris is under an expansion plan and changing the business model, its **short-term capital needs are expected to increase**. By only analysing the historical figures of the company's Net Working Capital, as percentage of revenues and cost of sales, the forecasts would not be accurate due to the changing environment. All current assets and liabilities that derive from operational activities were included in the NWC and **analysed against the median of its peers**, considered as an industry proxy (Exhibit 46).

Consequence of the bet on reduced-risk products, it is expected that the company's **cash conversion cycle increases** in the following years. As the company relies on new IQOS suppliers, its average **payable period is forecasted to decrease** from the current value of 78 to 72 days in 2028, when comparing to the past business model in which conventional cigarettes were mostly self-produced. In contrast, as the turnover of IQOS devices is lower than cigarettes, retailer's cash conversion is expected to amplify and consequently **increase PMI's average collection period** from 45 days in 2018 to 62 in 2028. Furthermore, as the reduced-risk segment is expected to become more relevant, **inventories are forecasted to increase** to 35,2% of total revenues by 2023 (a 2,5 p.p. increase from 2018), supporting future IQOS demand.

Dividends

As mentioned before, cash dividends play an important role in meeting investors' expectations and consequently sustaining share performance. As announced by PMI in 2018, **dividend growth will remain a key priority** going forward.⁴⁸ Therefore, dividends are expected to increase, however, its growth is forecasted to **slow down from 3,8% in 2019 to 2,8% in 2024**, converging to a **sustainable growth in line with the perpetual growth rate** (Exhibit 48).

Exhibit 48: Estimated cash dividend and % growth (2019 – 2028)

	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E
Cash dividend (\$)	4.66	4.83	4.99	5.15	5.30	5.44	5.59	5.75	5.91	6.07
Annual growth	3,8%	3,6%	3,3%	3,1%	2,9%	2,8%	2,8%	2,8%	2,8%	2,8%

Source: Analyst estimates

⁴⁷ Company data

⁴⁸ Company data

Valuation

Relative Valuation

The use of a relative valuation methodology with comparable companies can be useful to triangulate the DCF valuation outcome. However, one should bear in mind that valuation models not based on forecasted cash flows are limited in their applicability since they do not take into account the expected development of the company, a crucial factor to determine the company’s value, based on its future ability to generate cash. Moreover, there is a considerable margin of error due to **implementation issues**, rising from the selection of comparables that might not be pure players and consequently bias the valuation. In addition, the target company’s share price is determined from the market value of comparables’ multiples, which are not guaranteed to be efficiently priced by the market, translating into a **circularity issue**.

The valuation was performed with 3 broadly used multiples in the investment community: **EV/Revenues**, **Price-to-earnings ratio (P/E)** and **EV/EBITDA**, with the latter being also used for a **Precedent Transaction analysis**. According to McKinsey’s valuation book, enterprise value to EBITDA is the best multiple for comparing valuations across companies, since P/E ratio is distorted by the company’s capital structure and non-operating gains and losses. On the other hand, EV/Revenues is distorted by the company’s cost structure that is not captured in this ratio. Despite these facts, all 3 multiples were considered in order to obtain a wider perspective.

As recommended by McKinsey’s book, the valuation comprised forward-looking multiples computed with projected financial metrics in the denominator, estimated by Thomson Reuters. Rather than last year’s reported figures, forward-looking multiples provide a more future-centred estimate and theoretically more accurate. Furthermore, due to recent bearish market behaviour, strongly affecting share performance, it was also thought appropriate to use **through the cycle multiples**, which were computed using the figures from 2014 onwards.

The results of the relative valuation are displayed in Exhibit 49 and, as mentioned above, the limitations of this methodology coupled with the significant impact of current market fluctuations in the forward-looking multiples, call for reservations regarding the conclusions that can be withdrawn from this analysis.

Exhibit 49: Relative Valuation: Peers’ Multiples (2019 share price in \$)

	Median Multiple	Share Price
Through the cycle		
P/E	18,9x	102,5
EV/EBITDA	13,8x	87,9
EV/Revenues	4,3x	65,0
Precedent transac.		
EV/EBITDA	11,2x	67,9
Forward-looking		
P/E	12,9x	70,2
EV/EBITDA	10,1x	59,1
EV/Revenues	4,5x	69,3

Source: Bloomberg, Thomson Reuters

Discounted Cash Flows Method

Supported by the companies’ forecasted cash flows, the enterprise value of PMI was calculated through the most common and frequently used valuation

methodology - the **Discounted Cash Flows Method (DCF)**. This methodology consists in discounting the future cash flows of the company at the appropriate cost of capital – the **Weighted-Average Cost of Capital (WACC)**.

PMI has a capital structure composed by both equity and financial debt that fluctuate each year along with the enterprise value, resulting in a **changing WACC** driven by a **fluctuant debt to equity ratio** as the company’s capital structure is adjusted (Appendix III).

The DCF method splits the estimation of the future cash flows into two segments, the estimated cash flows for each forecasted year, in this case until 2028, and the terminal value, that together represent the value of the company’s core operations. The terminal value computation requires the company to have already achieved steady-state of its operations, given by a constant growth of the Net Operating Profit Less Adjusted Taxes (NOPLAT).

▪ **WACC Assumptions**

WACC’s computation requires the company’s **debt to equity ratio**, **cost of equity**, **cost of debt** and applicable **marginal tax-rate**. In this context, each of these inputs was estimated (Exhibit 50).

Through the same WACC’s calculation methodology, the **cost of equity** was computed under the **Capital Asset Pricing Model (CAPM)** assumptions for each forecasted year, considering the three following inputs: **risk-free rate**, **market risk premium** and **beta of equity**.

The **risk-free rate** was inferred from a 10-year US Government Bond, given the fact that Philip Morris, being based in New York, declares its financial statements in US dollars and the bond maturity matches the one of the forecasted cash flows. This debt instrument is considered to be a good proxy of risk-free debt, given its low risk nature, namely default and reinvestment risks, as well as its considerable liquidity. The risk-free rate was then considered to be the **3,19%** yield to maturity of this bond.

The **market risk premium** was set at **5,50%**, which is a consensual figure among the investment community for the excess return investors expect when holding the market portfolio.⁴⁹

As for the final variable, the **beta of equity** (levered) was computed with the **unlevered beta of the industry** as input, assumed to be the median of the peer companies and PMI itself (Exhibit 51). Thus, enabling the calculation of PMI’s cost of equity for each forecasted year, adjusting for capital structure’s changes

Exhibit 50: WACC components (calculation for perpetuity)

Risk-free rate	3,19%
Market risk premium	5,50%
Levered beta	0,74
Cost of equity	7,25%
Cost of debt	3,69%
Tax-rate	21%
Target D/E ratio	8,99%
WACC	6,90%

Source: Bloomberg

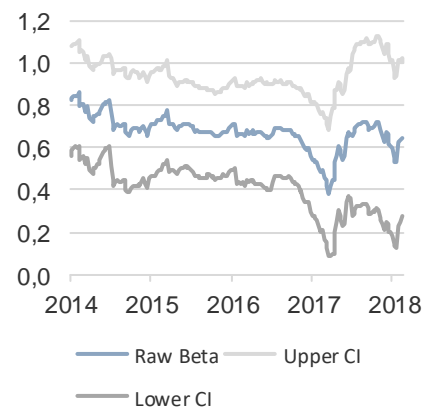
Exhibit 51: Peer companies’ equity beta and industry median

	Forward looking beta	Unlevered beta
PMI	0,80	0,68
BAT	0,94	0,70
IMB	0,82	0,60
JT	0,74	0,69
Industry median		0,69

Source: Bloomberg

⁴⁹ Mckinsey Valuation “Measuring and Managing the Value of Companies”

Exhibit 52: Rolling 2-year PMI's equity beta and respective CI (2014 – 2018)



Source: Bloomberg

Exhibit 53: PMI's cost of debt calculation

Yield to maturity	3,19%
Annualized probability of default	5,50%
Loss given default	0,74
Cost of debt	3,69%

Source: Bloomberg

(Appendix III). The calculation of the unlevered beta of the industry required the computation of the forward-looking betas of the companies, which was derived by **regressing the 2-year weekly stock returns of each company on the MSCI World index returns**. This equity index is considered to be a good market proxy serving as a broad representation of the overall stock market, given its diversified sectoral and geographical nature. Due to past fluctuations of the equity raw beta, observed in its current wide confidence interval (CI) of [0,28;1,01] (Exhibit 52), the assumptions for the beta will be later challenged through a sensitivity analysis.

PMI's **cost of debt** was computed with the following inputs: **yield of a 10-year bond** issued by PMI, the corresponding annualized **probability of default** and the **loss given default** for this type of security. Therefore, the cost of debt was derived from the 10-year bullet senior unsecured bond issued by PMI in 2014 with an YTM of 3,78%, deducted by the product of the annualized probability of default and the loss given default ratio (LGD). The calculations of the last two inputs was based on a Moody's study on default that directly links the annualized probability of default to PMI's A2 credit rating. Consequently, the pre-tax **cost of debt** used to compute the WACC was **3,69%** (Exhibit 53).

- Perpetual Growth

Through an **explicit forecasted period of 10 years**, the model arrived at a steady state with a **NOPLAT's growth rate of 2,8%** (Appendix 3). Considered to compute the Terminal Value, the perpetual growth rate is slightly above the estimated long-term inflation rate of 2,2%, resulting in a **positive expected real long-term growth**. This assumption will be further challenged through a sensitivity analysis.

Final Considerations

PMI's equity market value, as of December 2019, was estimated to be \$164,51 billion, given by the combination of the core operations' enterprise value and the market value of non-core operations, deducted of the company's market value of net financial debt and minority interests. With an approximate of 1,55 billion shares outstanding, **PMI's target share price is forecasted at \$105,83**. Considering a cash dividend to be paid in 2019 of \$4,66, the **1-year shareholder return is estimated at 65,5%** resulting in a BUY recommendation.

To assess the reasonability of the assumptions behind the valuation, one must analyse the value creation metrics implicit in the projections and the respective cost of capital. Regarding the return on invested capital (ROIC), it has been decreasing throughout the forecasting period, driven by lower returns on new

invested capital (RONIC) ranging from 9,7% to 13,1%. However, with RONICs higher than PMI's maximum registered cost of capital of 6,90%, **the company is able to generate value to its shareholders**. In addition, the implicit **RONIC** observed before perpetuity is 12,7%, larger than the WACC of 6,90% but **considered to be sustainable in the long-run**, given the mature nature of the tobacco sector and its high entry barriers (Appendix 3).

Sensitivity Analysis

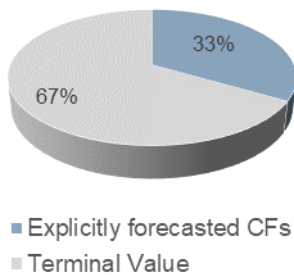
In order to determine the reliability of the Discounted Cash-Flows Model, one must challenge its assumptions through a sensitivity analysis of the inputs considered most relevant: **perpetual growth rate** and **unlevered beta**.

Given the considerable proportion of the Terminal Value on the Enterprise Value (Exhibit 54), the impact of the **perpetual growth rate** on the estimated target share price was assessed. Moreover, due to the disruptive environment in this industry, departing from traditional tobacco products, the unlevered beta was also included in the above-mentioned analysis to evaluate the impact of changes in systematic risk of the core business.

The target price was forecasted under variations of the **unlevered beta** within the interval of [0,55;0,85], with the lowest corresponding to PMI's unlevered beta resulting from a 2-year historical analysis of its weekly returns against the market. This is one of the most impacting WACC components, which directly affects the present value of all forecasted cash-flows, thus the target share price. The cost of debt was not included in this analysis since there are no planned debt issues nor PMI's credit rating expected to suffer changes.

Through this analysis (Exhibit 55), the target share price is estimated to be in a range, so that **the current investment recommendation is maintained**.

Exhibit 54: Enterprise value distribution



Sources: Analyst estimates

Exhibit 55: Target share price sensitivity analysis

	Terminal Growth						
	2,1%	2,3%	2,5%	2,8%	3,0%	3,2%	3,4%
0,55	112,98	117,96	123,46	132,91	140,17	148,39	157,76
0,60	104,69	108,97	113,67	121,66	127,74	134,55	142,24
0,65	97,37	101,08	105,12	111,96	117,11	122,83	129,22
0,69	92,67	96,03	99,69	105,83	110,43	115,52	121,18
0,75	85,04	87,88	90,95	96,07	99,87	104,04	108,63
0,80	79,79	82,30	85,01	89,49	92,79	96,40	100,34
0,85	75,05	77,28	79,67	83,61	86,51	89,65	93,07

Source: Analyst estimates

Scenario Analysis

The analysis was structured to assess the impact of the following business risks to the company: **excise tax** variations and **gross margin** deterioration. Excise taxes have been increasing in the past, as percentage of revenues. Regarding the gross margin, it has been decreasing as PMI departs from its well-established economies of scale, due to changes in its business model.

To analyse the above-mention business risks, three hypothetical cases were considered: **the base-case** – reflected in the DCF valuation, which includes the scenario believed to be the most likely to occur -, the **optimistic and the pessimistic cases**.

For the development of the **optimistic scenario**, it was considered that within the EU region, excise taxes for RRP's going forward are lower than the ones for regular cigarettes, result of more favourable regulatory regimes. This effect can be broadly applied to the entire region due to the organisational structure of the European Union, which mandates directives applicable to all countries within its jurisdiction. Therefore, excise taxes as percentage of revenues are expected to decrease going forward as the reduced-risk ratio increases, on the basis that excise taxes for RRP's are set at 30% in 2019, above the current minimum guidance of 20%. Thereafter, taxes for both RRP's and regular cigarettes are expected to increase at 0,41% a year, reflecting past growth trends. Additionally, in 2023, gross margin is expected to improve to 63,7% after the initial deterioration stemming from the upward scale of RRP's.

This scenario results in an **expected target share price of \$135,89**, reflecting no change in the current recommendation.

Regarding the **pessimistic case**, RRP's are not considered to be taxed under differentiated regulatory regimes within all regions. Therefore, excise taxes on these products are expected to be in line with the ones for regular cigarettes, and subsequently increase by 0,82% a year going forward. Gross margin is not expected to revert to past figures, given PMI's inability to increase the efficiency of its RRP production, failing to achieve a gross margin aligned with the one of its premium brands. Therefore, from 2021 onwards, gross margin is expected to stabilize at 62,9%.

This last scenario yields an **expected target share price of \$68,10**, resulting in an estimated one-year return of 9,0% (including expected capital gains and cash dividends), given the current share price, consequently changing the investment recommendation to HOLD.

Appendix

Financial Statements

1. Income Statement

Income Statement	2014	2015	2016	2017	2018	2019E	2020E	2021E	2022E	2023E	2024E	2025F	2026E	2027E	2028E
Core Business															
Net Revenues															
Combustible Products															
European Union	29 058	26 533	27 067	27 261	28 354	28 562	29 015	29 084	28 589	27 265	24 671	20 003	19 406	18 768	18 088
Eastern Europe, Middle East & Africa	21 928	18 328	18 276	17 886	18 107	18 294	18 824	18 985	18 761	18 194	17 046	14 964	14 751	14 522	14 278
Asia	19 255	19 434	19 865	19 325	19 392	19 719	20 343	20 983	21 470	21 969	22 453	22 918	23 562	24 214	24 873
Latin America & Canada	9 865	9 547	9 006	9 833	9 383	9 200	9 525	9 812	10 022	10 170	10 216	10 071	10 264	10 455	10 644
Total Revenue Combustible Products	80 106	73 842	74 214	74 305	75 236	75 775	77 707	78 865	78 842	77 598	74 386	67 957	67 982	67 958	67 883
Reduced-Risk Products															
European Union	-	30	62	320	527	832	1 336	2 143	3 437	5 515	8 874	14 321	15 709	17 151	18 649
Eastern Europe, Middle East & Africa	-	-	9	158	231	369	607	988	1 590	2 553	4 101	6 584	7 203	7 838	8 491
Asia	-	35	666	3 310	4 119	4 361	4 690	5 044	5 368	5 717	6 095	6 506	6 753	7 006	7 264
Latin America & Canada	-	1	2	5	13	24	46	85	156	284	519	946	1 037	1 133	1 233
Total Revenue Reduced-Risk Products	-	66	739	3 793	4 890	5 586	6 679	8 261	10 551	14 070	19 588	28 357	30 702	33 128	35 636
Total PMI Net Revenues	80 106	73 908	74 953	78 098	80 126	81 361	84 386	87 126	89 393	91 667	93 975	96 314	98 684	101 086	103 519
Excise taxes															
European Union	- 20 219	- 18 495	- 18 967	- 19 262	- 20 170	- 20 528	- 21 197	- 21 808	- 22 367	- 22 893	- 23 428	- 23 971	- 24 524	- 25 085	- 25 656
Eastern Europe, Middle East & Africa	- 13 006	- 10 964	- 11 286	- 11 346	- 11 531	- 11 735	- 12 218	- 12 559	- 12 796	- 13 046	- 13 297	- 13 550	- 13 804	- 14 060	- 14 317
Asia	- 10 527	- 11 266	- 11 850	- 11 845	- 12 304	- 12 601	- 13 100	- 13 620	- 14 045	- 14 488	- 14 939	- 15 398	- 15 864	- 16 337	- 16 818
Latin America & Canada	- 6 587	- 6 389	- 6 165	- 6 897	- 6 587	- 6 467	- 6 709	- 6 939	- 7 135	- 7 329	- 7 525	- 7 723	- 7 923	- 8 124	- 8 326
Total Excise Taxes	- 50 339	- 47 114	- 48 268	- 49 350	- 50 592	- 51 331	- 53 224	- 54 927	- 56 343	- 57 756	- 59 189	- 60 642	- 62 114	- 63 606	- 65 116
Total PMI Net Revenues (excl. Excise Taxes)	29 767	26 794	26 685	28 748	29 535	30 030	31 162	32 199	33 050	33 912	34 785	35 672	36 570	37 480	38 402
Cost of Sales	- 10 436	- 9 365	- 9 391	- 10 432	- 10 777	- 11 017	- 11 495	- 11 942	- 12 219	- 12 499	- 12 781	- 13 066	- 13 353	- 13 643	- 13 935
Gross Profit	19 331	17 429	17 294	18 316	18 758	19 012	19 667	20 257	20 831	21 413	22 004	22 606	23 217	23 837	24 467
Marketing and administration costs	- 4 997	- 4 827	- 4 618	- 4 342	- 4 431	- 4 506	- 4 675	- 4 831	- 4 959	- 5 088	- 5 219	- 5 352	- 5 487	- 5 623	- 5 762
Advertising expenses	- 439	- 448	- 405	- 830	- 967	- 1 114	- 1 311	- 1 355	- 1 391	- 1 427	- 1 464	- 1 501	- 1 539	- 1 577	- 1 616
Rent expenses	- 336	- 286	- 284	- 313	- 351	- 357	- 370	- 383	- 393	- 403	- 414	- 424	- 435	- 446	- 457
R&D expense	- 433	- 423	- 429	- 453	- 457	- 457	- 467	- 475	- 481	- 487	- 493	- 500	- 507	- 514	- 521
ow with RRP	-	- 296	- 309	- 335	- 344	- 350	- 363	- 375	- 385	- 395	- 406	- 416	- 426	- 437	- 448
ow with combustible products	-	- 127	- 120	- 118	- 113	- 107	- 104	- 100	- 96	- 92	- 88	- 84	- 80	- 77	- 73
EBITDA	13 126	11 445	11 558	12 378	12 552	12 578	12 843	13 213	13 607	14 008	14 415	14 829	15 250	15 677	16 112
Amortization of intangibles	- 93	- 82	- 74	- 88	- 89	- 91	- 94	- 97	- 100	- 102	- 105	- 108	- 110	- 113	- 116
Depreciation	- 796	- 672	- 669	- 787	- 907	- 981	- 1 084	- 1 192	- 1 302	- 1 422	- 1 458	- 1 496	- 1 533	- 1 571	- 1 610
Total Operating Income (EBIT)	12 237	10 691	10 815	11 503	11 556	11 506	11 665	11 924	12 206	12 484	12 851	13 226	13 606	13 993	14 386
Recurrent Operational Taxes	- 3 090	- 2 559	- 2 535	- 2 734	- 2 658	- 2 646	- 2 683	- 2 743	- 2 807	- 2 871	- 2 956	- 3 042	- 3 129	- 3 218	- 3 309
Non-recurrent Operational Taxes	- 562	- 505	- 545	- 1 893	-	-	-	-	-	-	-	-	-	-	-
NOPLAT	8 585	7 626	7 735	6 876	8 898	8 860	8 982	9 182	9 398	9 612	9 896	10 184	10 477	10 775	11 077
Non-Core Business															
Asset Impairment and exit costs	- 535	- 68	-	-	-	-	-	-	-	-	-	-	-	-	-
Interest Expense, net (derivatives not designated as Hedging Instruments - Note 15)	-	-	1	- 24	- 60	- 60	- 60	- 60	- 60	- 60	- 60	- 60	- 60	- 60	- 60
Non-Core before taxes	- 535	- 69	- 24	- 60	- 60	- 60	- 60	- 60	- 60	- 60	- 60	- 60	- 60	- 60	- 60
Non-core taxes	187	24	8	21	13	13	13	13	13	13	13	13	13	13	13
Non-core after taxes	- 348	- 45	- 16	- 39	- 47	- 47	- 47	- 47	- 47	- 47	- 47	- 47	- 47	- 47	- 47
Equity income/loss in unconsolidated subsidiaries, net	105	105	94	59	91	91	91	91	91	91	91	91	91	91	91
Other comprehensive income:															
Change in currency translation adjustments	- 1 751	- 2 249	- 9	328	328	328	328	328	328	328	328	328	328	328	328
Change in net loss and prior service cost	- 975	- 309	- 236	751	751	751	751	751	751	751	751	751	751	751	751
Change in fair value of derivatives accounted for as hedges	60	- 64	38	- 55	- 55	- 55	- 55	- 55	- 55	- 55	- 55	- 55	- 55	- 55	- 55
Non-Core Result	- 2 909	- 2 562	- 129	1 044	1 067	1 067	1 067	1 067	1 067	1 067	1 067	1 067	1 067	1 067	1 067
Financial															
Interest expense, net	- 1 052	- 1 007	- 867	- 854	- 600	- 570	- 671	- 779	- 774	- 773	- 744	- 713	- 681	- 648	- 613
Interest Tax Shield	368	352	303	299	126	120	141	164	163	162	156	150	143	136	129
Financial Result	- 684	- 655	- 564	- 555	- 474	- 451	- 530	- 615	- 611	- 611	- 588	- 564	- 538	- 512	- 484
Total Comprehensive Income	4 992	4 410	7 043	7 365	9 492	9 477	9 519	9 634	9 854	10 069	10 375	10 687	11 006	11 330	11 661

2. Balance Sheet

Balance Sheet

\$ in millions	2014	2015	2016	2017	2018	2019E	2020E	2021E	2022E	2023E	2024E	2025F	2026E	2027E	2028E
Core Business															
Operating Assets															
Operating cash	595	536	534	575	591	601	623	644	661	678	696	713	731	750	768
Receivables	3 497	2 614	3 210	3 445	3 652	3 831	4 102	4 373	4 632	4 903	5 190	5 491	5 808	6 142	6 493
Inventories	8 592	8 473	9 017	8 806	9 667	9 979	10 511	11 022	11 479	11 948	12 255	12 568	12 884	13 205	13 530
Other current assets	391	340	485	497	511	519	539	557	571	586	601	617	632	648	664
Property, plant, and equipment, at cost (net)	6 071	5 721	6 064	7 271	7 765	8 403	9 280	10 206	11 149	12 175	12 489	12 807	13 129	13 456	13 787
Goodwill	8 388	7 415	7 324	7 666	8 120	8 256	8 567	8 852	9 086	9 323	9 563	9 807	10 054	10 304	10 557
Other intangible assets (net)	2 985	2 623	2 470	2 432	2 771	2 818	2 924	3 021	3 101	3 182	3 264	3 347	3 431	3 517	3 603
Deferred income taxes	533	488	859	1 007	763	776	805	832	854	876	899	922	945	968	992
Other assets	1 010	1 190	1 037	1 843	1 893	1 925	1 998	2 064	2 119	2 174	2 230	2 287	2 344	2 403	2 462
Total Operating Assets	32 062	29 400	31 000	33 542	35 733	37 107	39 349	41 571	43 651	45 845	47 186	48 558	49 960	51 393	52 857
Operating Liabilities															
Accounts payable	1 242	1 289	1 666	2 242	2 299	2 333	2 416	2 492	2 531	2 570	2 608	2 647	2 685	2 723	2 761
Accrued liabilities	8 358	8 015	8 972	7 964	8 810	8 958	9 295	9 605	9 859	10 115	10 376	10 640	10 908	11 180	11 455
Income taxes	1 078	970	832	812	973	990	1 027	1 061	1 089	1 118	1 147	1 176	1 205	1 235	1 266
Deferred income taxes	1 707	1 749	1 897	799	821	835	866	895	919	943	967	991	1 016	1 042	1 067
Employment costs	633	658	643	582	666	677	702	726	745	764	784	804	824	845	866
Income taxes and other liabilities	480	470	700	1 938	940	956	992	1 025	1 052	1 079	1 107	1 135	1 164	1 193	1 222
Total Operating Liabilities	13 498	13 151	14 710	14 337	14 509	14 748	15 299	15 803	16 194	16 589	16 989	17 394	17 804	18 218	18 637
Invested Capital Core Business	18 564	16 249	16 290	19 205	21 224	22 360	24 050	25 768	27 457	29 256	30 197	31 164	32 156	33 174	34 220
Non-Core Business															
Non-Core Assets															
Investments in unconsolidated subsidiaries	1 083	890	1 011	1 074	1 074	1 074	1 074	1 074	1 074	1 074	1 074	1 074	1 074	1 074	1 074
Receivables from unconsolidated subsidiaries	407	64	289	293	293	293	293	293	293	293	293	293	293	293	293
Foreign exchange contracts designated as hedging inst.	370	482	643	118	118	118	118	118	118	118	118	118	118	118	118
Foreign exchange contracts not designated as hedging inst.	36	92	170	22	22	22	22	22	22	22	22	22	22	22	22
Excess pension assets	42	47	33	47	47	47	47	47	47	47	47	47	47	47	47
Total Non-Core Assets	1 938	1 575	2 146	1 554	1 554	1 554	1 554	1 554	1 554	1 554	1 554	1 554	1 554	1 554	1 554
Non-Core Liabilities															
Foreign exchange contracts designated as hedging inst.	25	143	102	1 077	1 077	1 077	1 077	1 077	1 077	1 077	1 077	1 077	1 077	1 077	1 077
Foreign exchange contracts not designated as hedging inst.	126	29	61	51	51	51	51	51	51	51	51	51	51	51	51
Other liabilities from unconsolidated subsidiaries (cont.)	93	100	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Non-Core Liabilities	244	272	163	1 128	1 128	1 128	1 128	1 128	1 128	1 128	1 128	1 128	1 128	1 128	1 128
Invested Capital Non-Core Business	1 694	1 303	1 983	426	426	426	426	426	426	426	426	426	426	426	426
Financial															
Financial Assets															
Excess of cash and cash equivalents	1 087	2 881	3 705	7 872	-	-	-	-	-	-	-	-	-	-	-
Notes receivables from unconsolidated subsidiaries	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Financial Assets	1 187	2 981	3 705	7 872	-	-	-	-	-	-	-	-	-	-	-
Financial Liabilities															
Short term borrowings	1 208	825	643	499	247	237	234	233	231	231	222	213	203	193	183
Current position of long-term debt	1 318	2 405	2 573	2 506	1 554	1 267	1 062	1 056	1 049	1 048	1 009	967	924	878	831
Long-term debt	26 929	25 250	25 851	31 334	22 311	21 432	21 173	21 046	20 913	20 885	20 104	19 279	18 412	17 504	16 555
Unfunded pension liabilities	1 396	1 729	1 963	1 477	708	680	671	667	663	662	638	611	584	555	525
Unfunded postretirement liabilities	238	211	227	248	189	182	179	178	177	177	170	163	156	148	140
Minority interests	1 426	1 768	1 788	1 856	1 856	1 856	1 856	1 856	1 856	1 856	1 856	1 856	1 856	1 856	1 856
Total Financial Liabilities	32 515	32 188	33 045	37 920	29 561	28 470	28 148	27 990	27 825	27 790	26 820	25 795	24 719	23 591	22 414
Net Financial Assets	- 31 328	- 29 207	- 29 340	- 30 048	- 29 561	- 28 470	- 28 148	- 27 990	- 27 825	- 27 790	- 26 820	- 25 795	- 24 719	- 23 591	- 22 414
PMI Shareholders' Equity (As Reported)	- 12 629	- 13 244	- 12 688	- 12 086	- 9 580	- 7 353	- 5 341	- 3 465	- 1 611	223	2 135	4 125	6 194	8 340	10 563
Dividends payable	- 1 559	- 1 589	- 1 621	- 1 669	- 1 669	- 1 669	- 1 669	- 1 669	- 1 669	- 1 669	- 1 669	- 1 669	- 1 669	- 1 669	- 1 669
PMI Shareholders' Equity	- 11 070	- 11 655	- 11 067	- 10 417	- 7 911	- 5 684	- 3 672	- 1 796	58	1 892	3 804	5 794	7 863	10 009	12 232

3. Cash Flow Maps and DCF

Cash Flow Maps

\$ in millions	2015	2016	2017	2018	2019E	2020E	2021E	2022E	2023E	2024E	2025F	2026E	2027E	2028E
Core Business														
EBIT	10 691	10 815	11 503	11 556	11 506	11 665	11 924	12 206	12 484	12 851	13 226	13 606	13 993	14 386
Recurrent taxes	- 2 559	- 2 535	- 2 734	- 2 658	- 2 646	- 2 683	- 2 743	- 2 807	- 2 871	- 2 956	- 3 042	- 3 129	- 3 218	- 3 309
Non-recurrent taxes	- 505	- 545	- 1 893	-	-	-	-	-	-	-	-	-	-	-
NOPLAT	7 626	7 735	6 876	8 898	8 860	8 982	9 182	9 398	9 612	9 896	10 184	10 477	10 775	11 077
D&A	754	743	875	996	1 072	1 178	1 289	1 402	1 524	1 563	1 603	1 644	1 684	1 726
Operational Cash Flow	8 380	8 478	7 751	9 894	9 932	10 160	10 471	10 800	11 136	11 459	11 787	12 120	12 459	12 803
Net CAPEX	- 404	- 1 086	- 2 082	- 1 490	- 1 710	- 2 055	- 2 214	- 2 345	- 2 550	- 1 877	- 1 921	- 1 966	- 2 011	- 2 057
CF from Δ NWC	708	87	529	33	312	387	402	426	448	299	315	331	349	367
CF from Δ Other Operating Assets	1 200	26	1 258	599	227	519	476	390	395	401	406	412	418	423
CF from Δ Other Operating Liabilities	57	363	79	892	41	93	85	70	71	72	73	74	75	76
Investment Cash Flow	1 561	- 784	- 3 790	- 3 015	- 2 208	- 2 868	- 3 007	- 3 091	- 3 323	- 2 505	- 2 570	- 2 636	- 2 703	- 2 771
Unlevered Operational FCF	9 942	7 694	3 961	6 879	7 724	7 292	7 464	7 709	7 814	8 954	9 217	9 485	9 756	10 032
Non-Core Business														
Operational Cash Flow	- 2 562	- 129	1 044	1 067	1 067	1 067	1 067	1 067	1 067	1 067	1 067	1 067	1 067	1 067
Investment Cash Flow	391	680	1 557	-	-	-	-	-	-	-	-	-	-	-
Non-Operational FCF	- 2 171	- 809	2 601	1 067	1 067	1 067	1 067	1 067	1 067	1 067	1 067	1 067	1 067	1 067
Total Free Cash Flow	7 771	6 886	6 562	7 946	8 791	8 359	8 531	8 777	8 881	10 022	10 285	10 552	10 823	11 099
Financial														
Financial Result	- 1 007	- 867	- 854	- 600	- 570	- 671	- 779	- 774	- 773	- 744	- 713	- 681	- 648	- 613
Tax Shield	352	303	299	126	120	141	164	163	162	156	150	143	136	129
Investment in Net Financial Assets	- 2 121	133	708	- 487	- 1 091	- 322	- 158	- 165	- 35	- 971	- 1 024	- 1 077	- 1 128	- 1 178
Δ Equity in Cash	- 4 995	- 6 455	- 6 715	- 6 985	- 7 250	- 7 507	- 7 758	- 8 001	- 8 236	- 8 463	- 8 697	- 8 937	- 9 184	- 9 438
Financial Free Cash Flow	- 7 771	- 6 886	- 6 562	- 7 946	- 8 791	- 8 359	- 8 531	- 8 777	- 8 881	- 10 022	- 10 285	- 10 552	- 10 823	- 11 099

Discounted Cash Flow

\$ in millions	2019E	2020E	2021E	2022E	2023E	2024E	2025F	2026E	2027E	2028E
NOPLAT		10 160	10 471	10 800	11 136	11 459	11 787	12 120	12 459	12 803
Investment Cash Flow		- 2 868	- 3 007	- 3 091	- 3 323	- 2 505	- 2 570	- 2 636	- 2 703	- 2 771
Invested Capital	22 360	25 228	28 235	31 326	34 648	37 153	39 723	42 358	45 061	47 833
Unlevered Operational FCF	7 724	7 292	7 464	7 709	7 814	8 954	9 217	9 485	9 756	10 032
ROIC		45,4%	41,5%	38,3%	35,6%	33,1%	31,7%	30,5%	29,4%	28,4%
RR		28,2%	28,7%	28,6%	29,8%	21,9%	21,8%	21,7%	21,7%	21,6%
RONIC			10,8%	11,0%	10,9%	9,7%	13,1%	13,0%	12,9%	12,7%
g			3,1%	3,1%	3,1%	2,9%	2,9%	2,8%	2,8%	2,8%
Be		0,78	0,77	0,77	0,77	0,76	0,75	0,75	0,74	0,74
Re		7,46%	7,44%	7,42%	7,40%	7,37%	7,34%	7,31%	7,28%	7,25%
Debt/Equity		0,153	0,146	0,140	0,135	0,126	0,116	0,107	0,098	0,090
Debt/EV		13,25%	12,77%	12,31%	11,92%	11,16%	10,42%	9,68%	8,96%	8,24%
WACC		6,86%	6,86%	6,86%	6,87%	6,87%	6,88%	6,88%	6,89%	6,90%
EV	192557	198469	204622	210958	217632	223635	229802	236138	242653	249354

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Buy	Expected total return (including expected capital gains and expected dividend yield) of more than 10% over a 12-month period.
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This individual report aims at a more comprehensive analysis of one of the main risk factors to which PMI's business is exposed to and has been recurrently identified in the company's annual report – **excise taxation on tobacco products**.

Historically, cigarettes have been subject to a substantial amount of taxes, not only in the form of excise taxes but also sales taxes (VAT) and import duties. The historical upward trend is expected to continue as it represents an important income stream for governments and a critical measure to mitigate the negative externality of smoking, stimulating tobacco consumption reduction. As estimated by the World Health Organization (WHO), raising tobacco taxes to increase prices by 10% is estimated to reduce tobacco consumption by 4% in high-income countries and by around 5% in low and middle-income countries, on average. This study, conducted by the WHO with a worldwide sample of countries, demonstrates how impactful and significant **taxes rises have been for the downward trend of the industry volumes**, in the last years.

The worldwide scope of PMI's operations exposes the company to different tax structures and tax regimes that diverge in the type of applicable tax and on the type of product, depending on the jurisdiction. Excise taxes can be either **specific** – when the tax is a fixed amount charged per quantity, usually per cigarette, pack or kilogram - or **ad valorem** – when the tax is charged as a percentage of the retail price.

As for the type of product, **cigarettes** are the highest taxed category of products, but there are other such as **fine cut smoking tobacco** (intended for the rolling of cigarettes), **cigars and cigarillos**, **pipe tobacco** and **other smokeless tobacco products**, which are usually subject to a reduced excise tax rate.

Excise tax structures vary considerably from country to country, mainly due to the inexistence of a best fit system since each one has its advantages and shortcomings, mostly regarding the

adjustment for inflation, the manufacturers' pricing strategy, the effectiveness of reducing tobacco consumption and the tax administration capacity. Consequently, **tobacco products can be taxed uniformly**, using a specific or ad valorem excise system only, opposed to using a **mixed excise system**, with both components. Moreover, some countries apply a minimum specific floor tax under which the tax liability of both excises cannot fall, to ensure there is not an incentive for manufacturers to produce low priced products in order to reduce their tax liability, increasing the consumption of lower quality cigarettes.

Regardless of the excise tax structure, tax authorities can decide on using a **differential (tiered) system**, applying differential tax rates based on a specific characteristic of the cigarettes (e.g., price, length, filter).

Exhibit 56: Breakdown of taxes on the most sold brand of cigarettes in PMI's most relevant operating countries

	Specific excise	Ad valorem excise	VAT/Sales tax	Import duty	Other taxes	Total Taxes
European Union						
France	13,9%	49,7%	16,7%	0,0%	0,0%	80,3%
Germany	32,7%	21,7%	16,0%	0,0%	0,0%	70,4%
Italy	6,9%	51,0%	18,0%	0,0%	0,0%	75,9%
Poland	28,1%	31,4%	18,7%	0,0%	0,0%	78,2%
Spain	9,9%	51,0%	17,4%	0,0%	0,0%	78,3%
EEMA						
North Africa						
Algeria	15,9%	5,7%	13,3%	0,0%	8,1%	43,0%
Egypt	22,5%	50,0%	0,0%	0,0%	1,0%	73,5%
Lybia	0,0%	0,0%	1,0%	0,0%	11,0%	12,0%
Morocco	45,1%	10,2%	15,4%	0,0%	0,5%	71,2%
Tunisia	17,5%	26,2%	8,2%	0,0%	22,7%	74,6%
Russia	23,8%	12,0%	15,3%	0,0%	0,0%	51,1%
Turkey	1,9%	65,3%	15,3%	0,0%	0,0%	82,5%
Ukraine	57,9%	0,0%	16,7%	0,0%	4,8%	79,4%
Asia						
Indonesia	44,3%	0,0%	8,7%	0,0%	4,4%	57,4%
Japan	55,7%	0,0%	7,4%	0,0%	0,0%	63,1%
Korea	64,8%	0,0%	9,1%	0,0%	0,0%	73,9%
Philippines	51,9%	0,0%	10,7%	0,0%	0,0%	62,6%
Latin America & Canada						
Argentina	0,0%	59,3%	4,2%	0,0%	16,9%	80,4%
Canada	57,2%	0,0%	9,0%	0,0%	0,0%	66,2%
Mexico	14,8%	38,7%	13,8%	0,0%	0,0%	67,3%

Source: World Health Organization report on the global tobacco epidemic (2017)

In Exhibit 56, there is evidence of a **high degree of asymmetry in the tax structures and applicable tax rates** not only between different regions, but also within PMI's most relevant operating countries in each region. Consequently, profit margins and cigarettes demand are severely affected by the excise taxes increases and require different actions regarding the products' pricing and strategy, enabling the company to reduce the negative effect on margins without deteriorating further demand.

According to an Amundi Report on the tobacco industry⁵⁰, specific component on the excise tax structure create a **tax leverage** that benefits manufacturers due to the fixed nature of the specific excise tax. Consequently, any increase on the retail selling price, remaining everything else equal, automatically increases the take of the manufacturer, as opposed to a uniform ad valorem tax structure where the percentage take for the manufacturer remains constant. The magnitude of the manufacturer's percentage take increase will depend on the proportion of specific excise tax component, being more impactful as the overall excise tax is composed of a higher specific component.

One of the governments' objectives of charging excise taxes on tobacco products is to encourage a reduction in consumption and incentivize the shift towards higher quality products, which are less harmful for consumers health, when the first objective is not fully met. **Specific excise taxes place a proportionately higher tax burden on low-price brands** (which theoretically have lower quality) when comparing to higher-price ones, since the tax is uniformly applied to all. In this context, the price gap between brands is reduced as well as the incentive of shifting consumption from premium to cheaper brands.⁵¹ Therefore, PMI's strategy focused on premium brands places the company in a better position to **capture value by operating in countries with higher specific excise tax component.**

⁵⁰ *Tobacco: "I've got the (pricing) power"* (2016), Amundi Asset Management – Research, Strategy and Analysis

⁵¹ *Economics of tobacco taxation toolkit* (2018), World Bank Group

Cigarettes are the category that contributes the most for PMI's revenues and the one with the highest overall excise tax rate within all tobacco products' categories. According to the company report, depending on national legislation, **HTU are generally taxed under a dedicated excise category or as OTP (Other Tobacco Products)** that establishes an excise tax differentiation to cigarettes, **at reduced levels.**

Conducting a disruptive strategy in the tobacco industry, aiming at a shift from cigarettes to reduced-risk products, PMI expects to convince regulators of RRP's benefits and to reduce its tax liability as this segment becomes more representative in the tobacco market. Given the novelty and evolutionary nature of these products in the market, many legislators have decided to categorize heated tobacco products as OTP, for the time being, which is currently benefiting PMI due to the lower applicable excise tax rate. However, there is still a certain risk that this situation might revert, as legislators are still assessing if heated tobacco products are indeed less harmful for consumers than conventional cigarettes.

In order to assess the impact of Philip Morris' expectations regarding excise taxation of reduced-risk products, a hypothetical scenario was created in which the **excise tax rate for RRP's was assumed to be the one applicable to OTP**, for each business region of PMI's operations. Therefore, for each region, the applicable excise tax rate for RRP's was determined by the average of the OTP rates of the relevant countries above-mentioned in Exhibit 56. As for the combustible products' excise tax rate for 2019, it was considered the overall excise tax rate as % of revenues of 2016 instead of 2017, such that it does not to reflect the impact of a reduced excise rate, already felt in the company's financials in the latter year.

Consequently, the reduced excise rate for RRP's is applied from 2019 onwards and both combustible and RRP's rates are considered to grow 0,62% every year (the average growth of excise taxes in all regions) to replicate the historical upward trend of excise taxes.

The excise tax rates (as % of revenues) for the explicit forecasted period are computed as a weighted-average of the combustible and RRPs' revenue (Exhibit 57).

Exhibit 57: Forecasted excise tax rates as % of revenues under PMI's expectations

	2018	2019E	2020E	2021E	2022E	2023E	2024E	2025F	2026E	2027E	2028E
European Union											
Combustibles Products Tax	69,91%	70,35%	70,79%	71,23%	71,67%	72,11%	72,56%	73,01%	73,47%	73,92%	74,38%
% growth		0,62%	0,62%	0,62%	0,62%	0,62%	0,62%	0,62%	0,62%	0,62%	0,62%
Reduced-Risk Products Tax	69,91%	23,45%	23,60%	23,74%	23,89%	24,04%	24,19%	24,34%	24,49%	24,64%	24,79%
% growth		0,62%	0,62%	0,62%	0,62%	0,62%	0,62%	0,62%	0,62%	0,62%	0,62%
Excise taxes as % of revenue	69,91%	69,02%	68,71%	67,97%	66,54%	64,03%	59,77%	52,71%	51,56%	50,39%	49,21%
EEMA											
Combustibles Products Tax	61,72%	62,11%	62,49%	62,88%	63,27%	63,67%	64,06%	64,46%	64,86%	65,26%	65,67%
% growth		0,62%	0,62%	0,62%	0,62%	0,62%	0,62%	0,62%	0,62%	0,62%	0,62%
Reduced-Risk Products Tax	61,72%	25,62%	25,78%	25,94%	26,10%	26,26%	26,43%	26,59%	26,75%	26,92%	27,09%
% growth		0,62%	0,62%	0,62%	0,62%	0,62%	0,62%	0,62%	0,62%	0,62%	0,62%
Excise taxes as % of revenue	61,72%	61,39%	61,34%	61,05%	60,37%	59,06%	56,76%	52,89%	52,36%	51,82%	51,28%
Asia											
Combustibles Products Tax	57,72%	58,08%	58,44%	58,80%	59,17%	59,53%	59,90%	60,28%	60,65%	61,03%	61,41%
% growth		0,62%	0,62%	0,62%	0,62%	0,62%	0,62%	0,62%	0,62%	0,62%	0,62%
Reduced-Risk Products Tax	57,72%	25,44%	25,60%	25,75%	25,91%	26,08%	26,24%	26,40%	26,57%	26,73%	26,90%
% growth		0,62%	0,62%	0,62%	0,62%	0,62%	0,62%	0,62%	0,62%	0,62%	0,62%
Excise taxes as % of revenue	57,72%	52,17%	52,28%	52,40%	52,52%	52,63%	52,72%	52,79%	53,06%	53,33%	53,61%
Latin America & Canada											
Combustibles Products Tax	68,44%	68,86%	69,29%	69,72%	70,16%	70,59%	71,03%	71,47%	71,92%	72,37%	72,82%
% growth		0,62%	0,62%	0,62%	0,62%	0,62%	0,62%	0,62%	0,62%	0,62%	0,62%
Reduced-Risk Products Tax	68,44%	68,86%	69,29%	69,72%	70,16%	70,59%	71,03%	71,47%	71,92%	72,37%	72,82%
% growth		0,62%	0,62%	0,62%	0,62%	0,62%	0,62%	0,62%	0,62%	0,62%	0,62%
Excise taxes as % of revenue	68,44%	68,86%	69,29%	69,72%	70,16%	70,59%	71,03%	71,47%	71,92%	72,37%	72,82%

Source: Analyst estimates and World Health Organization

Note: Latin America & Canada are not expected to have a reduce excise rate for RRPs since Canada does not have a tax differentiation for OTP and RRPs are government banned from Mexico and Argentina.

The estimated impact in PMI's share price of the hypothetical scenario translates into an **upward movement of the share price to \$152,83**. This impact implicitly assumes that prices of HTU will remain at the same level, which consequently suggests that Philip Morris captures all the value of the excise tax reduction.

This scenario illustrates the important role that excise taxes play in the tobacco industry and how impactful they can be for the value of tobacco companies. Further analysis could be conducted in the attempt to establish a more accurate proxy for the estimated excise tax rate for RRPs in each region.

IQOS U.S. Launch Assessment

Following its vision of a smoke-free future, Philip Morris International (PMI) is now awaiting regulatory approval to commercialize its reduced-risk product IQOS within the United States market, under its old parent company Altria. This key milestone would represent a disruptive entry in the second largest tobacco market worldwide, enforcing the IQOS momentum as PMI's main growth driver in an attempt to revert current industry declining volumes. In this report, the U.S. tobacco market will be assessed together with the investment opportunity it presents for Philip Morris as well as the related risks.

Current PMI Situation

Philip Morris stock fell nearly 40% in 2018 due to investors' sentiment regarding declining smoking rates, strong competition from its peers, currency headwinds in Argentina and Turkey and higher interest rates, resulting in less attractive dividends. However, during the first three quarters of 2018, PMI's market share increased 30 basis points to 38,4%, strengthening the market positioning of its cigarette and reduced-risk products' portfolio. Although PMI's traditional cigarette shipment volume fell 2,7% to 550,1 billion units during the mentioned period, the decline was fully offset by the 42% growth of its reduced-risk segment (namely through IQOS) to 29,2 billion units.⁵² PMI therefore relies on the robust demand for IQOS to drive its future growth, hence sees the U.S. market, in which the company is not yet commercializing IQOS, as an investment opportunity.

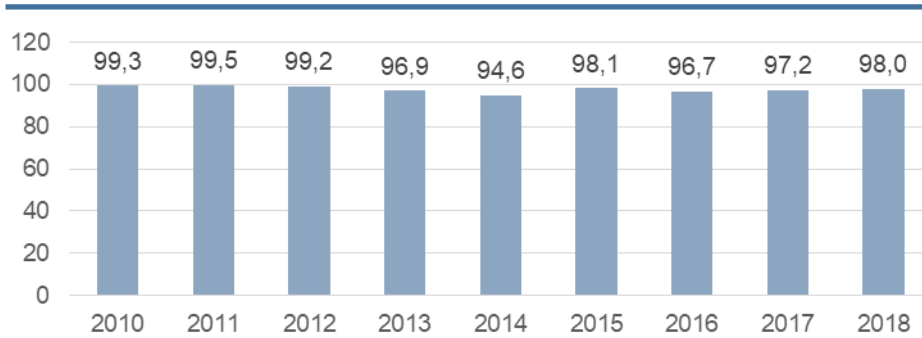
U.S. Tobacco Market

The U.S tobacco market is under the regulatory jurisdiction of the U.S Food & Drug Administration (FDA). It is the second largest in terms of revenues with over \$98 billion in 2018, only standing behind China with over \$200 billion. For the last 8 years, the market

⁵² The Motley Fool

retracted around 1,3%, however, lately displaying a slight positive trend in revenues with a compounded annual growth rate (CAGR) of 0,24% between 2014 and 2018 (Exhibit 58).

Exhibit 58: U.S. tobacco market revenues in \$ billion (2010 – 2018)

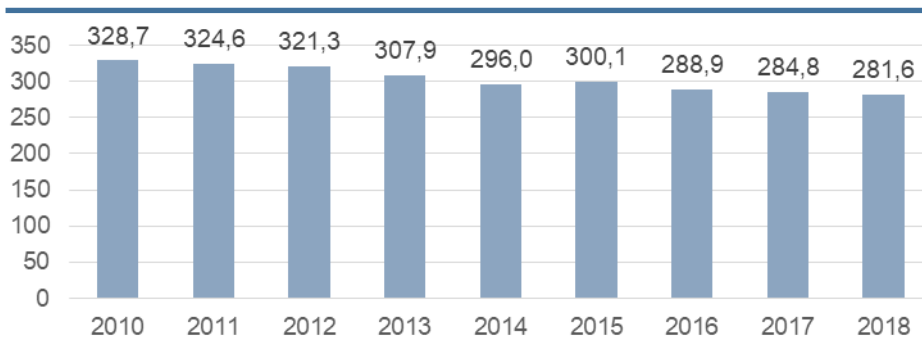


Source: Statista, April 2018

This market is mainly guided by two economic drivers – shipment volumes (defined by the smoking rates and existing population) and tobacco prices.

Regarding smoking rates, these have been decreasing since 2015 while the U.S adult population increasing at nearly 0,7% a year⁵³, resulting in declining industry shipment volumes (Exhibit 59). During the last 4 years, shipment volumes (including all smoking products) declined over 6,1%, while in the same period, revenues saw no significant change reflecting the pricing power producers have on consumers who are relatively price inelastic.

Exhibit 59: U.S. tobacco shipment volumes in billion units (2010 – 2018)



Source: Statista, April 2018

While the overall tobacco market has registered slow growths due to decreasing volumes of traditional tobacco products, e-cigarette revenues have registered a CAGR of nearly 24,5%

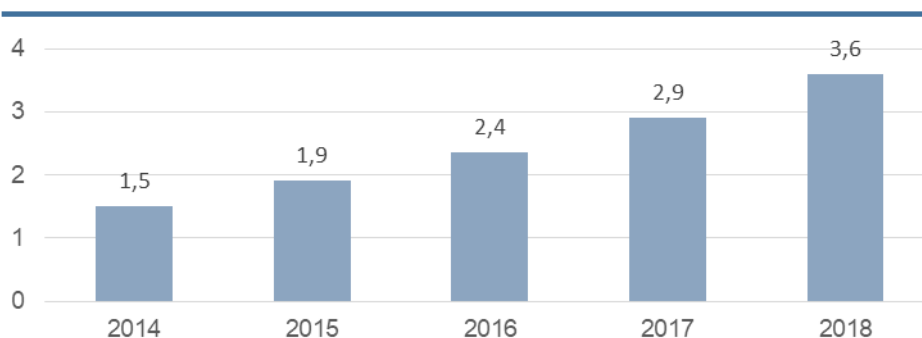
⁵³ United Nations Department of Economic and Social Affairs

between 2014 and 2018 (Exhibit 60), as smokers' health awareness arises combined with a generalized preference for digital products, resulting in a substitution effect by departing from the traditional cigarettes. This segment, in which Philip Morris' reduced-risk product IQOS would directly compete, already accounts for 3,7% of the U.S. overall market and is 75% controlled by JUUL, a Silicon Valley based start-up founded in 2017.

There has been significant consolidation within the industry given the 71 completed mergers and acquisitions in the past 5 years, amounting to a total of \$99,4 billion.⁵⁴ With the most emphasis are the \$54,0 billion acquisition of Reynolds American in 2016, the second largest player in the U.S behind Altria, by British American Tobacco and the \$12,8 billion minority acquisition of JUUL by Altria in December 2018, owning now 35% of its stock.⁵⁵

Given the current consolidated state of the industry, one could assume British American Tobacco and Altria (which jointly dominate the U.S market) would not be vulnerable to new players with no brand recognition nor an established business model benefiting from economies of scale like theirs, but that is not the case. These companies dominate the declining traditional cigarette business and have their positioning threatened by new disruptive players, exploring the fast-growing e-cigarette segment (Exhibit 60).

Exhibit 60: U.S. e-cigarette revenues in \$ billion (2014 – 2018)



Source: Statista, April 2018

⁵⁴ Bloomberg

⁵⁵ CNBC

Investment Opportunity

Philip Morris is waiting for regulatory approval of two applications by the FDA, firstly to commercialize IQOS via a “Pre-market Tobacco Product Application” (PMTA) within the U.S and secondly, to advertise reduced-risk product as a healthier alternative to traditional cigarettes through the “Modified Risk Tobacco Product” (MRTP) application.⁵⁶

Up to this date, no electronic cigarette manufacturer is allowed to make a reduced-risk claim regarding its products and consequently advertise them as such. If the outcome of the FDA assessment were to be positive, IQOS would have a significant competitive advantage in an industry with marketing for traditional tobacco products heavily regulated, in which radio advertisements are not allowed to include music nor any sound effects, while video advertisement is limited to static black text on a white background.⁵⁷ As taxes and marketing restrictions on cigarettes are directly related to its high risk profile, PMI expects its reduced-risk products to be classified accordingly and therefore achieve more favorable regulatory regimes.

Philip Morris expects to commercialize IQOS within the U.S market as soon as 2020, according to its CEO, when and if approved by the FDA which he considers the regulatory agency with the world’s most comprehensive process and legislation on how to evaluate, authorize and survey the post market risks of these products.⁵⁸ PMI will then commercialize IQOS through its partner Altria which already has the right to sell its premium brand Marlboro. Since the spin-off in 2008, Altria only sells tobacco products in the U.S, whereas PMI does not operate directly in this region.

⁵⁶ University of California San Francisco: Center for Tobacco Control Research and Education

⁵⁷ Herington, Matthew R. "Tobacco Regulation In The United States: New Opportunities And Challenges," Health Lawyer 23.1 (2010)

⁵⁸ Bloomberg Markets and Finance

Investment Risks

As stated before, Altria purchased in late December a 35% stake of possibly IQOS' main future competitor in the U.S. – JUUL, at a time that Altria's share price had been declining. Following the investment, Altria announced that would discontinue its own line of e-cigarettes to promote its new partner until the FDA approves the commercialization of IQOS. As of December 2018, the FDA is still processing both PMI's applications after a scientific panel convened by the same U.S. regulatory agency, in early 2018, recommended against a premature approval, given new studies offering evidence of health risks associated with IQOS.⁵⁹ These delays in the approval process might have also played a crucial role in this move by Altria.

Result of Altria's minority acquisition, JUUL will remain fully independent benefiting not only from a \$12,8 billion investment but will also have access to its acquirer's infrastructure and services, strengthening its brand and adding momentum to its overwhelming market positioning. Thus, by the time IQOS reaches the U.S. (if approved and whether with a reduced-risk label granted by the FDA or not), it will face a more competitive environment. Furthermore, Altria, which will have a shared interest in what could be the two most prominent smoking devices, could have divided loyalties, resulting in a strained partnership as any revenues Altria collects through JUUL's reduced-risk products, will likely come at the expense of IQOS, even while trying to break into the market.

In conclusion, PMI's 2020 launch prospect may be too optimistic and given JUUL's current strengthened positioning, the longer Philip Morris takes to get IQOS approved by the FDA and subsequently launched in the U.S. market, the fewer the chances it will have to succeed as in other markets where strongly relied on a first-mover advantage.

⁵⁹ Reuters