University of Cape Town

School of Economics

Up in Smoke? Assessing the Economic Case for Investing In, or Divesting From, Tobacco Companies

By

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Abstract

Considering that wealth-maximising investors are generally not willing to sacrifice financial returns in favour of ethical considerations, this paper seeks to investigate the economic case for investing in, or divesting from, tobacco companies. After analysing the financial performance of some of the world's largest tobacco companies, this paper finds that the demand for traditional tobacco products (e.g., cigarettes) is in decline due to tightening tobacco regulation and increasing health awareness, and as a consequence all but one of the companies analysed experienced declines in tobacco sales (in dollar terms) over the period FY2014-FY2020. In addition, the results show that the tobacco companies in question are becoming increasingly inefficient at generating profits, and that market sentiment towards these companies' growth potential has diminished. Putting aside the possibility of tobacco companies entering the cannabis market, the evidence suggests that the future profitability of these companies depends on whether they will be able to increase the sales of Next Generation Products ("NGPs") to significantly offset the decline of traditional tobacco sales, which they have not yet been able to do. Regulation could also dramatically affect the future success of NGPs. Given that financial markets tend to reward the stock prices of fast-growing firms, and given tobacco companies' disappointing revenue growth, the economic case for investing in tobacco companies is currently characterised by (significantly more) uncertainty and risk. In other words, it is increasingly unclear whether tobacco companies will be able to achieve growth in future; as a result, their shareholders could incur capital losses.

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1. Introduction

Tobacco Free Portfolios ("TFP") is an organisation advocating for a "world free from tobacco" for ethical reasons and it aims to achieve this goal by promoting "tobacco-free finance" (TFP, 2021). In this regard, TFP advocates for the exclusion of tobacco companies from lending services, investment services, and insurance services. To date, 175 entities have signed TFP's Tobacco-Free Finance Pledge (TFP, 2021). However, across the world, asset managers, banks, and other economic agents continue to include tobacco companies in their investment portfolios to bolster their returns, to diversify their holdings, and to collect dividends (Genus, 2019). For example, approximately 886 million British American Tobacco shares were traded to the value of US$ 33 billion on the London Stock Exchange in 2020 (Bloomberg, 2021). Economic agents invest in tobacco despite extensive research indicating that smoking tobacco products severely increases the risk of disease and is a cause of millions of preventable deaths each year (World Health Organisation, 2021b). Moreover, they do so despite the well-known negative externalities associated with smoking, in that smoking imposes costs on people who do not directedly use tobacco products. For example, those exposed to second-hand smoke are also likely to be subject to increased risk of disease. Governments often bear the healthcare costs associated with smoking (World Health Organization, 2021a). In line with classical economic theory, it appears that wealth-maximising agents investing in tobacco companies are self-interested and are generally not willing to sacrifice financial returns in favour of ethical considerations. Indeed, investors seek to maximise returns, not make moral judgments, and a company selling highly addictive, high-margin products in a large and established industry, with high barriers to entry, seems a good investment.

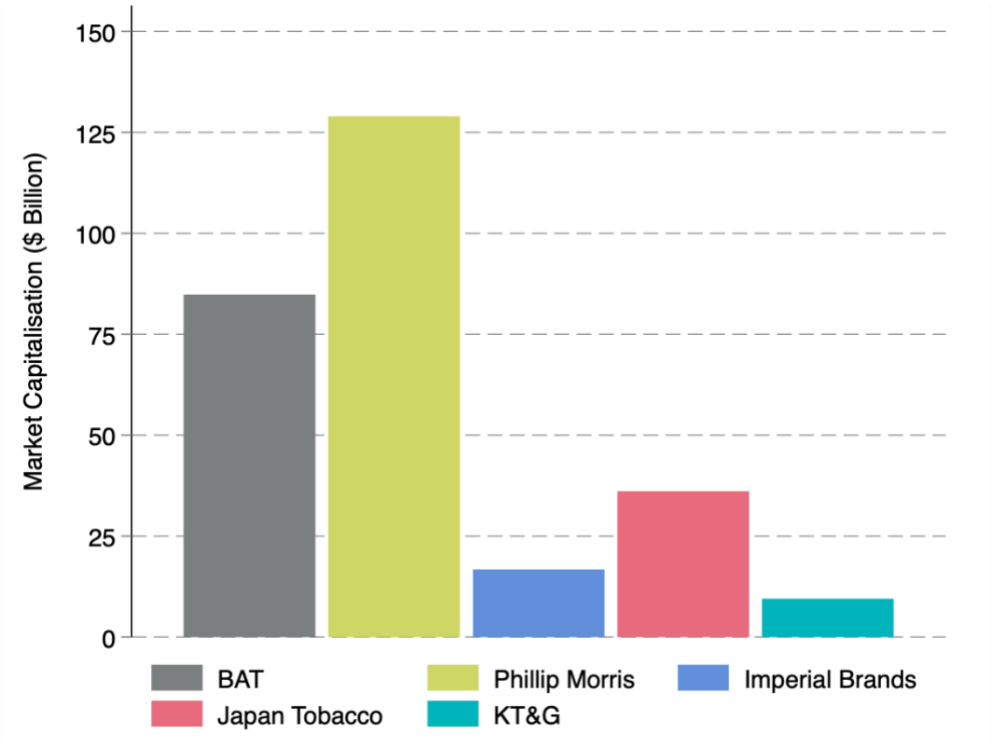
In light of the above, ignoring ethical considerations, this paper seeks to investigate whether or not there is a financial incentive for agents to divest from tobacco companies. Specifically, through analysing the historical financial performance of the world's largest tobacco companies, this paper seeks to conduct independent research into the economic case for investing in, or disinvesting from, tobacco companies.

The rest of this paper is structured as follows: Section 2 provides a brief overview of the tobacco industry and the historic performance of key tobacco stocks. Section 3 reviews existing literature. Section 4 describes the data and the methodology employed, followed by the empirical findings which are given in Section 5. Section 6 presents the conclusions drawn.

2. Industry Overview and Stock Market Trends

Before evaluating the economic case for investing in the tobacco industry, it is important to provide a brief overview of the industry and its historic stock market performance. The global tobacco industry is comprised of a small number of multinational firms that supply the majority of tobacco products worldwide. This is because regulation, packaging restrictions, and advertising bans have largely inhibited new firms from entering the market (Maastricht University, 2018). In order, the world's largest private tobacco companies by market capitalisation in 2020 were: Phillip Morris International ("Phillip Morris"), Altria Group, British American Tobacco ("BAT"), ITC Limited, Japan Tobacco, Imperial Brands, and the Korea Tobacco & Ginseng Corporation ("KT&G") (Statista, 2021a). Notably, China National Tobacco Group Corporation ("CNTC"), a state owned monopoly, is also a major player in the global tobacco industry and is the world's largest producer of cigarettes, although it primarily serves the Chinese market (Japan Tobacco, 2021; Tobacco Tactics, 2021a). Figure 1 below shows the market capitalisation of some of these private tobacco companies.

Figure 1: Market Capitalisation, FY2020



Source: Stock data obtained from Bloomberg.

For the purpose of this paper, CNTC, and ITC Limited are disregarded. This is because there are limited financial data available for CNTC, whereas ITC Limited's tobacco business only

accounted for approximately 41% of its total revenue in FY2020 (ITC Limited, 2021).[1] Altria Group is also disregarded in favour of including KT&G in the analyses that follow in order to obtain a more holistic and international view into the global tobacco industry, as Altria Group and Phillip Morris were part of the same US-based company until 2008.

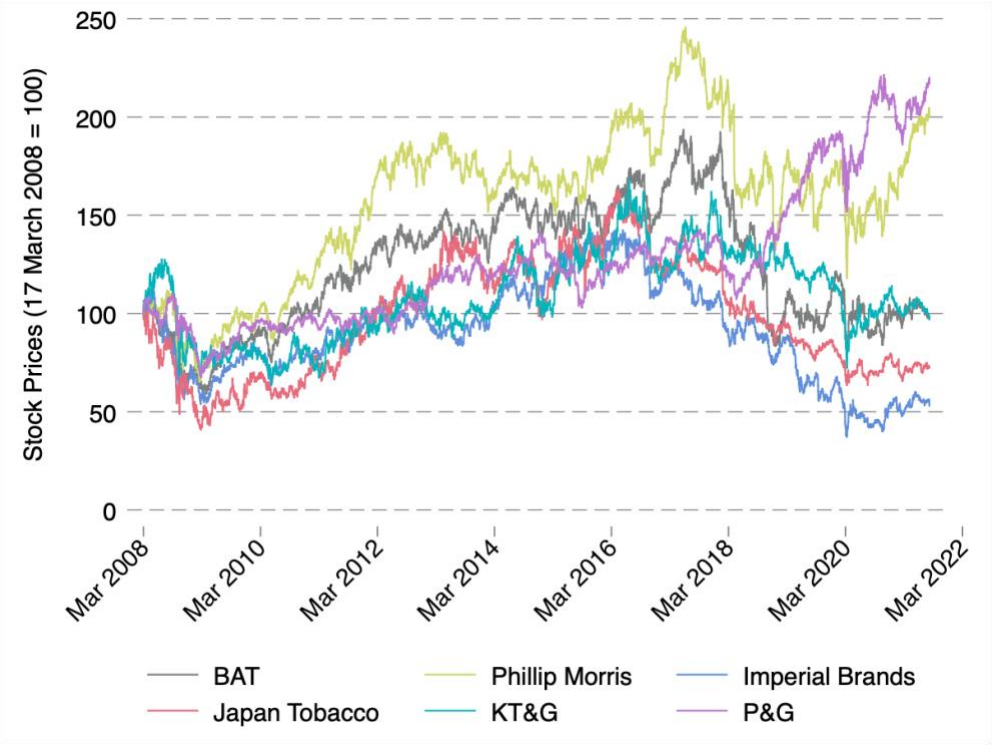
In 2019, sales for the legal global tobacco market were estimated to be US $818 billion, more than double South African GDP for the same year (BAT, 2019; World Bank, 2021). The majority of these sales were generated from cigarettes, with over 5.2 trillion cigarettes being consumed annually (BAT, 2019). Cigarettes are cylindrical rolls of tobacco wrapped in paper or another substance, which when burned produce an inhalable smoke. Tobacco companies offer a wide array of traditional tobacco products outside of cigarettes, such as cigars, finely cut tobacco, oral tobacco (e.g., snus products) and pipe tobacco. In recent times, tobacco companies have launched innovative new products such as heated tobacco products ("HTPs") and electronic nicotine delivery systems ("ENDS"), typically defined as next generation products ("NGPs"). HTPs are products which heat (rather than burn) tobacco unites to produce an inhalable aerosol containing nicotine and other chemicals. ENDS are products which heat a liquid (called an "e-liquid") to produce an inhalable aerosol containing nicotine and/or other chemicals; the liquid does not contain tobacco.[2] For the purpose of this paper, NGPs are also classified as tobacco products. In 2019, global sales for ENDS and HTPs were estimated to be US $35.4 billion, a small fraction of total sales for the legal global tobacco market.

Figure 2 below depicts the open share price trends for key tobacco companies over the period 17 March 2008 to 22 July 2021, as well as, for comparison, that of Proctor and Gamble ("P&G"), the largest fast-moving consumer goods ("FMCG") company listed on the New York Stock Exchange.[3] For trend analysis, US dollar ("dollar") denominated prices have been standardised to be 100 as of 17 March 2008 – meaning that the share price movements of non-US-based companies are also influenced by exchange rate movements. Figure A1 in Section A of the Appendix reports the absolute dollar share price trends for these companies over the period 22 July 2005 to 22 July 2017. The period chosen for Figure 2 coincides with Phillip Morris's initial public offering (17 March 2008), whereas the period chosen for Figure A1 is chosen based on data availability. Both Figure 2 and Figure A1 highlight that the share price

[1] ITC Limited has a significant business presence in various industries outside of tobacco, including but not limited to, agribusiness, hotels, software, and packaging.
[2] Phillip Morris's IQOS is an example of an HTP where "vapes" are typically ENDS products.
[3] In 2020, P&G had a market capitalization of US $296 billion, more than double that of Phillip Morris.

of each of the relevant tobacco companies increased significantly over the period 2005 – 2017. In fact, between 22 July 2005 and 22 July 2017, BAT's share price increased by approximately 280%, Imperial Brands' by 106%, KT&G's by 153% and Japan Tobacco's by 155%. Between 17 March 2008 and 22 July 2017, tobacco stocks performed favourably relative to P&G, with Phillip Morris, BAT and KT&G each outperforming P&G in terms of capital gains.

Figure 2: Stock price trends, indexed, 2008 – 2021

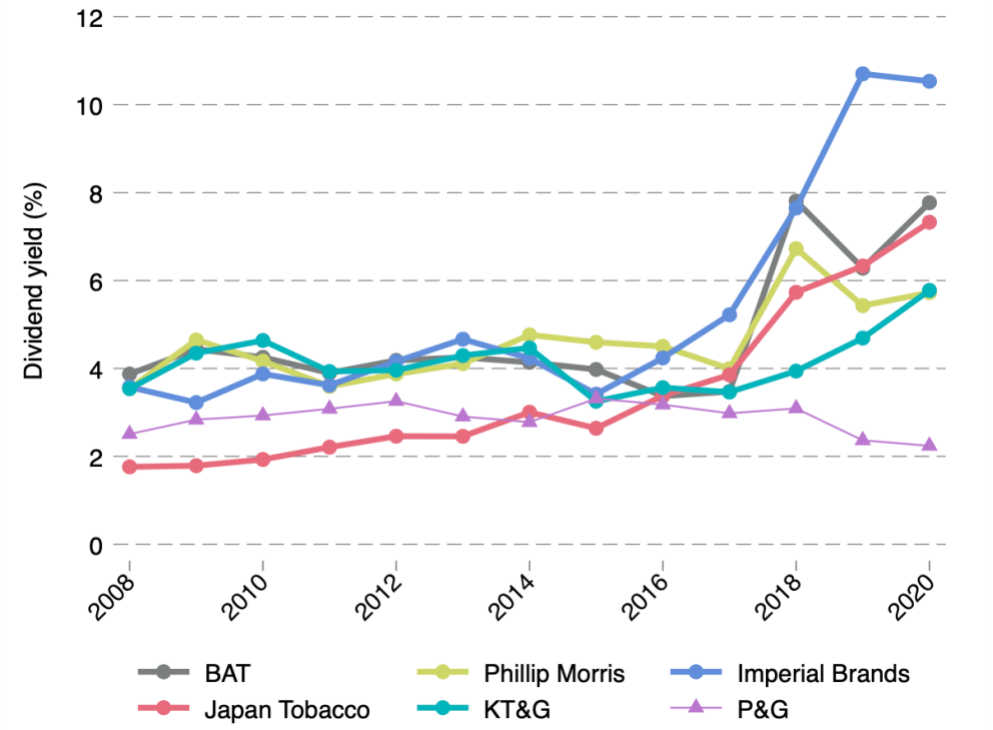


Source: Stock data obtained from Bloomberg.

Additionally, these tobacco companies have historically been considered sound investments as they have paid reliable dividends with consistently high yields, as can be seen in Figure 3 and Figure 4 below (Bowman, 2021; Raubenheimer, 2010).[4] Figure 3 highlights that, with the exception of Japan Tobacco, in every year over the period 2008 to 2020, each of the tobacco companies paid a higher dividend yield than P&G. From an economic perspective, in addition to possible capital gains from a rise in the value of the shares purchased, dividends are a key consideration for investors. This is because dividends, which by definition are reliant on a company's profitability, can provide wealth-maximising investors with a source of reliable earnings outside of share price movements (which are affected by market volatility, among other things).

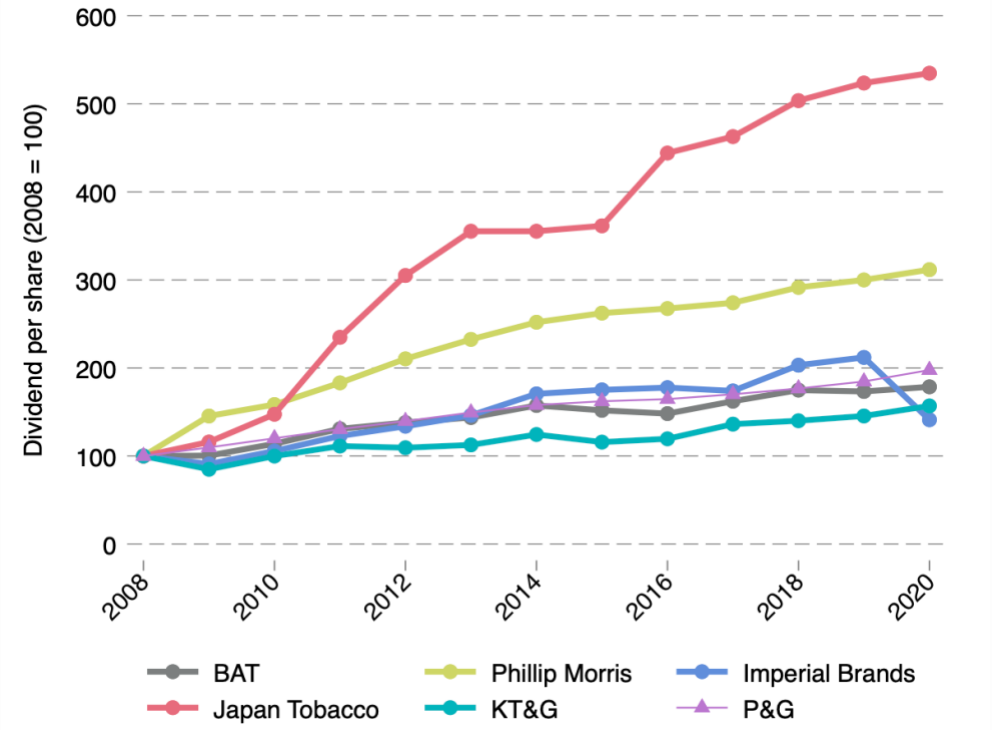
[4] A dividend yield is the percentage of a company's stock price that it pays out in dividends each year. If a company's dividend yield is 5%, and a person owns US $100 of its stock, that person would receive an annual payout of US $5.

Figure 3: Dividend yield trends, 2008 – 2020



Source: Stock data obtained from Bloomberg.

Figure 4: Dividend per share trends, indexed, 2008 – 2020



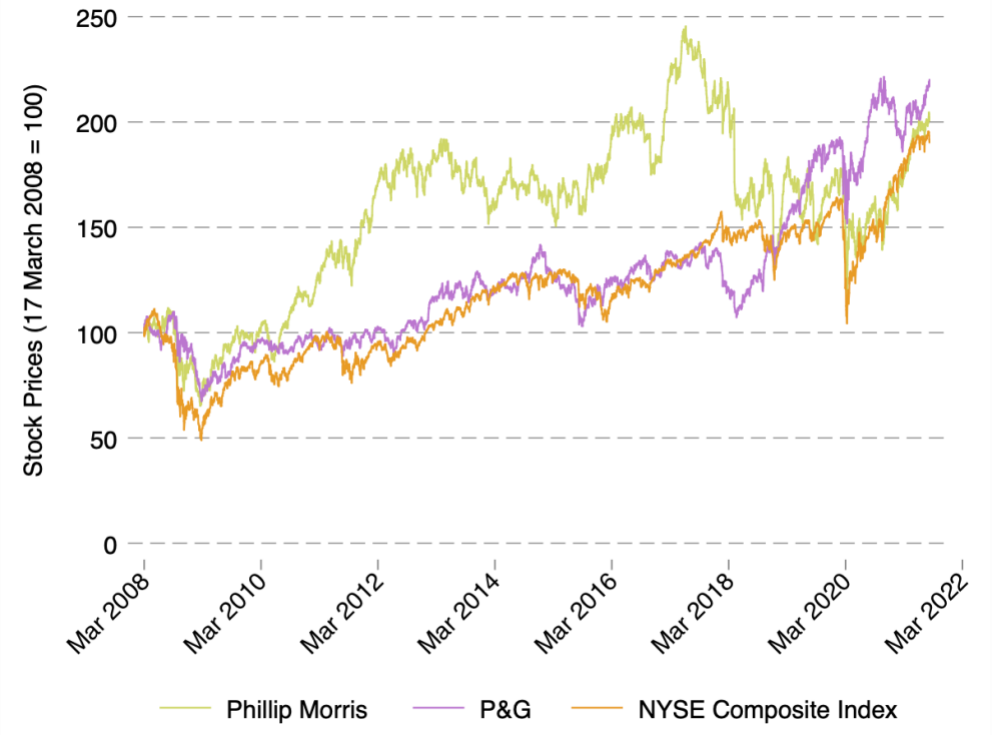
Source: Stock data obtained from Bloomberg.

Despite the strong historical performance of these tobacco stocks over the period 2005 to 2017, the value of these stocks has been in decline since 2017, as seen in Figure 2. From Figure 2, ignoring dividends, it is clear that investors would be significantly better off today had they invested US $100 in P&G in 2008 as opposed to in Phillip Morris, Imperial Brands, BAT, Japan Tobacco or KT&G. To further illustrate this, Figure 5, Figure 6, Figure 7 and Figure 8 depict the price performance of these stocks relative to the overall index of the stock exchange on which they have their primary listings for the period 22 July 2005 to 22 July 2021 (e.g. in Figure 6 below**,** Imperial Brands and BAT's stock price performance is compared to that of the FTSE all-share index, which tracks all stocks traded on the London Stock Exchange). Again, dollar-denominated prices have been standardised to be 100.[5] From the figures below, it is clear that tobacco stocks outperformed their market indices from July 2005 to July 2017, as evidenced by the widening of the gap between the indices and tobacco stock prices. However, in recent years, tobacco stocks have significantly underperformed market indices. Between August 2017 and August 2021, the NYSE Composite Index generated a positive return of 38.3%, whereas Phillip Morris's stock price decreased by 14%. Over the same period, the FTSE All-Share Index generated a dollar return of 4.8%, whereas the (dollar-denominated) stock price of BAT and Imperial Brands fell by 40.2% and 47.8% respectively. Similarly, the Tokyo Stock Price Index generated a dollar return of 19.55%, whereas Japan Tobacco's (dollar-denominated) stock price decreased by 41.9%. The Korea Composite Stock Price Index generated a dollar return of 31.57%, whereas KT&G's (dollar-denominated) stock price declined by 29.1%. Thus tobacco stocks have underperformed markets significantly in recent times – indicating that they have not been good investments of late.

The recent poor performance of tobacco stocks, in addition to ethical considerations, has put increased pressure on investors to divest from tobacco companies despite their consistently high dividend yields. Additionally, investors are becoming increasingly aware of the social and environmental impacts that companies can have, and are increasingly expressing their values through their investments (Renneboog et al., 2008). Investors are requiring additional monetary compensation to hold 'sin stocks' in order to offset their reputational damage (Luo & Balvers, 2017). Given the above, this paper seeks to investigate whether or not there is an economic case for investing in tobacco companies today given prevailing market trends.

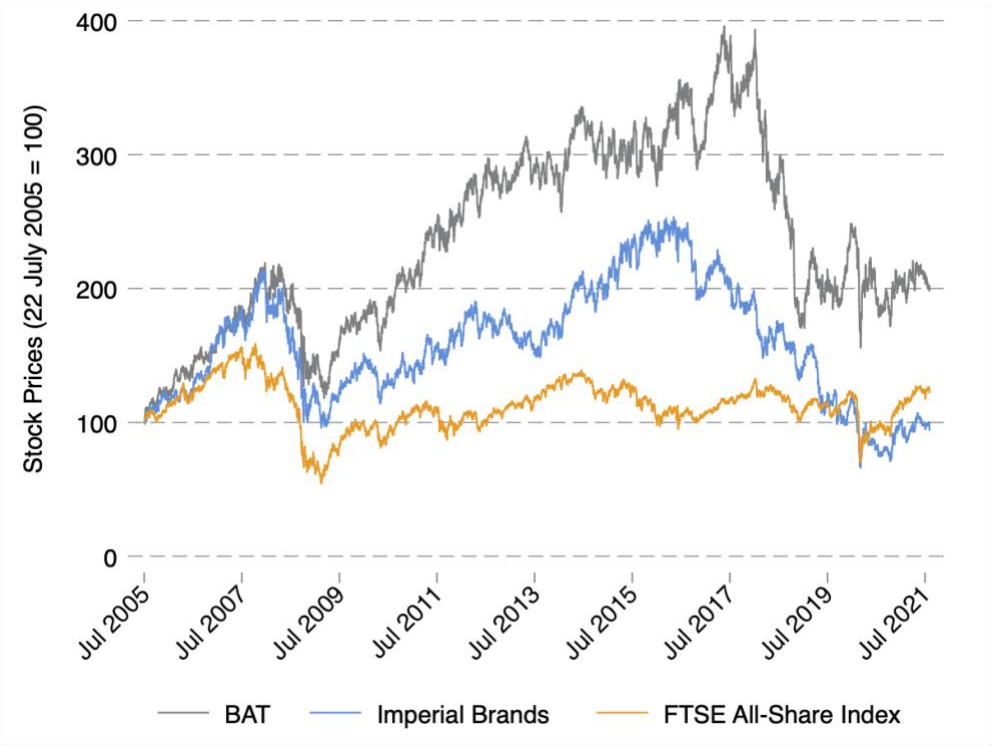
[5] The base period chosen for Figure 5 coincides with Phillip Morris's initial public offering, whereas the base period chosen for Figure 6, Figure 7 and Figure 8 is based on data availability.

Figure 5: Phillip Morris & P&G vs NYSE, indexed, 2008 – 2021



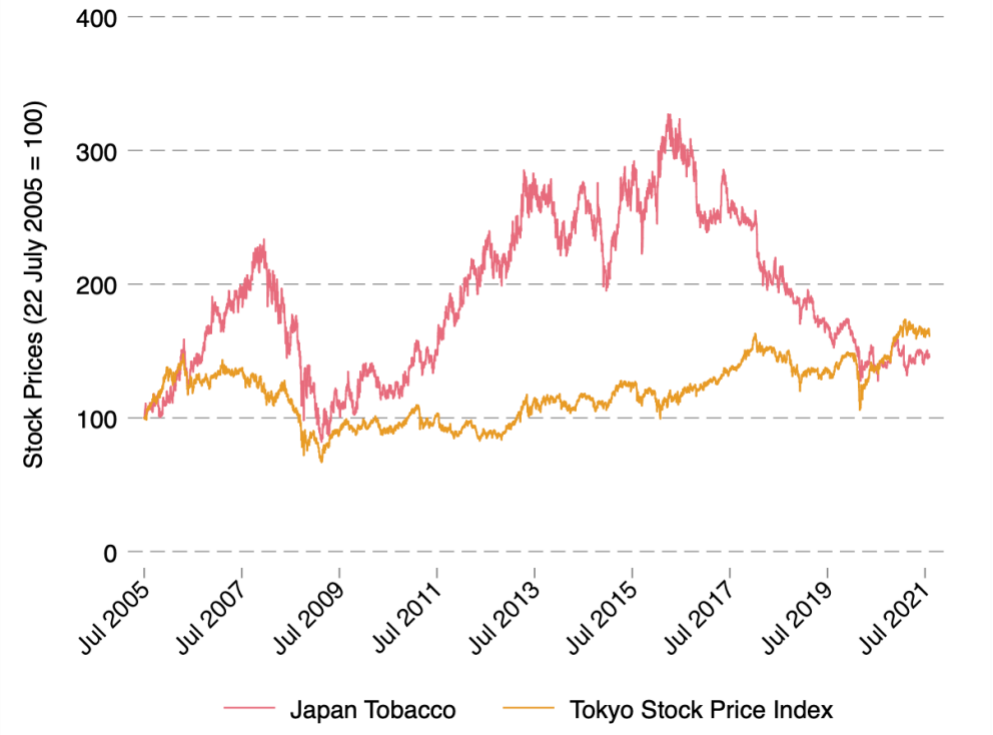
Source: Stock data obtained from Bloomberg.

Figure 6: BAT & Imperial Brands vs LSE, indexed, 2005 – 2021



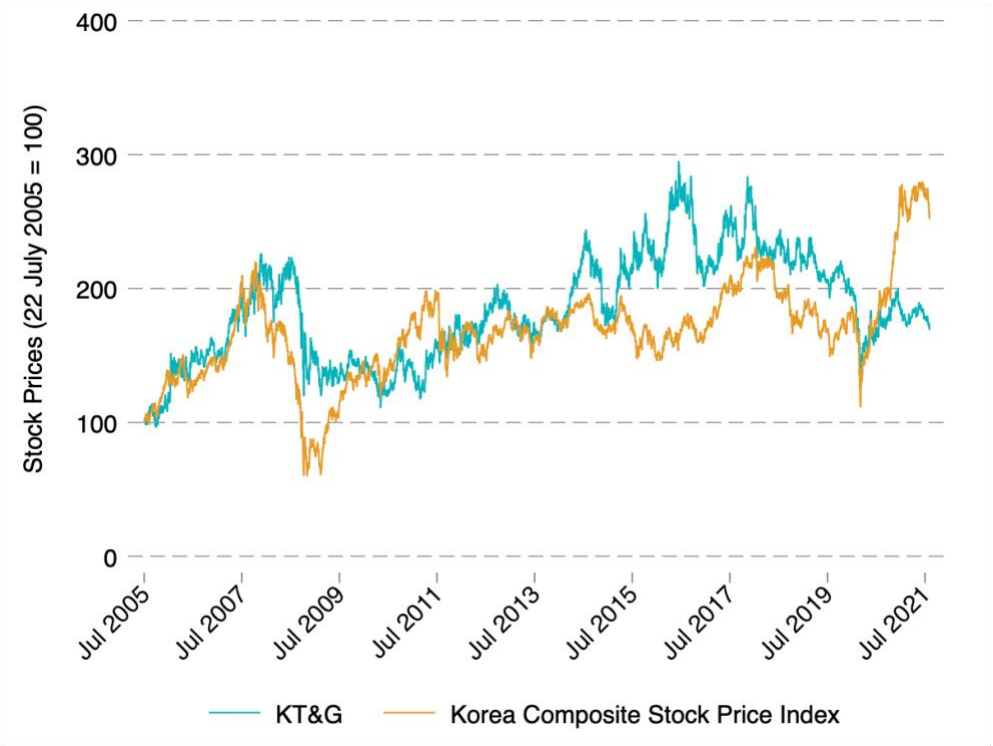
Source: Stock data obtained from Bloomberg.

Figure 7: Japan Tobacco vs TYO, indexed, 2005 – 2021



Source: Stock data obtained from Bloomberg.

Figure 8: KT&G vs KRX, indexed, 2005 – 2021



Source: Stock data obtained from Bloomberg.

3. Literature Review

3.1 Existing Economic Assessments

Few publicly available quantitative studies have been conducted in recent times to assess whether or not an economic case exists for investing in tobacco companies, and those that have been conducted have largely been prepared for TFP. In the following section, the findings of these studies are discussed, as are the substantive considerations that are likely to be relevant in the assessment of whether or not there is an economic case for investing in tobacco stocks.

Genus Capital Management, a wealth management company based in Canada, and also a signatory of the Tobacco-Free Finance Pledge, prepared a study for TFP investigating the "merits of holding tobacco [stock] for financial performance" (Genus, 2019). Genus (2019) compared the historical performance of investment portfolios to analogous portfolios excluding tobacco stocks. Genus (2019) found that "an index portfolio without tobacco didn't underperform the index with tobacco over the [period 1998 – 2018]", that "portfolios with very strict tobacco exclusions have outperformed the market [over the period 2012 – 2018]" and given "trends in the tobacco industry, such as decreasing consumption [in developed markets] and higher taxes, this lack of added value may continue". Maastricht University (2019) indicates that between April 2017 and April 2018, the S&P 500 Tobacco Index (which seeks to measure the performance of the tobacco constituents of the underlying index) had a negative change of 23.4%, whereas the S&P 500 generated a positive return of 11.1%. These findings are consistent with the stock price trends depicted above. They indicate that, historically, the opportunity cost of divesting from tobacco stocks has been minimal. However, these findings are not generally informative about the economic case for investing in, or divesting from, tobacco stocks today, as past performance is not always indicative of future performance – particularly when focusing on stock performance alone.

Maastricht University (2018) prepared for TFP a scenario analysis, in which it identified three equally likely future scenarios for the tobacco industry, given prevailing market trends, and produced tobacco stock price valuations for these firms for the start of 2018 on the basis of these scenarios. For each scenario, Maastricht University (2018) made industry assumptions about future revenue growth, cost development, and the weighted average cost of capital for the period 2018-2032. In short:

- Scenario I assumed a positive industry outlook with modestly increasing revenues, stable costs and low costs of capital.
- Scenario II assumed a neutral industry outlook with a lower increase in revenues and a simultaneous increase in operational costs; and
- Scenario III assumed a negative industry outlook, with significant decreases in revenues and overall profitability.

Based on these scenarios and the additional assumption that all three have similar implications for all firms, Maastricht University (2018) produced stock price valuations for BAT, Imperial Brands, Phillip Morris, and Japan Tobacco for the start of 2018 using a corporate finance valuation model developed by Koller, Goedhart and Wessels (2010). Table 1 below presents the Maastricht University (2018) scenario valuations, as well as the actual stock price for each of the relevant firms in both 2018 and 2021. Based on the mid-2018 actual market price in the table below, it appears that at the time the market expected a future scenario somewhere between the second and third scenarios put forward by Maastricht University (2018). Moreover, it is evident from the table below that the stock prices for BAT, Imperial Brands and Japan Tobacco have decreased significantly since mid-2018.

Table 1: Valuation outcomes for tobacco stocks under different scenarios

Stock	Share price (22.06.2018)	Share price (20.08.2021)	Scenario I valuation	Scenario II valuation	Scenario III valuation
BAT	£ 39.11	£ 26.74	£ 50.60	£ 35.34	£ 21.29
Imperial Brands	£ 27.28	£ 15.26	£ 92.57	£ 49.15	£ 20.75
Phillip Morris	$ 80.19	$ 101.21	$ 125.37	$ 89.48	$ 57.37
Japan Tobacco	¥ 3214.00	¥ 2139.50	¥ 7972.31	¥ 5308.56	¥ 3247.77

Source: Maastricht University (2018).

It is important to acknowledge that Maastricht University (2018) notes that none of the scenarios is more likely than the others. The valuations put forward by Maastricht University (2018) are therefore not necessarily conclusive when considering the economic case for investing in, or divesting from, tobacco stocks**.** If investors were to shift their expectations to Scenario I, then the share price for each of the tobacco firms in question would likely increase significantly relative to that of mid-2018. Investors would therefore receive a significant positive return on their tobacco investments in addition to probable high-yield dividends. Conversely, if investor expectations remained unchanged, or if expectations shifted to Scenario

III, the share price for each of the tobacco firms in question would likely have decreased relative to that in mid-2018. To date, with the exception of Phillip Morris, this is what has been observed – indicating that the value of tobacco stocks has decreased possibly as a result of the materialisation of the more negative scenarios put forward by Maastricht University (2018). The valuations presented in the table above are sensitive to the subjective assumptions made by Maastricht University (2018), and thus the valuation outcomes are only as good as the assumptions on which they are based. Of course, the question of whether one should invest in an industry is a speculative one, and requires one to make reasonable assumptions. Forward-looking assessments are not perfect as researchers do not have perfect foresight.

This section does not, however, interrogate the validity of the assumptions used by Maastricht University (2018) in its corporate finance valuation model nor the validity of the scenarios put forward. Rather, it focuses on the key risk factors facing the tobacco industry as well as the potential areas for growth - as identified by Maastricht University (2018) to construct the three scenarios. These factors will be discussed in detail going forward, particularly as they are informative about the substantive considerations that are likely to be relevant for assessing the economic case for investing in tobacco stocks. Broadly speaking, the key risk factors facing the tobacco industry are regulation, litigation, and boycotts, whereas the potential areas for growth are in emerging markets and diversified products.

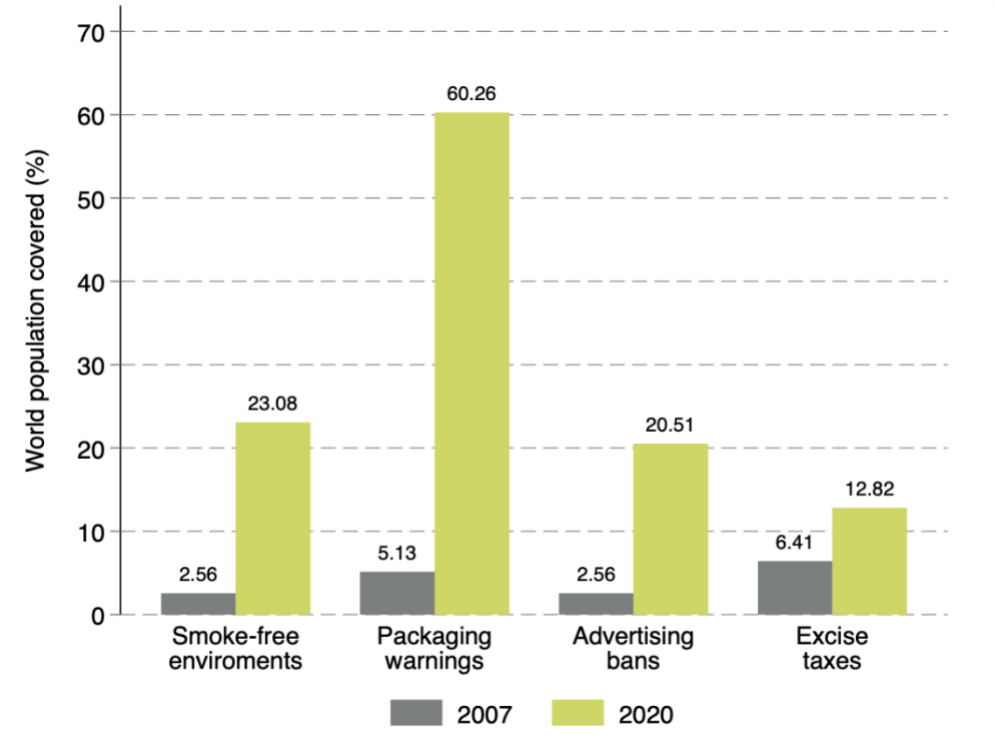
3.2 Market Dynamics

A major challenge facing the tobacco industry today is that of regulation, as governments across the world are increasingly introducing regulations aimed at curbing tobacco consumption (Maastricht University, 2018). For example, in 2020, Vietnam significantly increased excise taxes on cigarettes (Maastricht University, 2018). Paraguay, spurred by emerging evidence suggesting that smokers are at risk of more severe symptoms of Covid-19, banned smoking in all indoor public spaces as well as on public transport (World Health Organisation, 2021a). Mauritania implemented its first tobacco-control legislation in 2018, mandating graphic health warnings covering at least 70% of the surface of tobacco products (World Health Organisation, 2021a). In 2021, New Zealand announced that it planned to ban the sale of cigarettes to anyone born after 2008 in a bid to eliminate smoking altogether (BBC, 2021).[6]

[6] New Zealand however has no plans to ban the sale of NGPs.

To date, the World Health Organisation (2021a) indicates that approximately 75% of countries have implemented at least one recommended tobacco-control policy at the best-practice level. Figure 9 below shows the percentage of the world's population covered by several of the World Health Organisation's recommended best-practice tobacco policies in 2020, relative to 2007. Specifically, in 2020, approximately 60% of the world's population was regulated by or exposed to stern health warnings on tobacco products, 23% to completely smoke-free public places, 21% to comprehensive bans on tobacco advertising and sponsorship and 13% to recommended tobacco taxes – significantly more in each instance than in 2007. Moreover, Figure 9 highlights that significant scope remains for governments across the world to impose stricter tobacco regulations. This is particularly the case for excise taxes, which have been found to be the most effective tobacco control and are recommended to be at least 75% of the retail price of cigarettes in order to discourage smoking effectively (World Health Organisation, 2021a).

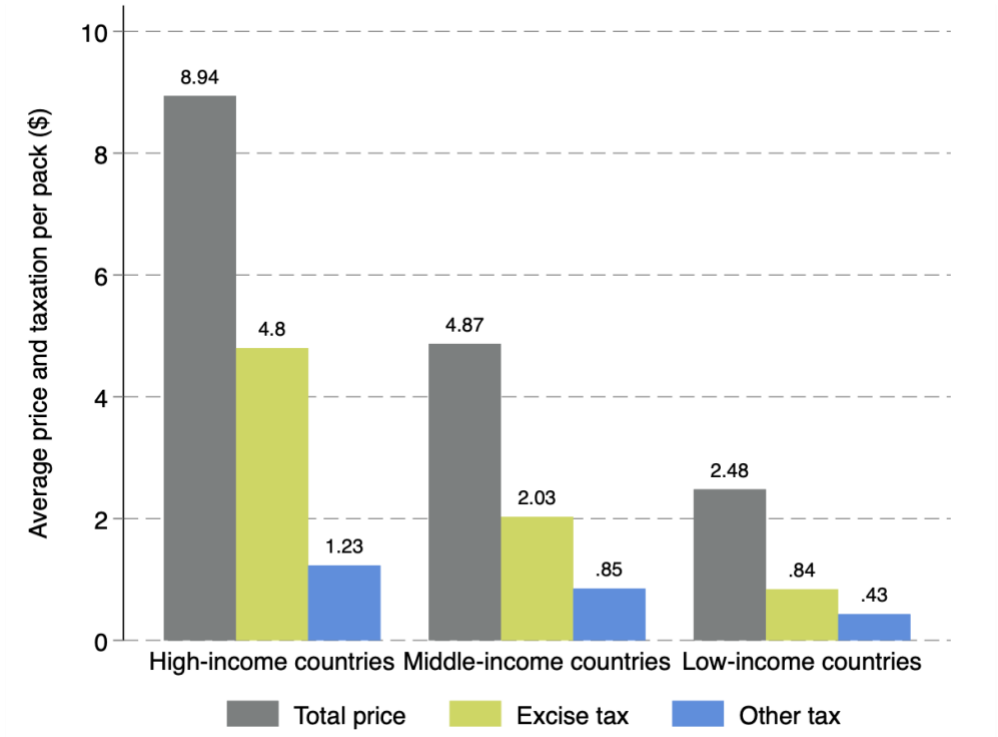
Figure 9: Global population covered by best-practice tobacco control



Source: World Health Organisation (2021a).

Figure 10 below shows that in 2020, taxes accounted for, on average, approximately 50% of the total price of a pack of cigarettes in low-income countries, 59% in middle-income countries, and 68% in high-income countries – again highlighting the scope for governments (and particularly those in developing countries) to impose higher excise taxes. While tobacco companies may seek to mitigate the effect of higher excise taxes on their profits by increasing retail prices by more than the increase in the excise tax, or by increasing retail prices by less than the increase, or a strategic selective combination thereof, their profits are still likely to be adversely affected.

Figure 10: Average price and taxation of cigarettes per pack, 2020



Notes: *Prices are expressed in purchasing power parity adjusted dollars.*
Source: *World Health Organisation (2021a).*

As a result of tobacco regulations implemented across the world, Levy et al. (2016) estimated that 53 million people stopped smoking between 2008 and 2014. Indeed, smoke-free laws make smoking less accessible and less visible, and may encourage smokers to reduce their tobacco use, whilst encouraging others not to start. Health warnings on tobacco products help educate smokers on the risks of smoking and may encourage them to quit. Advertising and sponsorship bans limit the ability of tobacco companies to appeal to both existing customers and prospective new customers. High excise taxes make tobacco products more expensive and therefore less desirable.

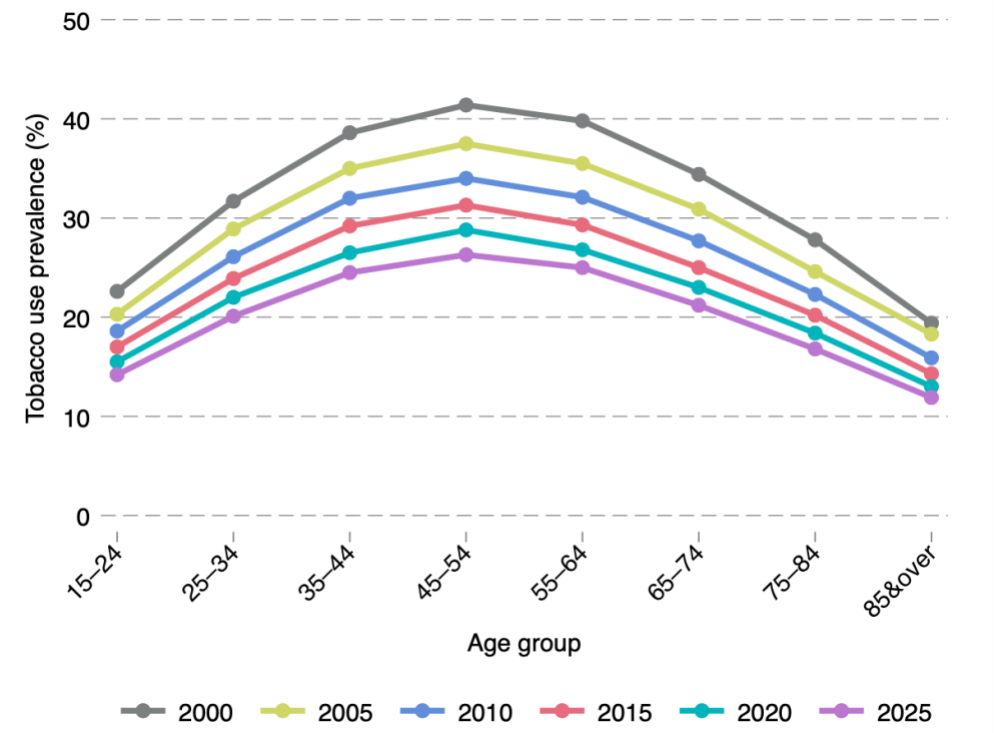
The World Health Organisation (2021a) indicates that an increase in tobacco prices by 10% reduces tobacco consumption by approximately 5% on average. While consumers may be able to circumvent high excise taxes and even sales bans by purchasing illicit cigarettes (i.e. those for which the correct excise tax has not been paid), the growth of illicit cigarette sales may come at the expense of sales by listed multinational tobacco companies if these companies are law-abiding, tax-paying, and relatively inactive in the illicit market. There has been much debate about the participation of listed multinational tobacco companies in illicit trade (Tobacco Tactics, 2021b). Nonetheless, the implementation of stricter tobacco regulation across the world will adversely affect the profitability of listed tobacco companies, particularly if many countries follow the extreme policies currently pursued by New Zealand.

A further challenge facing the tobacco industry is that of boycotts. This is because individuals, asset managers, banks and other economic agents are increasingly boycotting the tobacco industry and its products because of the adverse effects of smoking (Maastricht University, 2018). For example, in 2016, AXA, a multinational insurance firm, committed to divesting over €1.7 billion of tobacco investments for public health reasons, and called upon other companies to do the same (AXA, 2016). To date, 175 entities (including banks, asset managers and insurers) have signed TFP's Tobacco-Free Finance Pledge, indicating that numerous entities have sought to boycott the industry by divesting their tobacco holdings and resisting future investments in tobacco stocks (TFP, 2021). Additionally, 182 governmental entities are currently parties to the Framework Convention on Tobacco Control ("FCTC") and as such have effectively committed to implement evidence-backed policies to reduce tobacco consumption (World Health Organisation, 2021a).

The tightening of regulations, an increasing awareness of the health concerns related to smoking, and growing boycotts have adversely affected the demand for tobacco products globally. Between 2007 and 2018, the global prevalence of smoking (i.e., the proportion of the population over 15 who smoke) reduced from 22.7% to 17.5% (World Health Organisation, 2021a). Over the same period, the total number of smokers decreased from approximately 1.08 billion to 1 billion (World Health Organisation, 2021a). Not only has the number of smokers decreased over time, but so too has the average number of cigarettes smoked per smoker per day (Statista, 2021b; see also OWOD, 2021).

Figure 11 below shows the estimated global prevalence of tobacco use (smoked and smokeless tobacco) by age for the period 2005 – 2015, as well as projections for 2020 and 2025. From the figure, it is evident that there has been a steady decline in tobacco prevalence across every age group over time – and that this trend is projected to continue (albeit at a decreasing rate).

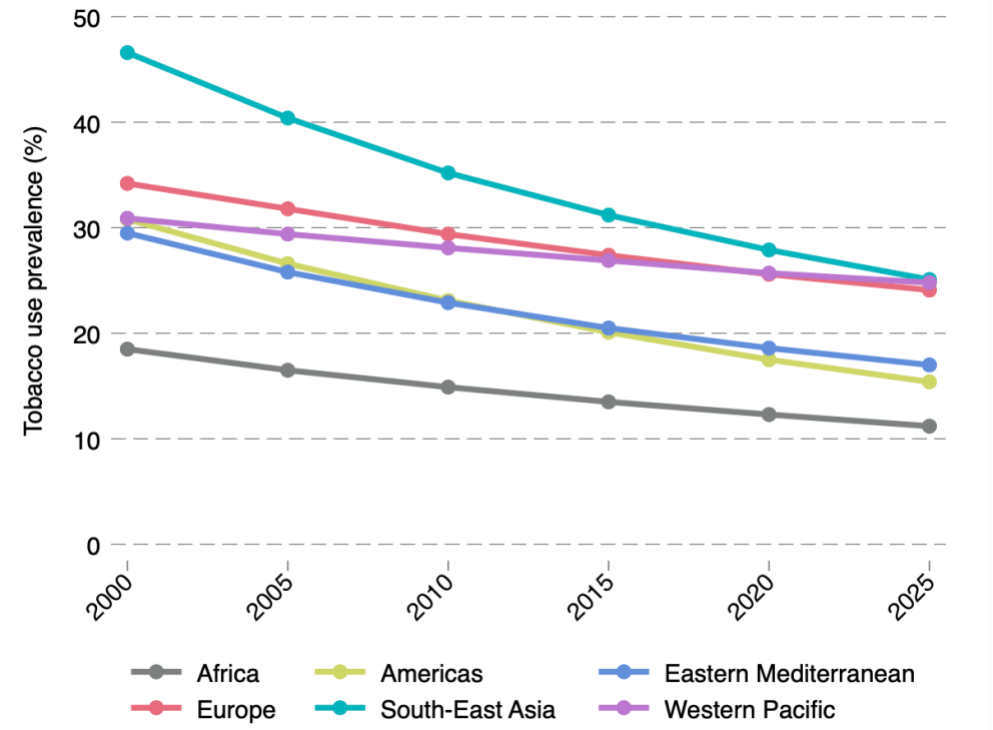
Figure 11: Tobacco use trends, by age category



Source: World Health Organisation (2019).

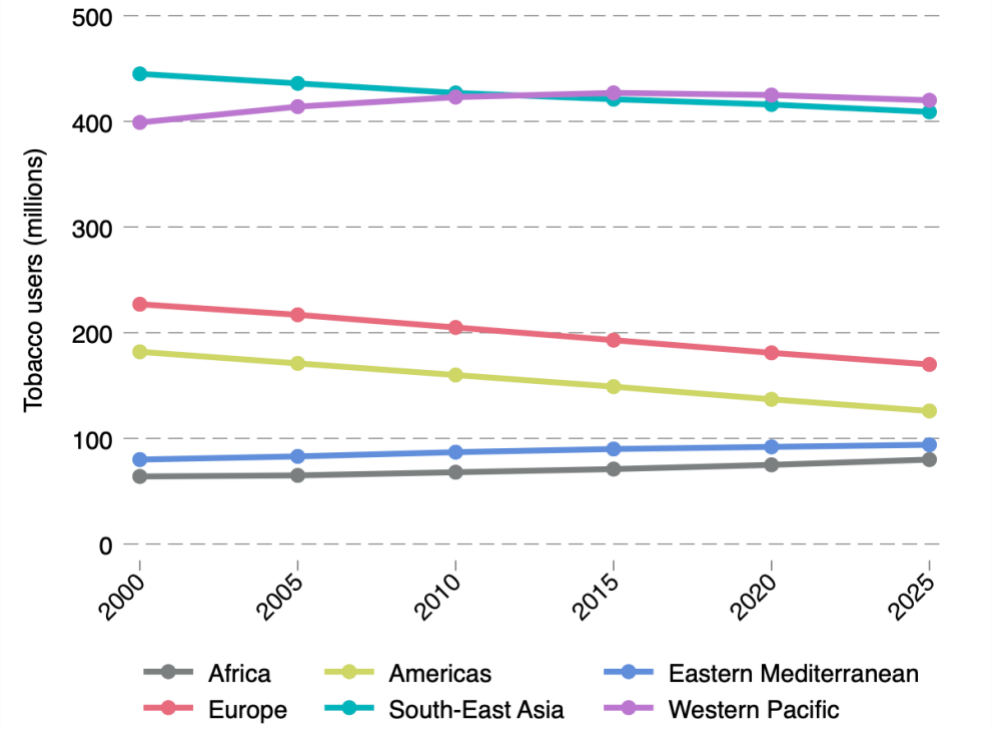
Figure 12 below shows the prevalence of tobacco use by region, as well as projections for 2020 and 2025, and highlights that prevalence is decreasing in all regions. Figure 13 below shows the number of tobacco users by region, as well as projections for 2020 and 2025, indicating that whilst there has been a decline in the number of tobacco users in the Americas, Europe and South-East Asia, the same cannot be said for Africa, the Eastern Mediterranean, and the Western Pacific. Nonetheless, the growth in the number of tobacco users in these regions has been relatively small. It appears that population growth has prevented declines in tobacco use prevalence from translating into a significant reduction in the number of tobacco users. Apart from South-East Asia, similar regional trends are observed in terms of smoking prevalence and the number of smokers, as can be seen in Section B of the Appendix. Thus, increasingly strict regulatory requirements, increased health awareness, and widespread boycotts collectively threaten the future profitability of tobacco companies.

Figure 12: Tobacco use trends, by region



Source: World Health Organisation (2019).

Figure 13: Tobacco users, by region



Source: World Health Organisation (2019).

Litigation further poses a key risk to the tobacco industry. Maastricht University (2018) highlights that, in Canada, tobacco companies are being sued over alleged higher public health costs resulting from the use of their products. Japan Tobacco (2021) notes that it is being "sued for damages due to smoking, the marketing of tobacco products and exposure to second-hand smoke". In many countries across the world, Imperial Brands is also being sued for smoking-related health effects (Imperial Brands, 2021a). In other words, tobacco companies are being challenged to pay explicitly for the costs that their products impose upon society, which are currently borne by taxpayers. Should such litigation be successful, not only would tobacco companies bear significant compensation liability for damages, but this could also spur similar lawsuits across the world and trigger the implementation of stricter tobacco regulation.

Despite decreasing demand for tobacco products globally, emerging markets and developing economies ("EMDEs") still present some growth opportunities for tobacco companies. This is because approximately 80% of the world's smokers live in EMDEs and, in contrast to developed countries, people in EMDEs have lower levels of education and health awareness, and these countries have weaker tobacco regulations and higher levels of economic and population growth (Maastricht University, 2018; Deutsche Asset Management, 2017). In fact, smoking prevalence has increased in some EMDEs in recent times. For instance, Figure 13 above indicates that the number of tobacco users is projected to increase in Africa, the Western Pacific, and the Eastern Mediterranean. However, although the tobacco industry may be able to offset declines in developed markets by growing sales in EMDEs in the short-term, it should be noted that EMDEs are increasingly regulating tobacco products as part of their obligations to the FCTC (Maastricht University, 2018).

Additionally, the possible legalisation of marijuana across the world, which has already occurred in Canada, Uruguay, and the United States ("US"), may offer growth opportunities for firms in the tobacco industry (Maastricht University, 2018; Barry & Glantz, 2016). First, the legalisation of marijuana may stimulate demand for tobacco. Tobacco is often mixed with marijuana so that the marijuana can burn smoothly when lit, and increased marijuana usage (for instance due to deregulation) may indirectly stimulate the use of tobacco, which may in turn trigger the use of tobacco products independently, given their addictive qualities (Maastricht University, 2018). Patton et al. (2005) found that, in Australia, marijuana usage significantly increases tobacco usage. Similarly, Wang & Cataldo (2016), in the US, found a significant positive relationship between cigarette and marijuana use. Ultimately, the extent to

which the (possible) legalisation of marijuana will stimulate tobacco demand will depend on the strength of the complementarities between tobacco and marijuana products (as well as the demand for marijuana products). At present, however, it is not clear whether the legalisation of marijuana will have a material impact on the demand for tobacco. Secondly, the (possible) legalisation of marijuana may enable tobacco firms to diversify their product portfolios, as the ease of supply-side substitution means that they could easily produce marijuana products (Maastricht University, 2018). Tobacco firms could potentially sell marijuana products at a moment's notice, given their capabilities in farming, packaging, distribution and marketing.

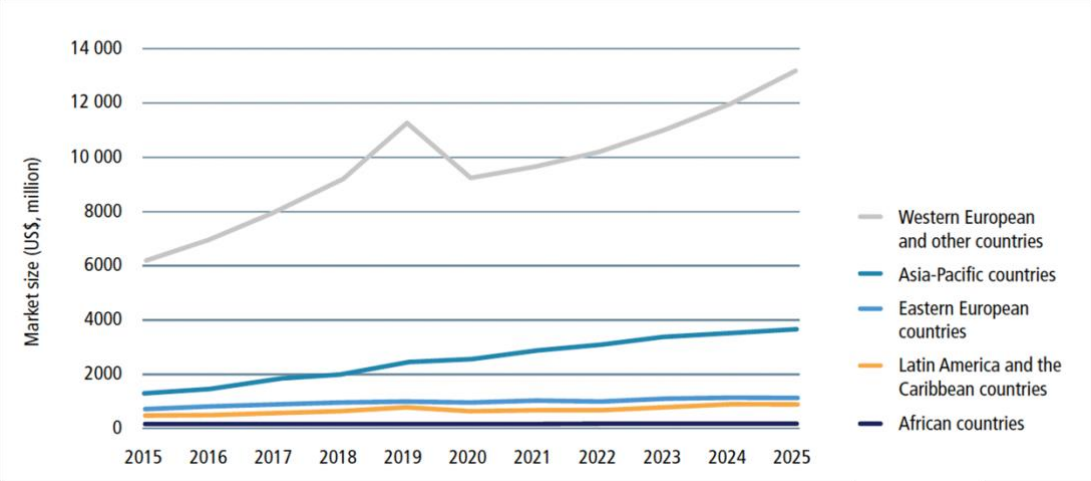
Finally, NGPs, which are currently marketed as 'reduced-harm', 'smoke-free', and 'smoking-cessation' products, may present the tobacco industry with significant growth opportunities (Maastricht University, 2018; World Health Organisation, 2021a; Deutsche Asset Management, 2017). In 2018, it was estimated that NGPs accounted for approximately 2% of the tobacco industry's sales, while cigarettes accounted for approximately 91% of sales (World Health Organisation, 2021a). Nonetheless, it is apparent that tobacco companies perceive NGPs to be important for the future. For instance, Phillip Morris's slogan currently reads "delivering a smoke-free future", and its website notes that its mission is "to one day stop selling cigarettes" as people "deserve better alternatives" (Phillip Morris International, 2021b).[7] In fact, Phillip Morris is aiming for its NGPs to account for more than 50% of its revenues by 2025 (Phillip Morris, 2021b). Similarly, BAT (2021a) is aiming to reduce the health impact of its business by increasingly transitioning its revenues from cigarettes to NGPs, while in its 2021 business plan, Japan Tobacco (2021) redefined its investment priorities to focus on NGPs. Likewise, KT&G (2021) finds NGPs to be the "core future of the tobacco industry".

Despite NGPs only accounting for a small proportion of the tobacco industry's sales at present, they are increasingly being adopted by new and younger smokers, in part due the wide variety of flavours on offer (World Health Organisation, 2021a; Deutsche Asset Management, 2017). Figure 14 below shows the market value of ENDS sales by region for the period 2015-2019, as well as projections for the period 2019-2025, and ultimately highlights that the sale of ENDS has increased significantly, particularly in Western Europe, the US, Canada, and Asian-Pacific countries, and will likely continue to increase. Caputi et al. (2017) found that average monthly

[7] It should however be acknowledged that such framing may also be a marketing strategy for reputational relief, with tobacco companies portraying themselves as part of the solution and not the problem.

google searches for HTPs in Japan rose 1426% between 2015 (their first complete year on the market) and 2016, and by an additional 100% between 2016 and 2017 – to the extent that in 2017 there were over 5.9 million HTPs-related google searches each month in Japan. It appears that NGPs are beginning to garner substantial interest globally.

Figure 14: ENDS Sales, current and projected, by region



Source: World Health Organisation (2021a).
Notes: "Western European and other countries" includes the US and Canada

Accordingly, tobacco firms could potentially bolster their profits through the successful introduction of NGPs into global markets – in which case they would need to ensure that these products are not associated with major health issues in order to avoid the same challenges that plague the traditional cigarette market. At present, it is not entirely clear to what extent these products are less harmful than traditional cigarettes (Hua & Talbot, 2016; World Health Organisation, 2021a). However, as was the case in the 1950s, the tobacco industry will in all likelihood seek to create public uncertainty about the issue and undermine any research suggesting that these products are harmful (Brandt, 2012; World Health Organisation, 2021a).[8] Moreover, the tobacco industry will likely oppose the imposition of regulation on such products. The tobacco industry has already tried to undermine regulation aimed at creating smoke-free environments by lobbying for an exception for the use of 'smoke-free' ENDS and HTPs (Word Health Organisation, 2021a). The tobacco industry is also continually introducing new e-liquids for use in ENDS, making it difficult for regulation to keep pace with changing product characteristics (Word Health Organisation, 2021a). Nevertheless, HTPs are recognised as tobacco products and are thus subject to the various provisions of the FCTC as well as to

[8] For instance, a 1950s Phillip Morris cigarette commercial claimed that by consuming Phillip Morris's cigarettes, consumers would "feel better", "coughs due to smoking [would] disappear" and that such cigarettes were "recommended by ear nose and throat specialists". See https://www.youtube.com/watch?v=3Qflhep2I6Y.

tobacco regulation (Word Health Organisation, 2021a). In addition, 111 countries currently regulate ENDS and e-liquids, and 32 of these have banned sales altogether. Of those countries that allow the sale of ENDS, 30 have completely banned their use in all public places, 8 mandate the use of graphic health warnings on their packaging at the best practice level, 19 ban their advertising and sponsorship, and 3 have banned their flavouring (World Health Organisation, 2021a). Whilst ENDS products are not currently subject to same stringent regulation that traditional tobacco products are, countries are beginning to make regulatory changes to account for these products.

The key risks facing the tobacco industry include tightening regulation, increasing health awareness, growing boycotts, legislative action, and ultimately decreased demand for traditional tobacco products. The recent fall in tobacco stock prices (as can be seen in Figure 2) to a large extent reflects the actualisation of these risks. Nonetheless, tobacco companies have sought to manage these risks by targeting EMDEs and introducing NGPs. The future financial success of tobacco companies will probably depend on their ability to introduce NGPs successfully into global markets and to (possibly) leverage growth as a result of the legalisation of marijuana. To a lesser extent, at least in the short-term, the future profitability of tobacco firms will also depend on their ability to increase traditional cigarette sales in EMDE markets in order to offset the decline in traditional sales elsewhere.

The extant literature on the economic case for investing in tobacco companies is dominated by studies prepared for TFP, and has focused on historical share price movements and valuations. Taking all this into account, this paper seeks to provide additional evidence relevant to the assessment of whether or not there is an economic case for investing in tobacco companies, differentiating itself by analysing the financial performance of the world's largest tobacco companies and making inferences about whether the trends observed are likely to continue given the market dynamics discussed above. As wealth-maximising investors are generally not willing to sacrifice financial returns in favour of ethical considerations, it is critical to assess whether a financial incentive exists for investors to divest from tobacco companies in view of the adverse effects of smoking and decreasing demand for traditional tobacco products across the world. The following section details the methodology employed and the data used in this assessment.

4. Methodology, Data and Limitations

As highlighted in Section 2, Phillip Morris, BAT, Imperial Brands, Japan Tobacco and KT&G are amongst the world's largest multinational private tobacco companies and supply the majority of tobacco products (including NGPs) worldwide. It should, however, be noted that both Japan Tobacco and KT&G have business interests other than tobacco products (e.g., in pharmaceuticals and foods). Nonetheless, tobacco products remain the core business segment for both Japan Tobacco and KT&G and accounted for 89% and 56% of their respective overall revenues in FY2020 (Japan Tobacco, 2021; KT&G, 2021). To investigate further whether or not there is an economic case for investing in tobacco companies, this paper analyses the historical profit trends, revenue trends, volume trends and cost trends for each of the companies in question for the period FY2006 – FY2020, with a particular focus on the performance of the tobacco segments of their businesses, in order to shed light on whether declining global smoking rates have had a significant impact on their financial performance and thus on the tobacco industry as a whole.[9] In addition, this paper explores key profitability ratio trends, and specifically evaluates the ability of these companies to generate profit relative to revenue and balance sheets assets, in order to gain further insight into their efficiency and financial performance. As before, for benchmarking proposes, P&G, a leading global FMCG firm, is included in the relevant analyses where comparable.

This approach provides information as to whether there is an economic case for investing in tobacco companies, as although wealth-maximising investors are interested in dividends and capital gains from a rise in the value of the shares purchased, by definition dividends are reliant on a company's profitability, and for the most part share prices reflect investors' expectations regarding firms' future earnings growth (Elton, Gruber & Gultekin, 1981; Zhou & Ruland, 2006). Accordingly, the performance of a company's stock is closely related to its financial performance, and if its business does well, so too will its stock. Financial markets tend to reward the stock prices of fast-growing firms (Kim, Haleblian & Finkelstein, 2011). Therefore, wealth-maximising investors, when deciding whether to invest in a tobacco firm, would pay particular attention to historical profitability, revenue, and trends in volume and costs, as well as to the market dynamics driving these trends. For instance, if it is found that a tobacco company's profit has been consistently declining because of its inability to increase the sales of NGPs to offset the decline in traditional cigarette sales, one might expect only low and

[9] The period has been chosen based on data availability for the 5 tobacco companies in question.

potentially even negative future earnings growth, and the case for investing in the company in question may therefore be weak.

To conduct the necessary analyses, this paper relies largely on secondary data obtained from Bloomberg in the form of company financial statements for the period FY2006 – FY2020.[10] The general purpose of financial statements is to provide information about the financial performance and business activities of an organization, and this information is often used by economic agents to make investment decisions. To allow comparison between the different companies' financial performance, all figures and trends referred to are in dollar terms, unless otherwise stated. The financial performances of those companies listed outside the US (i.e., BAT, Imperial Brands, Japan Tobacco, and KT&G) are subject to changes in currency exchange rates. Figure 15 below shows the exchange rate movements between the dollar, the British pound ("pound'), the Japanese yen ("yen"), and the South Korean won ("won") over time, where the exchange rates have been standardised to be 100 on 22 July 2005 (the same base period for Figure A1 in Section A of the Appendix). It is clear that, since 2005, the dollar has largely appreciated relative to the pound, meaning that Imperial Brands' and BAT's financial performance (and stock price performance) is less impressive when depicted in dollar terms.

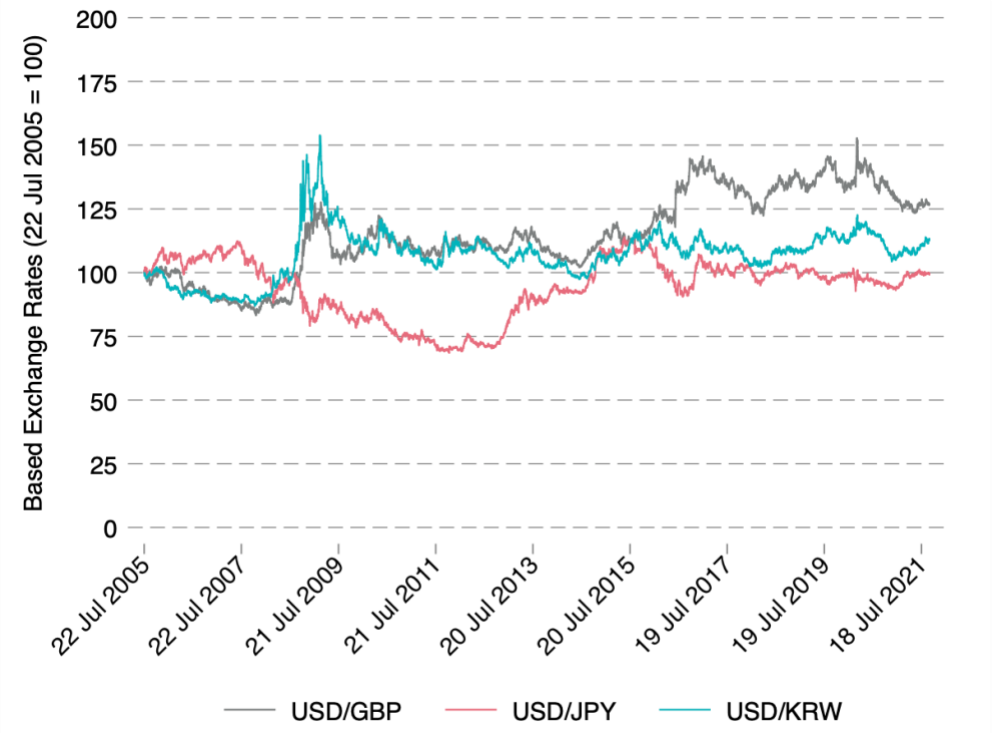
It needs be acknowledged that this methodology is subject to several limitations. First, whilst the financial statements in question have been approved by auditors, tobacco companies have a history of concealing information from the public and particularly any information which would be harmful to their business, and as such the data in question may be subject to incomplete company disclosure (World Health Organisation, 2021a; Collin et al., 2004; Lee & Collin, 2006; LeGresley & Lee, 2017). Further, this assessment only focuses on 5 companies, and thus this paper's findings are only scalable to a certain extent. The assessment largely focuses on aggregate performance trends, given data limitations at the product and regional level.

Lastly, this assessment is limited in that it cannot provide conclusive evidence as to whether or not there is an economic case for investing in tobacco stocks. This is because the question is a speculative one as past performance is not always indicative of future performance.

[10] This paper uses Bloomberg-adjusted figures to allow for comparison between companies that use different accounting standards.

Nonetheless, through diligent investigation and reasoned argument, this paper seeks to provide a detailed assessment of the profitability of the tobacco firms in question and the likely future profitability of these firms, given incumbent market dynamics, in an attempt to provide further evidence as to the economic case for investing in, or divesting from, tobacco stocks. At the very least, this paper contextualises the financial performance of tobacco companies, highlights key challenges currently facing these companies, and provides agents with the background to make more informed decisions regarding their involvement with tobacco investments. The following section discusses the empirical findings of this assessment.

Figure 15: Exchange rate movements, indexed, 2005 - 2021



Source: Exchange rate data obtained from Bloomberg

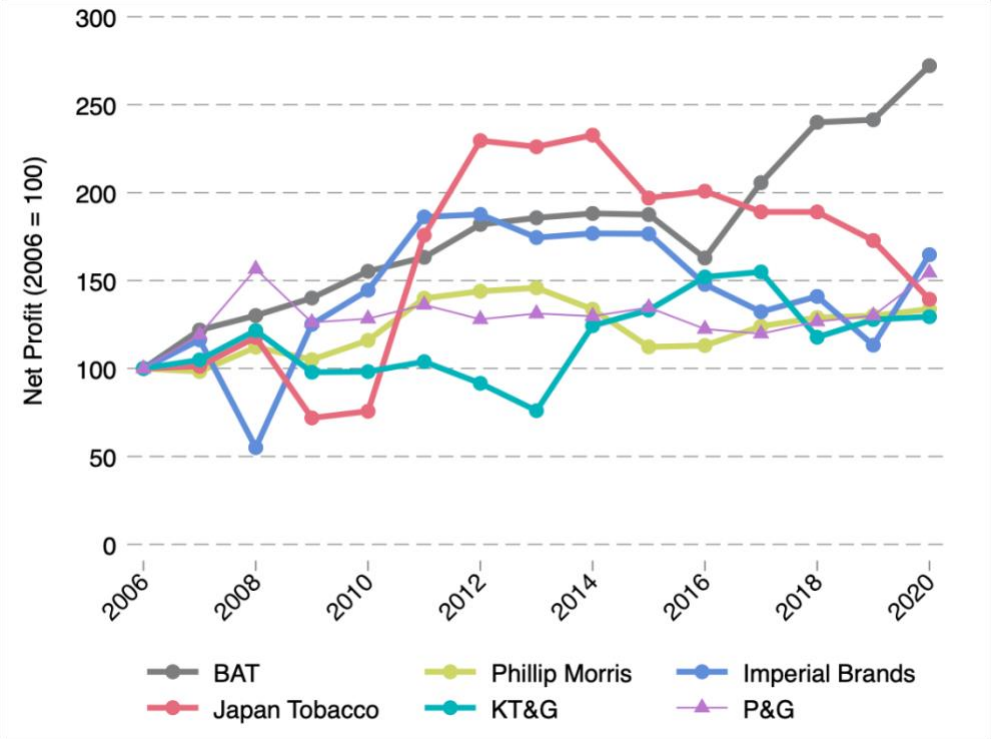
5. Empirical Results

5.1 Historical Profit, Revenue and Cost Trends

As mentioned, this paper seeks to evaluate whether tobacco companies have been able to bolster their profits despite increasingly strict tobacco regulation and declining rates of smoking in many countries across the world. Figure 16 below depicts the indexed overall net profit trends for the tobacco companies in question over the period FY2006 to FY2020, as well as that of P&G. The Figure reports indexed trends in that dollar-denominated profits have been standardised to be 100 in FY2006 for comparison purposes. Figure C1 in Section C of the Appendix reports these trends in absolute terms. Over the period FY2006 to FY2020, BAT's net profit increased by approximately 172%, Imperial Brands' by 65%, Phillip Morris's by 34%, Japan Tobacco's by 39% and KT&G's by 29%, whereas P&G's profit increased by 54%. In FY2020, the most recent year for which all figures are available, the five tobacco companies in question made profits of approximately US $24 billion. Ultimately, these significant profits have enabled the tobacco companies to pay out attractive dividends to investors. Not only did some of the tobacco companies outperform P&G in terms of profit growth over the period, but they also all outperformed inflation – which increased by 28% over the period (World Bank, 2021).

It should however be acknowledged that, with the exception of KT&G and BAT, which acquired a majority stake in Reynolds American Inc ("Reynolds") in July 2017 and experienced substantial profit growth thereafter, these companies have not been able to increase their profits relative to the levels achieved in FY2014 (BAT, 2017). Specifically, over the period FY2014 to FY2020, Imperial Brands' profit fell by 7%, Japan Tobacco's by 40%, and Phillip Morris's profit was stagnant. In contrast, BAT increased its profits by 45%, KT&G by 4%, and P&G by 19%. Overall, the tobacco companies in question have experienced mixed financial performance in recent times. Whilst overarching profit trends are informative as to the overall performance of these tobacco companies, it is crucial to assess the root causes of these trends, namely revenue and cost trends, in order to gain further insight into the economic case for investing in, or divesting from, tobacco companies.

Figure 16: Net profit trends, indexed, FY2006 – FY2020



Source: Financial data obtained from Bloomberg

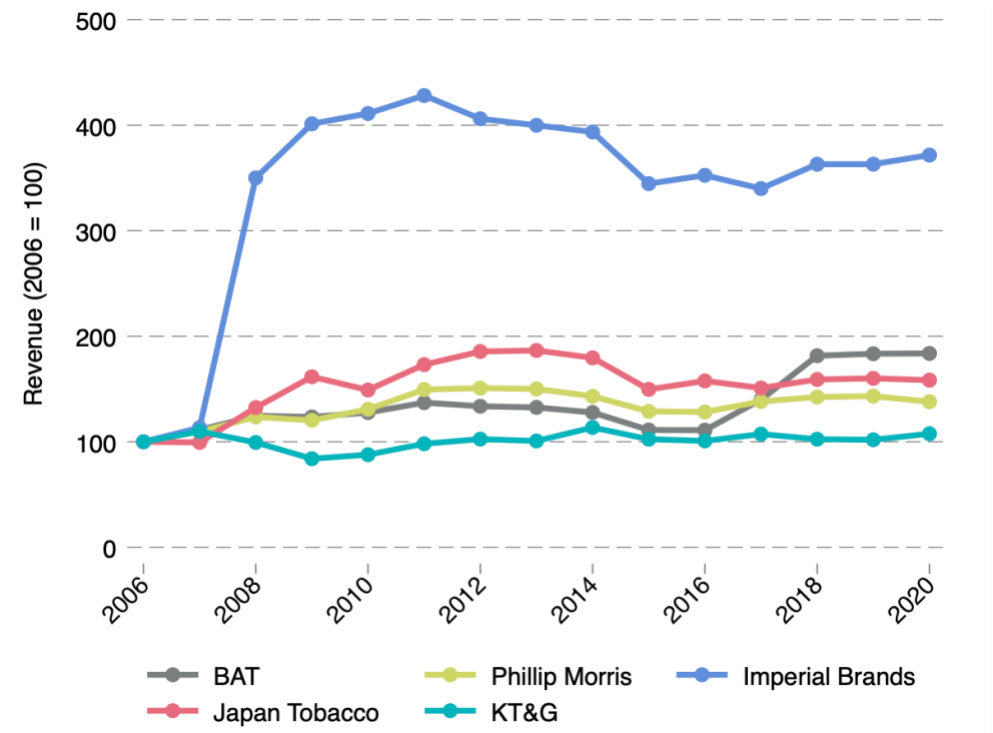
Figure 17 below depicts indexed revenue trends for the companies in question over the period FY2006 to FY2020, with a particular focus on their respective tobacco businesses. Specifically, Figure 17 depicts indexed total revenue trends for each of BAT, Imperial Brands and Phillip Morris, and indexed segmented tobacco revenue trends for Japan Tobacco and KT&G, given that the two are active in other sectors (e.g., in pharmaceuticals and foods sales). Figure C2 in Section C of the Appendix reports these figures in dollar terms. It can be seen that, whilst the companies in question have not been able to generate greater tobacco revenues consistently year-on-year, those of FY2020 were significantly greater than those in FY2006. For completeness, it is noteworthy that Imperial Brands significantly increased its revenue in FY2008 following its acquisition of both Commonwealth Brands and Altadis (Imperial Brands, 2021b). Figure 17 also indicates that the sales of the tobacco companies in question were largely resilient to the effects of the 2008 global financial crisis.

However, over the period FY2014 to FY2020, Phillip Morris's tobacco revenue fell by 4%, Imperial Brands' by 6%, Japan Tobacco's by 12%, and KT&G's by 5%. Phillip Morris, Imperial Brands and Japan Tobacco each saw a decrease in profitability over the period in part as a result of reduced overall tobacco sales. Furthermore, whilst KT&G increased its profit

over the same period (and its total revenues by 16%), such growth cannot be attributed to its tobacco sales (Bloomberg, 2021). In contrast, over the period FY2014 to FY2020, BAT increased its revenue by 44%. Figure 17 shows that BAT significantly increased its revenues in FY2017 and FY2018, following its majority stake acquisition of Reynolds.

Other than BAT's seemingly inorganic revenue growth, the companies in question have been unable to increase their revenues from tobacco products relative to the levels achieved in FY2014, which lends credibility to a scenario somewhere between the second and third of those envisioned in the Maastricht University (2018) study and indicates that declining global smoking rates have been accompanied by declining revenues in the tobacco industry. While companies may prefer to grow organically through an increase in demand for their existing products, if such growth is not forthcoming, perhaps as a result of increasingly strict regulation, they will turn to alternative growth strategies, such as acquisitions, to achieve the level of growth that their shareholders demand (Kim, Haleblian & Finkelstein, 2011).

Figure 17: Tobacco business revenue trends, indexed, FY2006 - FY2020

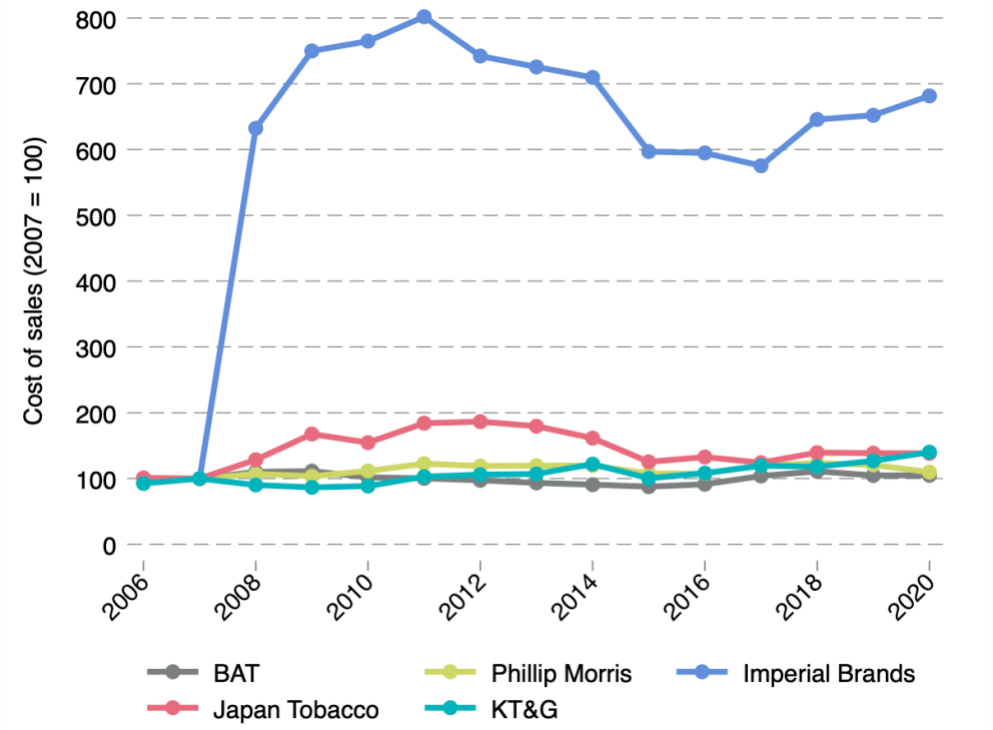


Source: Financial data obtained from Bloomberg

Another key driver of profit trends is costs, in that a company can still be increasingly profitable if it is able to control its costs, even if it is experiencing sales declines. From an economic standpoint, costs can be broken down into fixed costs (i.e., those costs that do not change on the basis of quantity sold) and variable costs (i.e., those which depend directly on quantity of goods sold). From an accounting standpoint, variable costs are often referred to as costs of sales, whereas fixed costs are referred to as operating costs. It should be noted that it is not possible to separate Japan Tobacco's and KT&G's costs between their respective business segments, and therefore not possible to isolate the costs attributable to their respective tobacco businesses. Figure 18 below therefore depicts the indexed overall cost of sales trends for the tobacco companies in question over the period FY2006 – FY2020. Figure C3 in Section C of the Appendix reports these trends in absolute dollar terms. As was the case with revenue, Imperial Brands' costs of sales increased significantly in FY2008 following key business acquisitions (Imperial Brands, 2021b). Figure 18 shows that the cost of sales trends for the tobacco companies have largely mirrored their respective tobacco revenue trends, albeit to a lesser extent. For instance, BAT was able to increase its revenues significantly in both FY2017 and FY2018 without incurring a substantial increase in the costs of goods sold – hence its substantial profit growth over the period. Figure 19 depicts indexed overall operational cost trends for the tobacco companies over the period FY2006 – FY2020. Figure C4 in Section C of the Appendix reports these trends in absolute dollar terms. From Figure 19, over the period FY2014 to FY2020, BAT's operating costs increased by 42%, Phillip Morris's by 11%, and KT&G's by 22%. Again, the increase in BAT's operating costs corresponds with its acquisition of Reynolds. In contrast, Imperial Brands and Japan Tobacco were able to reduce operational costs over the period in question by 13% and 6% respectively, but these reductions were not sufficient to offset their respective revenue declines over the same period.

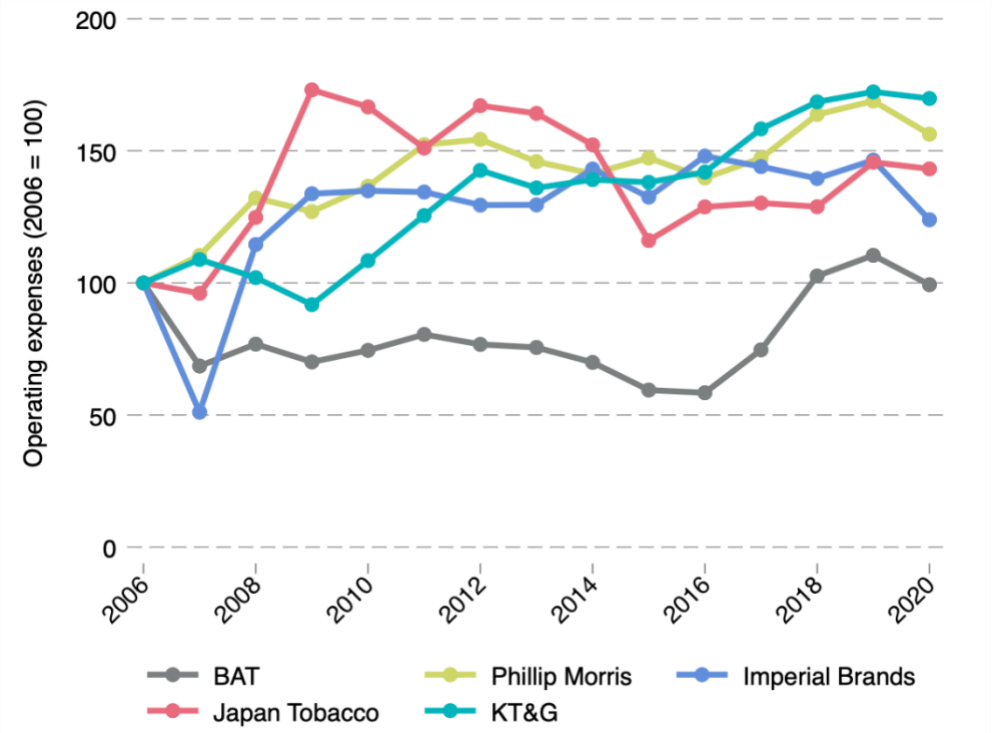
Whilst these cost trends provide further context to the profit trends observed, it appears that the profit trends are largely dominated by movements in tobacco revenue, and therefore by the demand-side factors discussed in Section 3.2. To investigate the profit trends discussed above, revenues for tobacco companies can be further segmented by product type, by units sold, and by price per unit. However, segment information contained in financial statements is typically limited (CFA Institute, 2018). Nevertheless, using the collective data available from the relevant companies' financial statements, this paper seeks to identify the key drivers of the revenue trends observed.

Figure 18: Cost of sales trends, indexed, FY2006 – FY2020



Source: Financial data obtained from Bloomberg
Note: The base period for this figure differs to the others contained in this Section due to data availability issues.

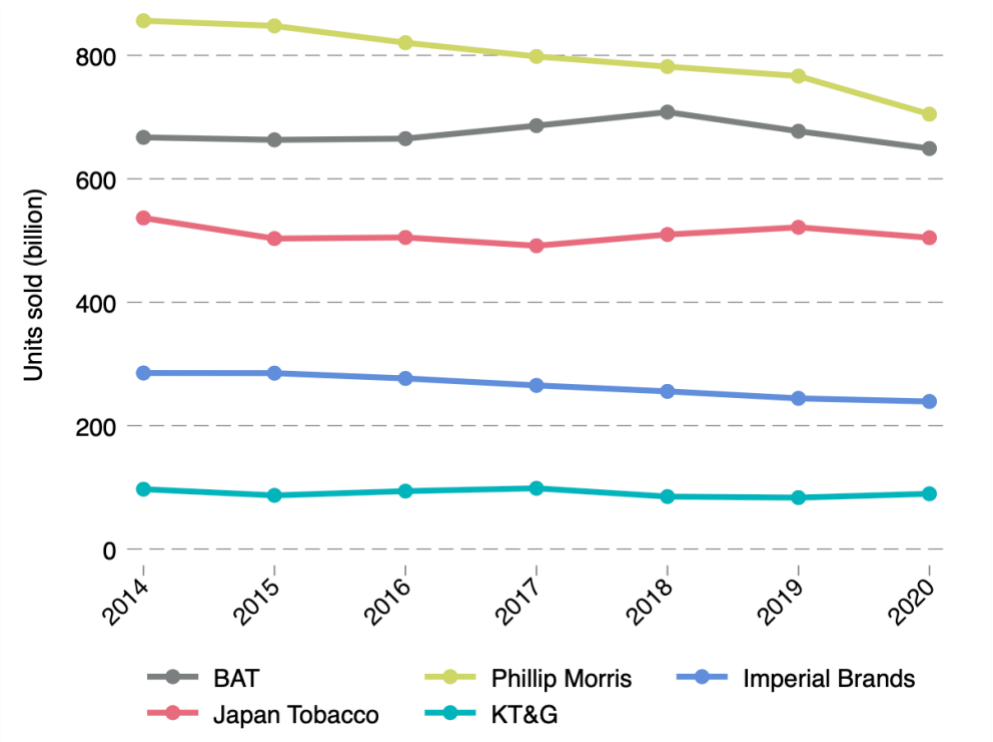
Figure 19: Operational cost trends, indexed, FY2006 – FY2020



Source: Financial data obtained from Bloomberg

Figure 20 below reports the total number of units sold for the key tobacco products (excluding ENDS-related products) for each of the tobacco companies in question, for the period FY2014 to FY2020. For both BAT and Phillip Morris, 'units sold' is the sum of the number of cigarettes sold and the number of heated tobacco units sold. Imperial Brands reports 'units sold' on a stick-equivalent basis to reflect combined cigarette, fine-cut tobacco, cigar, and snus volumes. Japan Tobacco reports 'units sold' as the number of tobacco-based products sold, including cigarettes, cigars, fine-cut tobacco, and oral and heated tobacco units. KT&G reports 'units sold' as the number of sticks sold and excludes unit sales of HTPs. Over the period FY2014 to FY2020, BAT's units sold fell by approximately 3%, Imperial Brands' by 16%, Phillip Morris's by 18%, Japan Tobacco's by 6%, and KT&G's by 8%.

Figure 20: Units sold, FY2006 – FY2020



Source: Financial data obtained from Bloomberg

The recent decline in Phillip Morris's, Imperial Brands,' Japan Tobacco's and KT&G's tobacco revenues appears from the above to be a result of a reduction in units sold. It is also clear that whilst BAT was able to increase its unit sales in FY2017 and FY2018 following its acquisition of Reynolds, and therefore its revenues over the same period, it has not been able to maintain this volume growth. However, despite experiencing significant declines in unit sales in both FY2019 and FY2020, BAT was able to maintain revenues to the levels achieved in FY2018, as can be seen in Figure 17, suggesting that it was able to do so by either charging

higher prices for its units, by selling more of those units that earn comparatively higher margins, by increasing sales of other products not reported within 'unit sales' (e.g. ENDS products), or by a combination of these strategies. In respect to the former, there is, however, a limit to the extent that it can do so before revenues start to decline as a result of the volume effect exceeding the price effect.

Going forward, this paper investigates the driving forces of reduced unit sales for each of the companies in question. Table 2 below breaks down units sold for BAT and Phillip Morris for FY2018 (the first year in which BAT reports the segmented data) and FY2020. From the table, it is apparent that cigarettes accounted for 98% and 89% of units sold by BAT and Phillip Morris respectively in FY2020, providing an indication that the financial performance of major tobacco companies continues to rely on conventional combustible tobacco products. Table 2 also highlights the fact that both Phillip Morris and BAT have been unable to increase the volume of heated tobacco units sold to offset the decline in the volume of cigarettes sold. Although cigarettes and heated tobacco units are different products, volumes of cigarettes and heated tobacco units sold are comparable as, similarly to a cigarette, a consumer can draw on a heated tobacco unit for approximately 6 minutes or 14 puffs (Phillip Morris, 2021; Zacny, & Stitzer, 1996).

Table 2: Units sold by BAT and Phillip Morris, FY2018 and FY2020

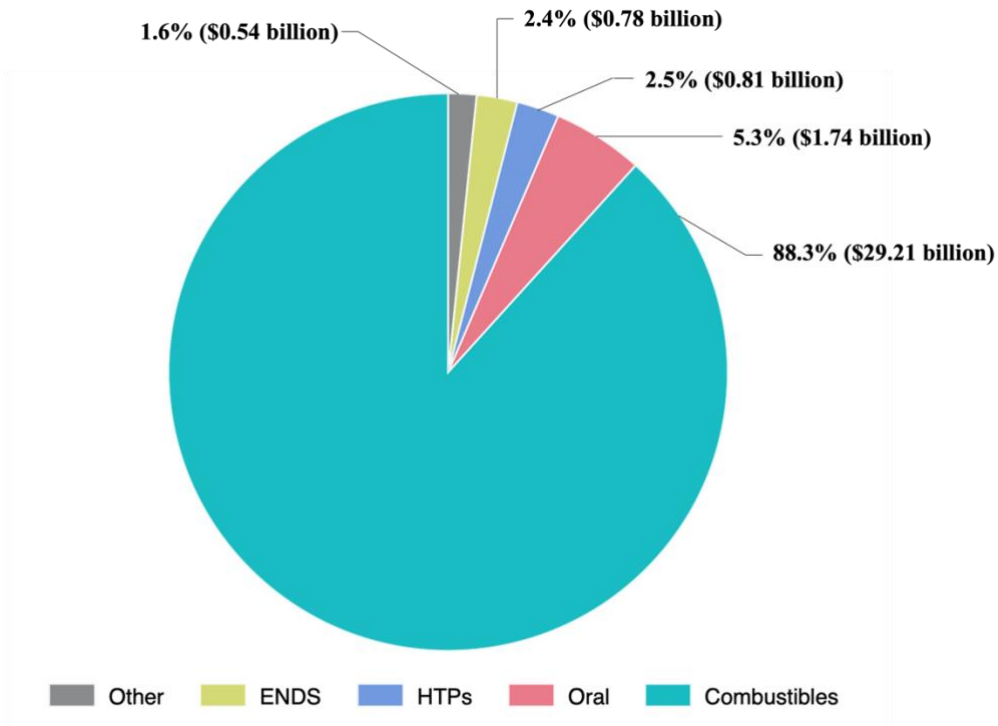
Units sold	**FY2018**	**FY2020**
BAT cigarettes	701 billion	638 billion
BAT heated tobacco units	7 billion	11 billion
BAT total	**708 billion**	**649 billion**
Phillip Morris cigarettes	740 billion	629 billion
Phillip Morris heated tobacco units	41 billion	76 billion
Phillip Morris total	**781 billion**	**705 billion**

Source: Financial data obtained from Bloomberg

In addition to segmented unit sales data, some of the tobacco companies report segmented revenue data at times. Figure 21 below shows that, in FY2020, cigarettes, HTPs and ENDS accounted for 88.3%, 2.5%, and 2.4% of BAT's total revenue respectively – again demonstrating the continued importance of conventional combustible tobacco products to tobacco companies. Over the period FY2017 to FY2020, BAT increased sales of HTPs and ENDS by 213% and 263% respectively, indicating that there is growing demand for NGPs

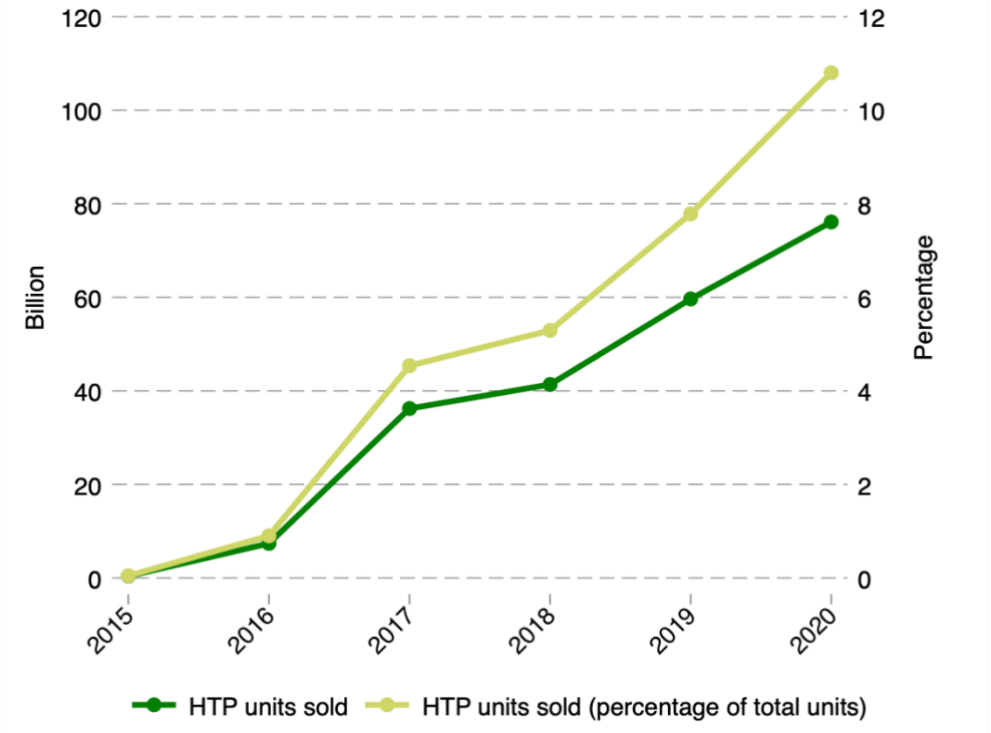
(BAT, 2021a). However, BAT's total revenue growth was not largely driven by the sale of NGPs, as these currently account for an insignificant portion of its revenues. Figure 22 below shows that Phillip Morris increased the volume sold of heated tobacco units by 929% over the period FY2016 to FY2020, to the extent that these products accounted for 24% of its net revenues (Phillip Morris, 2021a). Its revenues have, however, been stagnant over the same period (as can be seen in Figure 17), indicating that it has not been able to increase the sales of these products enough to offset the decline in traditional cigarette sales significantly. Similarly, whilst Japan Tobacco increased its sales of NGPs by 145% (in yen terms) over the period FY2016 to FY2019, such an increase was not sufficient to increase its tobacco revenues over the same period (Japan Tobacco, 2021). Similarly, KT&G increased the sales of NGPs by 58% over the period FY2018 to FY2020 (in won terms) to approximately US $240 million, but its tobacco revenues were stagnant over the same period (KT&G, 2021). Imperial Brands, on the other hand, has experienced poor growth in respect to NGP sales, and attributes this to increased regulatory intervention and weaker than expected trading (Imperial Brands, 2021a).

Figure 21: BAT's revenue by product segment, FY2020.



Source: Financial data obtained from Bloomberg

Figure 22: Phillip Morris, heated tobacco units sold, FY2015 – FY2020



Source: Financial data obtained from Bloomberg

It is clear from the above that the financial performance of major tobacco companies continues to depend primarily on the sale of conventional tobacco products. This is problematic, as the demand for these products is evidently in decline, which in turn has begun to affect the profitability of some of these companies adversely. Accordingly, the economic case for investing in tobacco companies largely rests on the speculative question of whether tobacco companies will be able to achieve overall revenue growth in future through the sale of NGPs and potentially of marijuana products. This is because financial markets tend to reward the stock prices of fast-growing firms, and not of those experiencing sales declines. Phillip Morris acknowledges that its "profit growth may be adversely impacted if… [it is] unable to introduce [these] new products or enter new markets successfully" (Phillip Morris, 2021a).

It is important to acknowledge that whilst tobacco companies may also be able to achieve growth in future through the introduction of marijuana products, this possibility is largely ignored for the purpose of this paper. This is because tobacco companies are still largely inactive in this space (as indicated in Figure 21) as the sale of marijuana is still illegal in many countries. Additionally, this is because the pace of marijuana legalisation and subsequent product adoption is difficult to predict.

The present growing demand for NGPs is impressive, yet it is doubtful whether such growth can be sustained, particularly as possible regulation could dramatically affect the market's growth potential. Indeed, Phillip Morris is aware that NGPs will generate unpredictable growth, and that it may be unsuccessful in introducing NGPs if regulators prohibit their commercialization (Phillip Morris, 2021a). Whilst the growing demand for these products has been impressive for some companies, the evidence suggests that the growth in the sales of NGPs has not been sufficient to offset the decline in traditional cigarette sales significantly. Both BAT and Phillip Morris seek to encourage those smokers who would otherwise continue to smoke cigarettes to switch completely to NGPs (BAT, 2021a; Phillip Morris, 2021a). However, for these companies to increase their sales of NGPs to offset the decline in cigarette sales, they would need to attract a significant number of non-smokers or youth towards these products, which runs counter to their marketing claims, given that some who quit smoking will do so without turning to 'smoking-cessation' aids. Williams (2018) finds that there is little evidence to suggest that the sales of alternative products could reach the volumes previously seen for traditional tobacco products such as cigarettes. Japan Tobacco (2021) notes that there is intense competition in product development for NGPs, suggesting that profit margins for these products may be limited by competitive forces. The economic case for investing in tobacco companies is no longer as strong as it used to be, particularly given declining demand for traditional cigarette products, and uncertainty regarding the future success of NGPs.

The above also begs the question as to the extent that these multinational tobacco companies can raise prices for conventional tobacco products and continue to maintain profits on account of declining consumption (which has been relatively slow). Scores of people are dependent on tobacco-delivered nicotine and persist in smoking despite the well-known health risks. As such, the demand for these products is inelastic, meaning that the quantity demanded is not very respondent to changes in price (World Health Organisation, 2021a). This suggests that tobacco companies may well be able to increase prices for these products and maintain profits without having to grow volumes. That said, in each of the relevant geographic markets in which they operate, tobacco companies may be disincentivised from increasing prices since doing so might result in a loss of sales, and hence profits, to rivals (or to the growing illicit trade). Tobacco companies also may not be able to sustain higher prices if this would attract entry or expansion by other firms. In other words, the ability for tobacco companies to inconsequentially increase their prices largely depends on the degree to which they are competitively constrained by existing rivals, illicit trade, and the threat of entry. Of course, markets are not homogenous,

and whilst a tobacco company may be able to inconsequentially increase its prices in one market, the same may not hold true for others. For this reason, absent an in-depth analysis of competition and tobacco sales data across multiple markets, it is extremely difficult to determine the extent to which tobacco companies can further inconsequentially increase their prices for these products.

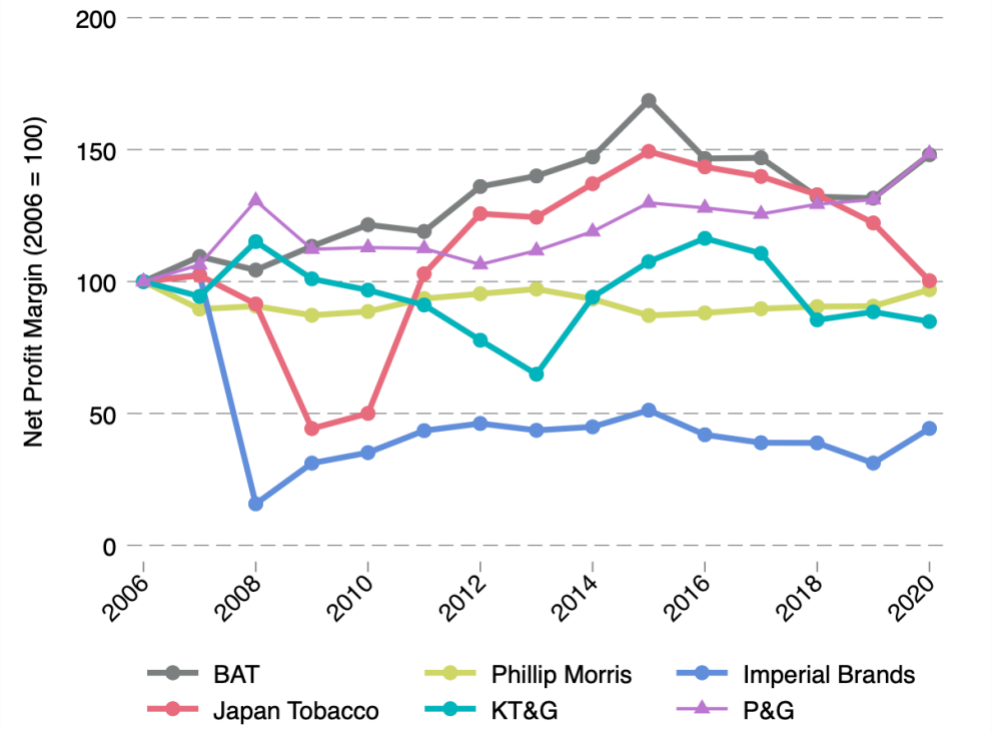
5.2 Net Profit Margin and Return on Asset Trends

This paper also explores other key financial performance measures for tobacco companies in its attempt to evaluate the economic case for investing in tobacco companies. Although it is not possible to separate Japan Tobacco's and KT&G's profit and assets attributable to their respective tobacco businesses, this sub-section nonetheless evaluates these companies' ability to generate profit relative to total revenue and total assets in order to gain further insight into their historical efficiency and performance. In addition, this sub-section explores investors' perceptions regarding the value of the tobacco companies in question by analysing price-earnings ("P/E") ratio trends.

Figure 23 below depicts the indexed net profit margins (i.e., the ratio of net profit relative to total revenues) for the tobacco companies in question, as well as that of P&G for comparison, over the period FY2006 to FY2020. Figure C5 in Section C of the Appendix reports the actual profit margins over the period. Phillip Morris, BAT and KT&G have each consistently earned profit margins of between 20% and 30%, which are high when compared to those earned by firms in comparable industries, such as P&G. For instance, in FY2020, both Phillip Morris and BAT had a profit margin of approximately 29% and KT&G had a profit margin of 20%, whereas P&G had a profit margin of 19%. Ignoring KT&G, which has a significant presence in, among other things, the real estate and pharmaceuticals sectors, Phillip Morris and BAT have probably earned such significant margins, and hence corresponding overall profits, because they sell products that cost little to make and can be sold for high prices, given their addictive nature (Branston, 2021; World Health Organisation, 2021a). These companies have also probably been able to earn such margins since brand loyalty, regulation, packaging restrictions, and advertising bans have largely inhibited new firms from entering the market and have thus discouraged intensified price competition (Maastricht University, 2018). However, whilst Phillip Morris, BAT and KT&G performed favourably relative to P&G in this regard in FY2020, the same cannot be said for Imperial Brands and Japan Tobacco, which had

profit margins of 12% and 13% respectively. It is clear from Figure 23 that, since FY2015, and in contrast to P&G, the profit margins of the tobacco companies have largely been in decline. Over the period FY2015 to FY2020, BAT's profit margin fell by 12%, Imperial Brands by 14%, Japan Tobacco's by 33% and KT&G's by 33%. Only Phillip Morris's profit margin increased over the same period, by 11%. This suggests that the ability of tobacco firms to generate profit from their businesses is diminishing. Given the decline in unit sales for the tobacco companies since FY2014 (as seen in Figure 20), declining profit margins signal that tobacco companies may be losing their ability to offset falling sales volumes with higher prices.

Figure 23: Net profit margin trends, indexed, FY2006 - FY2020

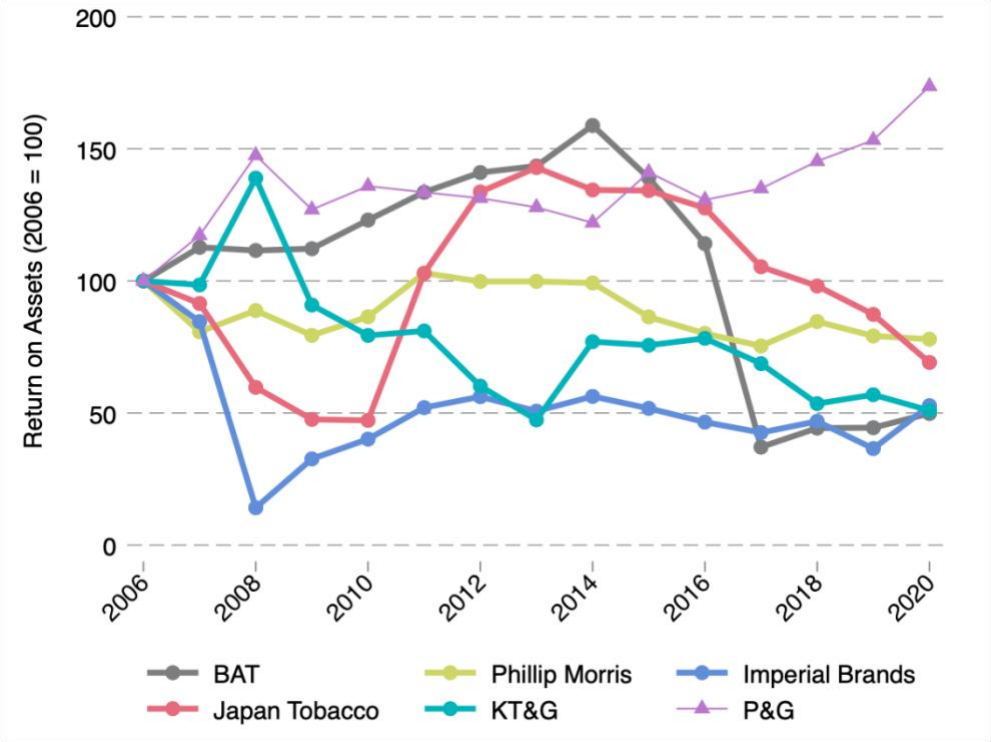


Source: Financial data obtained from Bloomberg

The return on an asset's profitability ratio ("ROA"), calculated by dividing profit by total assets, is also informative about a company's performance. This is because ROA measures how efficiently a company uses its assets to generate income. Figure 24 below depicts the indexed return on asset trends for the tobacco companies, as well as for P&G for comparison, over the period FY2006 to FY2020. Figure C6 in Section C of the Appendix reports the actual net return on asset trends. From Figure 24, it is clear that, over this period and in contrast to P&G, the tobacco companies analysed have become significantly less efficient at generating profit using

their asset base. This is particularly true for the period FY2014 to FY2020. Not only are tobacco companies struggling to grow their revenues organically, given the reduced demand for traditional tobacco products, but they are also becoming increasingly inefficient at generating profits, as can be seen by the ROA and profit margin trends above – further bringing into question the investment case for these companies.

Figure 24: Return on assets trends, indexed, FY2006 - FY2020



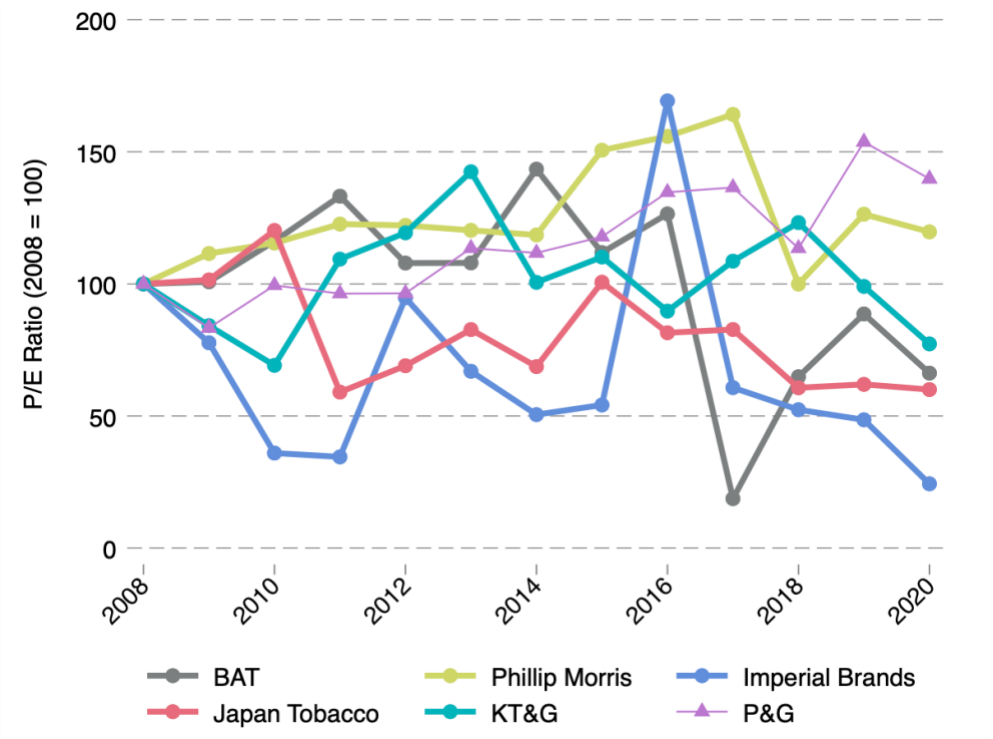
Source: Financial data obtained from Bloomberg

In addition to a company's profitability, the degree to which investors value such profitability is a key factor influencing a company's stock price. In this regard, the P/E ratio is one of the most widely used tools by which investors determine a stock's value. Specifically, the P/E ratio is the relationship between a company's stock price and earnings per share, and indicates what investors are willing to pay per unit of earnings.[11] Figure 25 below depicts the indexed P/E ratios for the tobacco companies in question, as well as that of P&G for comparison, over the period FY2008 to FY2020. Figure C7 in Section C of the Appendix reports the actual P/E ratios over the period. From Figure 25, it is clear that with the exception of Phillip Morris, and in contrast to P&G, the tobacco companies in question have experienced declining P/E ratios over the past decade. This is particularly true for the period FY2013 to FY2020. This indicates that

[11] Earnings per share is a key profitability indicator and is the portion of a company's profit allocated to each outstanding share of common stock.

tobacco companies' investors' are willing to pay less per unit of earnings, meaning that investors' perceptions of tobacco companies have worsened. On the one hand, this may suggest that these companies stocks are undervalued (a bargain), which would make them good investments for investors. That is to say, a company trading on a historically low P/E ratio might have potential upside in its share price if it achieves higher-than expected earnings growth. On the other hand, it may suggest that the business models of these companies are fundamentally in decline, and that the lower P/E ratios simply reflect lower investor confidence in these companies and their future earnings (e.g., given that growth is expected to be slow or non-existent). In this scenario, the apparent bargain is merely an illusion, and investing in these companies would likely be a poor investment. On the balance of evidence, given that tobacco companies are struggling to grow their revenues organically, shifting consumers preferences, and a regulatory environment which gives precedence to public health, the latter seems more likely.

Figure 25: P/E ratio trends, indexed, FY2008 - FY2020



Source: Financial data obtained from Bloomberg

6. Conclusion

Historically, despite the adverse effects of smoking, tobacco companies have been considered attractive investments and have consistently paid reliable dividends. This is because they have predominantly sold addictive products, which consumers regularly purchase regardless of economic climate or price, and because these products cost little to manufacture. In fact, over the period 2005 - 2017, tobacco companies' stocks largely outperformed the market. However, tobacco stocks have performed poorly of late.

This paper sought to investigate, without relying on ethical considerations, whether or not a financial incentive for wealth-maximising investors to invest in tobacco companies currently exists. To do so, it analysed historical profit, revenue, cost, margin, and ROA trends for each of BAT, Imperial Brands, Phillip Morris, Japan Tobacco and KT&G, on the assumption that the performance of a company's stock is closely related to its financial performance and its expected future performance. Whilst these companies experienced mixed performance in terms of profitability, it was found that, of the 5 tobacco companies analysed, only BAT was able to increase its revenues (in dollar terms) from its tobacco business over the period FY2014 to FY2020, albeit seemingly inorganically. The available evidence also suggests that the financial performance of tobacco companies continues to depend primarily on the sale of traditional tobacco products, such as cigarettes, and that the declines in revenue observed were a result of reduced demand for these products (probably as a result of tightening regulation and increasing awareness of the health problems related to smoking). In addition, the tobacco companies in question have become increasingly inefficient at generating profits, with notable declines in profit margins and asset returns over the period FY2015 to FY2020. These companies are also unlikely to return to a world of lenient regulation, low taxes, and a lack of social or investor pressure that would enable the growth of traditional tobacco sales. The available evidence also suggests (as indicated by P/E ratio trends) that market sentiment towards these companies' growth potential has diminished.

Given that the core business of tobacco companies is shrinking, the future profitability of these companies depends on their ability to diversify their business successfully beyond traditional tobacco sales. As financial markets tend to reward the stock prices of fast-growing firms, the economic case for investing in tobacco companies largely rests on the speculative question of whether or not tobacco companies will be able to achieve overall revenue growth in future

through the sale of NGPs and or through capitalising on the (possible) legalisation of marijuana across the world. Without perfect foresight, this question cannot be answered conclusively, as the pace with which individuals adopt these products will depend on a variety of factors. The inability to predict these trends is a limitation of this paper. Nonetheless, whilst NGPs are beginning to garner substantial interest globally, the available evidence suggests that tobacco companies have been unable to increase the sales of these products enough to offset the decline in traditional tobacco sales significantly, whereas likely regulation could dramatically affect NGPs' growth potential. The sale of marijuana remains illegal in many countries across the world, and the extent to which tobacco companies could leverage growth as a result of its possible legalisation is unpredictable. At the very least, investors should be hesitant when investing in tobacco companies, given increasingly strict regulation, declining demand for traditional tobacco products, and uncertainty regarding the future success of NGPs and marijuana products.

While the financial future of these companies is largely uncertain, investors may still be interested in their stocks given they pay reliable dividends with consistently high yields, on the possibility that they may be undervalued (which this paper finds unlikely), and/or under the belief that these companies can inconsequentially raise prices to offset dwindling demand for traditional tobacco products (the extent to which is unclear).

Nonetheless, the economic case for investing in tobacco companies is nowhere near as strong as it used to be and is now characterised by significantly more uncertainty and risk. Relative to the past, significantly more uncertainty exists as to the likely future growth of tobacco companies, and as such, it is riskier for individuals to invest in these companies as they could incur capital losses should the financial performance of these companies decline. Subsequent studies looking to assess the economic case for investing in, or disinvesting from, tobacco companies should therefore examine the potential future growth of NGP sales and the potential for tobacco firms to grow through entering the marijuana market.

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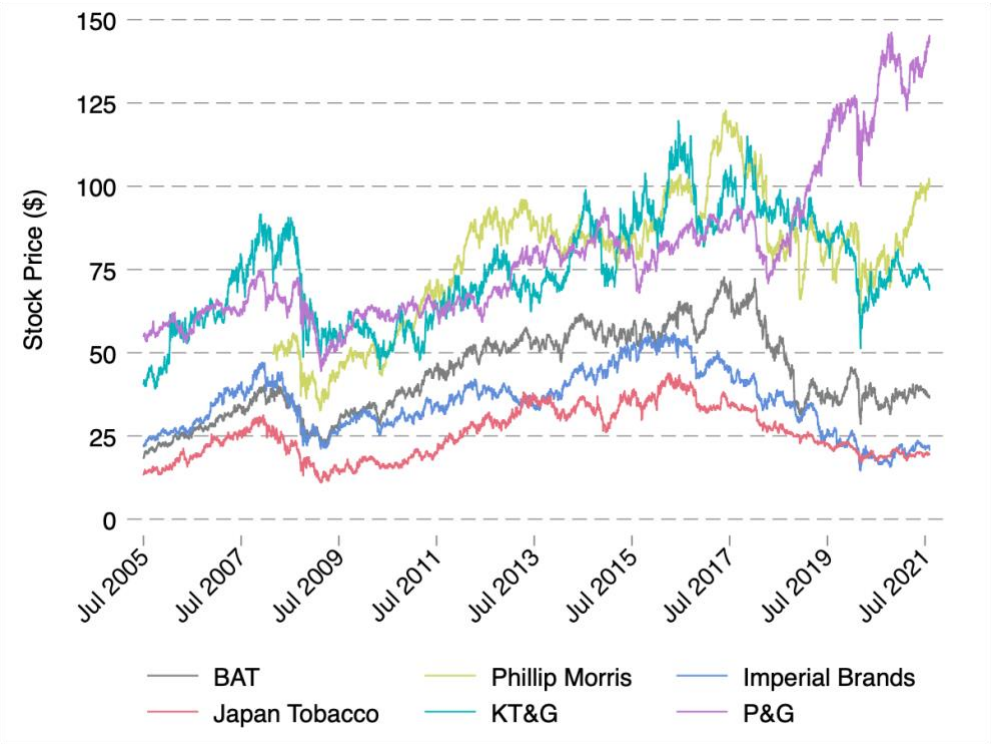
Appendix

A. Absolute Share Price Movements

Figure A1: Stock trends, 2005 – 2021



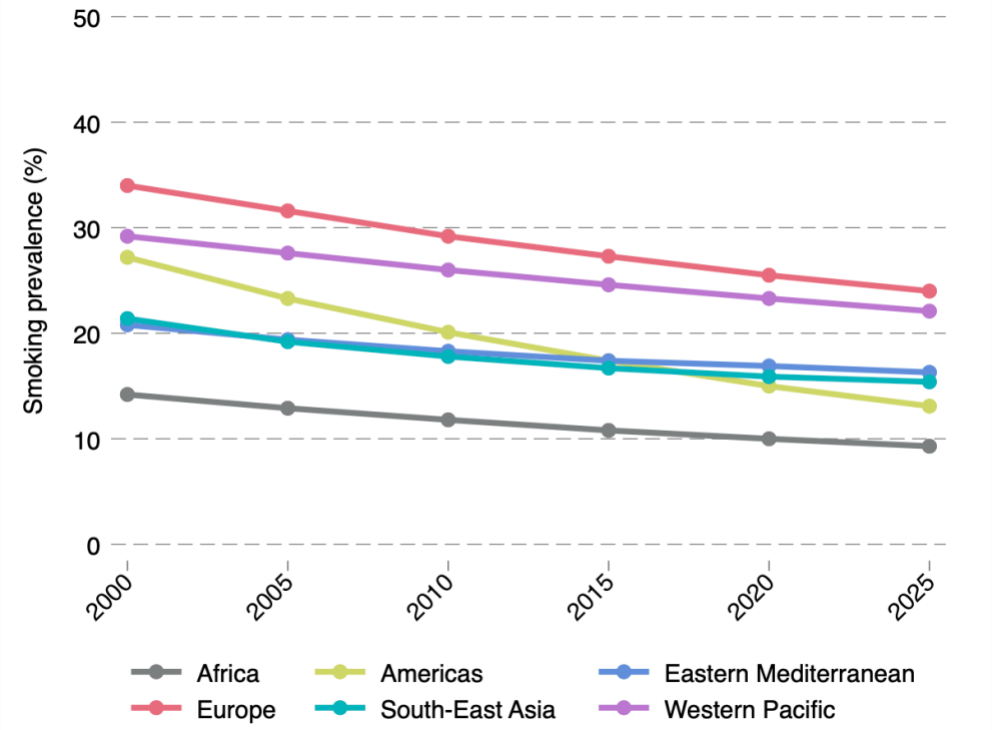
Source: Financial data obtained from Bloomberg

B. Smoking Prevalence

In 2018, 23.6% of the world population used some form of tobacco. Of these tobacco users, 80% smoked tobacco products (World Health Organisation, 2019). Figure B1 below shows the prevalence of tobacco smokers by region for the period 2005 – 2015, as well as projections for 2020 and 2025. Figure B2 below shows the number of tobacco smokers by region for the period 2005 – 2015, as well as projections for 2020 and 2025.

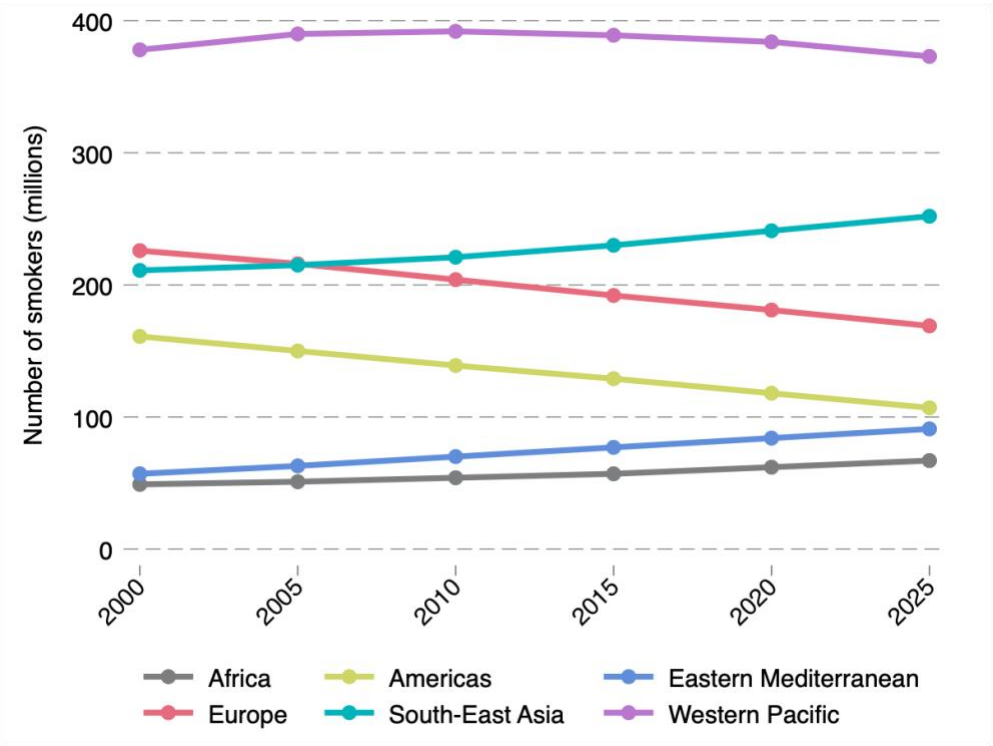
Interestingly, whereas the number of tobacco users is declining in South-east Asia (as shown in Figure 13), the same cannot be said for the number of tobacco smokers in South-East Asia. As such, the decline in the number of tobacco users in South-East Asia is being driven by those who have stopped using smokeless tobacco. This is apparent as smokeless tobacco use is significantly more prevalent in South East Asia relative to smoked tobacco use (World Health Organisation, 2019).

Figure B1: Trends in smoking prevalence, by region



Source: World Health Organisation (2019).

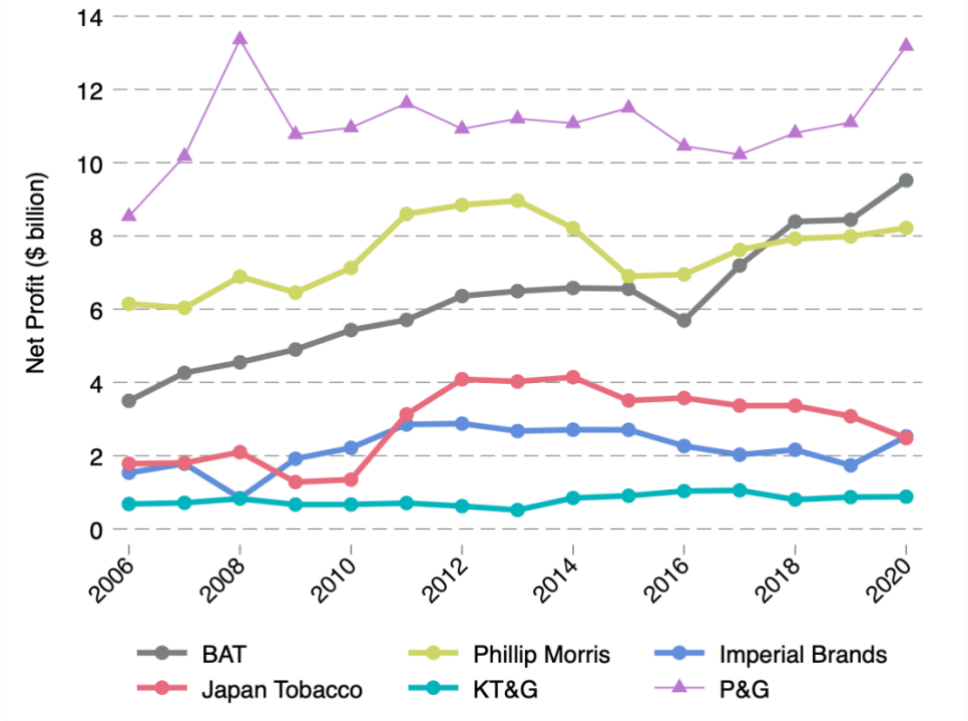
Figure B2: Number of tobacco smokers, by region



Source: World Health Organisation (2019).

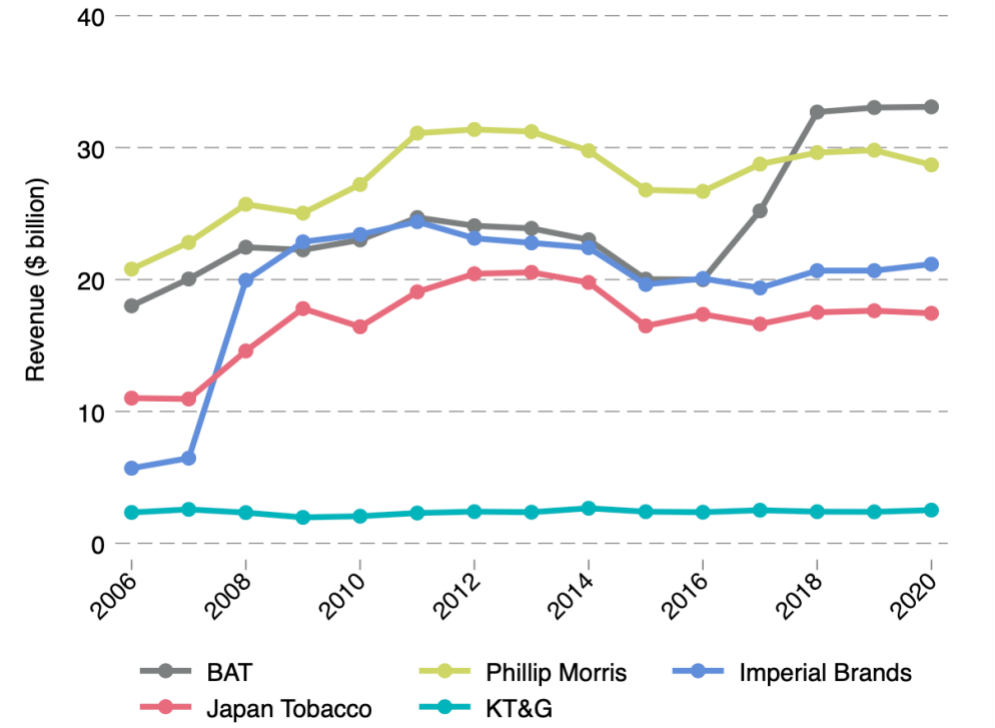
C. Empirical Results: Additional Figures

Figure C1: Net profit trends, FY2006 – FY2020



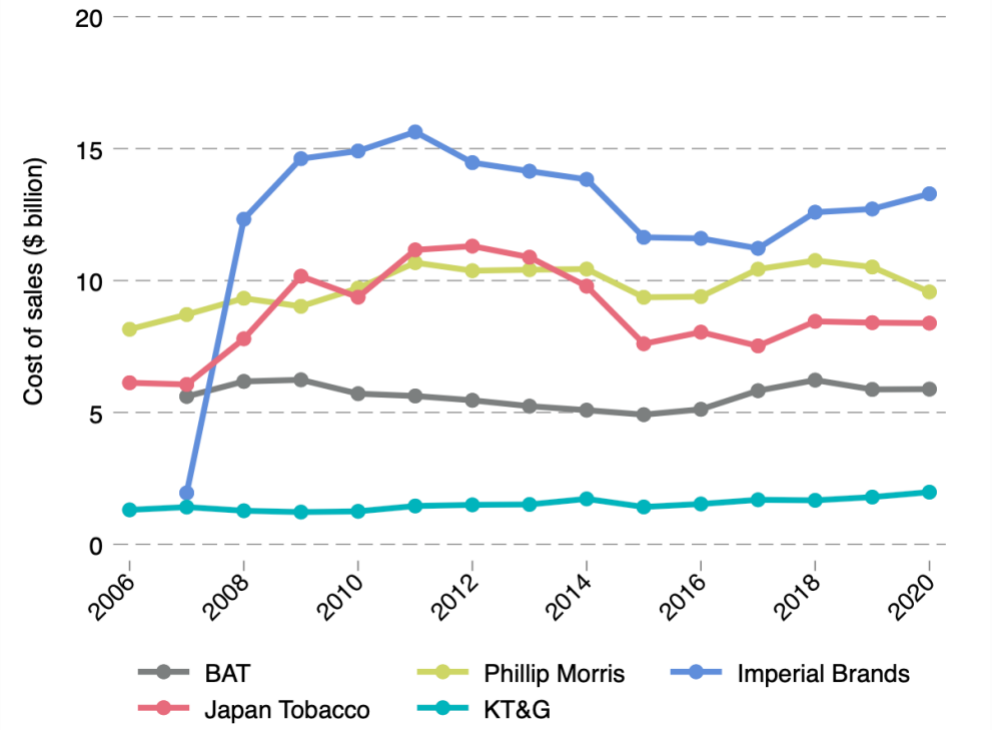
Source: Financial data obtained from Bloomberg

Figure C2: Tobacco revenue trends, FY2006 to FY2020



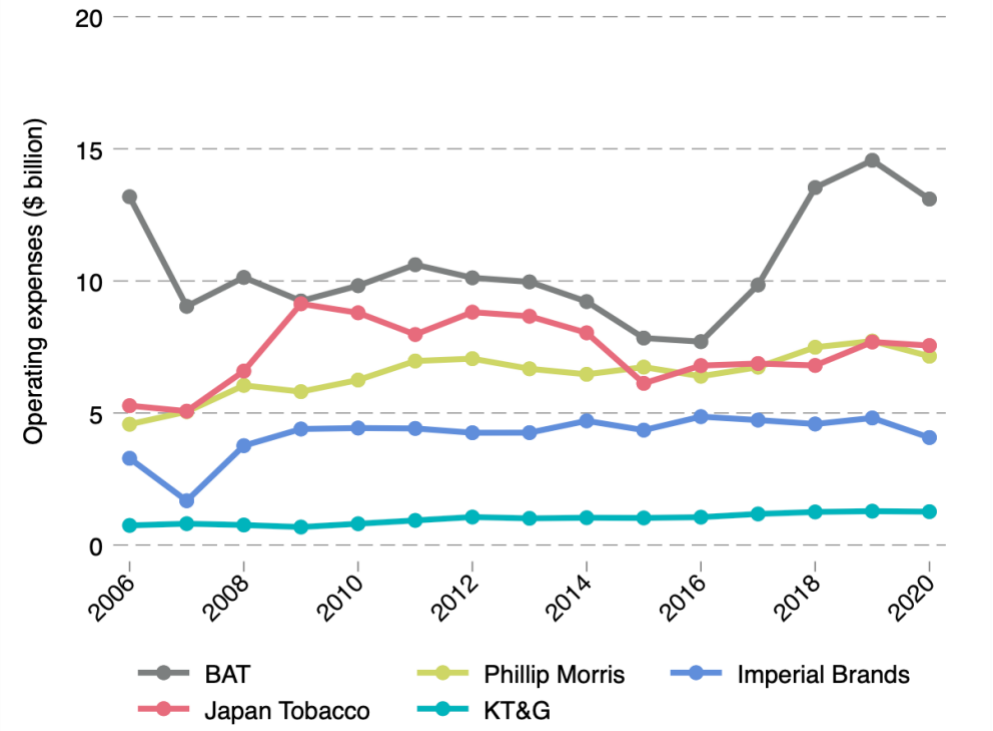
Source: Financial data obtained from Bloomberg

Figure C3: Cost of sales trends, FY2006 to FY2020



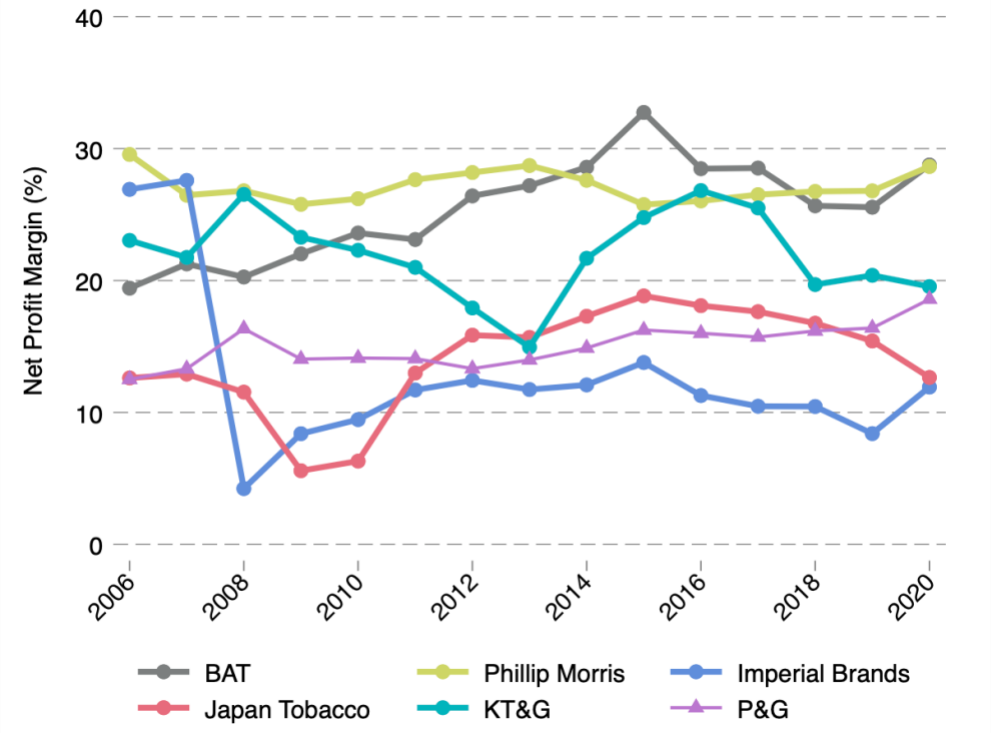
Source: Financial data obtained from Bloomberg

Figure C4: Operational cost trends, FY2006 to FY2020



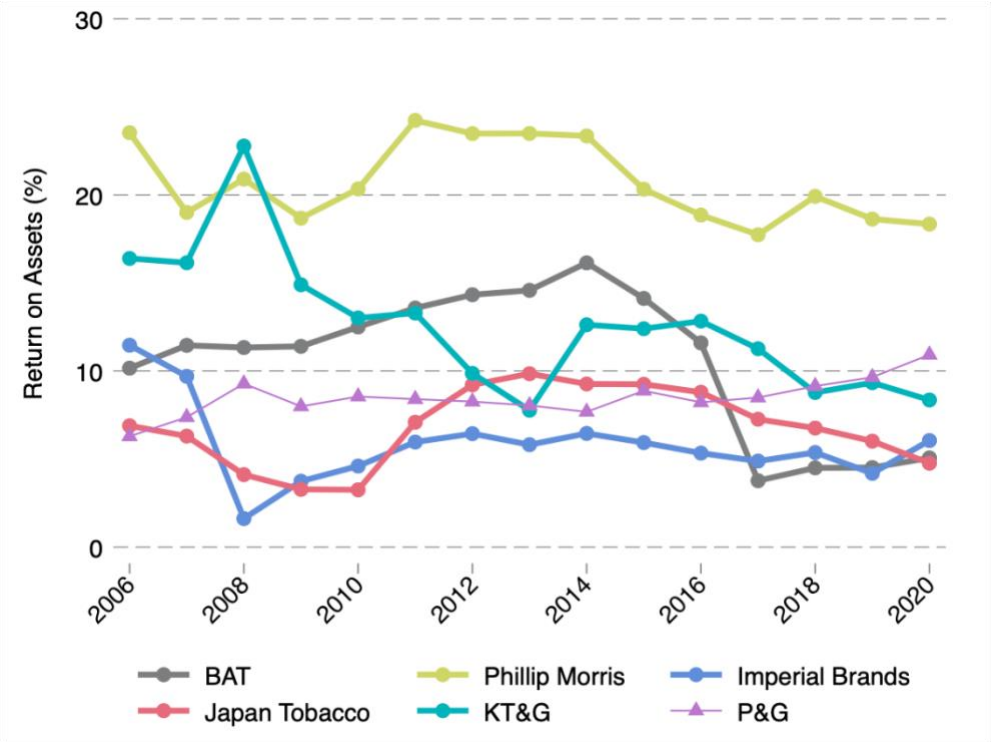
Source: Financial data obtained from Bloomberg

Figure C5: Net profit margin trends, FY2006 to FY2020



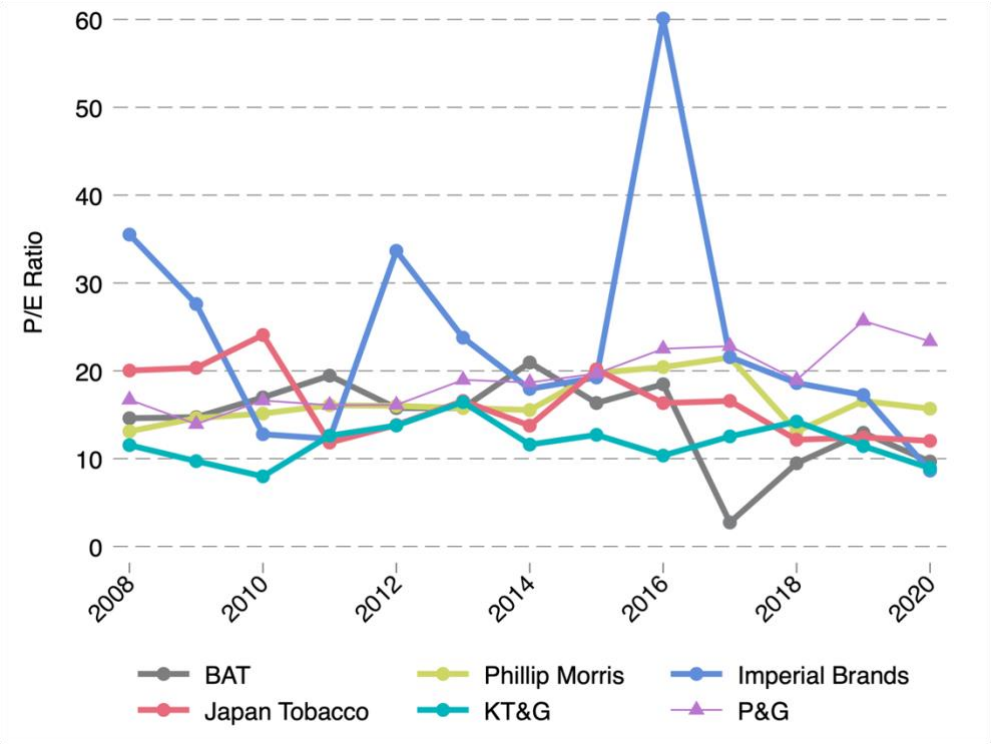
Source: Financial data obtained from Bloomberg

Figure C6: Return on assets trends, FY2006 to FY2020



Source: Financial data obtained from Bloomberg

Figure C7: P/E ratio trends, FY2008 - FY2020



Source: Financial data obtained from Bloomberg