A young girl with dark hair, wearing a white long-sleeved shirt with a vibrant floral pattern of red, blue, and yellow flowers, is sitting on the floor. She is looking towards the camera with a neutral expression. The room is dimly lit, with a green wall visible in the background. In the foreground and to the right, there are large, dried tobacco leaves. The overall atmosphere is somber and focused on the subject of tobacco.

Tobacco: Reviewing the growing financial risks

Author: Nathan Williams

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This report does not constitute financial advice. This report outlines opinions of the author and contributors but are not necessarily the opinions of the organisations mentioned in the report. Scenarios outlined are projections based on assumptions detailed in the research paper from University of Maastricht.

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Introduction: Tobacco in decline



Tobacco presents an array of health, ethical and social risks that are well-known and long-studied. This report, drawing on new academic analysis from Maastricht University School of Business and Economics*, demonstrates that declining returns and growing business threats present a clear and present financial risk for investors in tobacco.

This risk has become increasingly clear in 2018 with all major tobacco companies experiencing stark share price declines. While a number of stock market indices declined towards

Tobacco stocks fell consistently through 2018 even as the broader market hit highs

the end of 2018, tobacco stocks fell consistently through 2018 even as the broader market hit highs.

This report outlines the range of pressures bearing down on the tobacco industry, including the implementation of the World Health Organisation Framework

Convention on Tobacco Control (the UN Tobacco Control Treaty). The report summarises recent research debunking the sin stock outperformance theory, as well as present a new study that analyses tobacco industry trends, future scenarios and tobacco company valuations linked to these scenarios.

The report aims to provide lenders, investors, fiduciaries, advisers and beneficiaries with the background to make more informed decisions regarding their and their clients' involvement with tobacco and their tobacco holdings.

*Research carried out by Professor Rob Bauer. Research assistants: Fabian Grohmann, Fabian Süßmann, Filip Dobrzynski, Jeroen Schmitz, Julian Alves and Moritz Dillmann.

6 The data presented below provides a clear signal regarding the worsening financial outlook for tobacco manufacturers. For long-term investors focused on maximising returns, it is a signal that cannot be ignored

2018 AND SCENARIO VALUATIONS TABLE

<i>Manufacturer</i>	<i>Jan 31st 2018 share price</i>	<i>Oct 29th 2018 share price</i>	<i>Share price under scenario I conditions 'Past Perceptions'</i>	<i>Share price under scenario II conditions 'Low Growth'</i>	<i>Share price under scenario III conditions 'Ongoing Decline'</i>	<i>Extreme decline scenario 'Terminal Decline'</i>	<i>% change Jan 31st to Scenario III</i>
British American Tobacco	£48.19	£35.49	£50.60	£35.34	£21.29	£12.36	-55.8%
Imperial Brands	£28.98	£26.87	£92.57	£49.15	£20.75	£ -	-28.4%
Philip Morris International	\$107.23	\$89.25	\$125.37	\$89.48	\$57.37	\$28.94	-46.5%
Japan Tobacco	¥3,612	¥2,923	¥ 7,972	¥ 5,308	¥ 3,247	¥ 1,026	-10.1%

The results of the Maastricht University School of Business study are unambiguous.

The researchers find “a continuous decline in the market capitalisation of tobacco firms in the long run” is probable. One downside scenario modelled by the researchers sees the operating revenue for each of the big four companies – Imperial Brands, Philip Morris International, British American Tobacco, and Japan Tobacco – fall by 4% per year, resulting in steep falls in share prices. The most extreme scenario sees all value for Japan Tobacco wiped out.

The table above shows the outcomes of the three main scenarios modelled by the researchers as well as an extreme decline scenario. Scenario I ('Past Perceptions') is considered overly optimistic and has largely been priced out by the market already.

All of the tobacco companies analysed have experienced share price declines through 2018. Their values are currently consistent with a future world trending towards conditions outlined in the third scenario presented in this report, a scenario that is characterised as “Ongoing Decline”.

As the table above shows, this would imply significant percentage losses for three companies based on their January 31st 2018 share prices. In the case of Japan Tobacco, the share price decline through 2018 already sees it now trending toward the most extreme losses scenario that is characterised as “Terminal Decline”.





Tobacco in 2018

The last 12 months have provided investors with a view onto tobacco’s financial future. Imperial Brands fell by more than 16% over the year to September 2018 and shares of Philip Morris International fell 27% over the

same period, at one point hitting a \$76 low^[1]. The story at British American Tobacco was similar, its shares falling from £49 to £37 over the year to September 2018^[2], while Japan Tobacco reported continued revenue decline, with its

sales in the year to September 2018 down by 9.4%^[3]. This is reflected in the precipitous drop in its share price as shown in the valuations table. Altria Group, Philip Morris’s parent company, saw its share price fall from \$75 to a low of \$57^[4].

These falls were reflected in the S&P 500 Tobacco Index which fell more than 23% during the year to September 2018^[5].

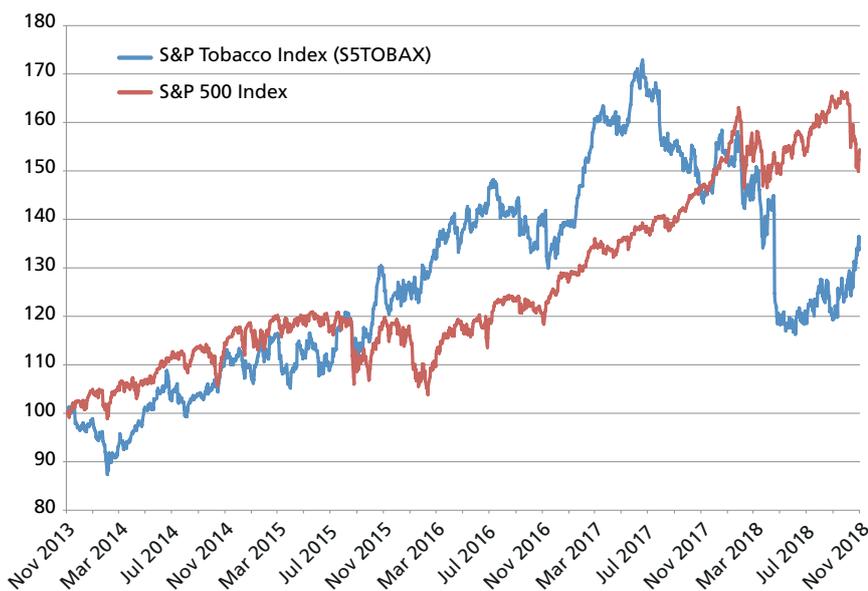
Any enhanced dividend yield delivered by these companies has not compensated for the price return gap with the broader market which had recorded gains of around 15% over the year to September, against a roughly 20% fall for tobacco companies, including dividends.

UNDER PRESSURE

The stuttering fortunes of tobacco manufacturers are cautionary but they should not be surprising.

The tobacco industry is facing the most concerted, global and unified effort to reduce and ultimately stamp out consumption of a product seen to date.

S&P 500 INDEX, AND S&P TOBACCO INDEX



Source: Bloomberg, Man Group plc, 2018

Tobacco's traditional consumers are dying and are not being replaced by younger people, many of whom have been put off by the health impacts of cigarettes, as well as their rising price. Sales of replacement products targeted at consumers with a 'reduced harm' message, such as e-cigarettes (nicotine vapour) and heat-not-burn (tobacco product), while growing, represent a very small percentage of overall tobacco company sales^[6] and are falling short of sales expectations (the announcement of poor sales of its heat-not-burn product was a significant factor behind the 16% one-day fall in Philip Morris's shares in April 2018^[7]).

In October 2018 British American Tobacco cut its full year sales targets for smoking alternatives

6 Tobacco's traditional consumers are dying and are not being replaced by younger people, many of whom have been put off by the health impacts of cigarettes, as well as their rising price

by 10%. Tight regulations and high taxes on these replacement products, as well as further controls and tax measures on tobacco, are being formulated on a country-by-country basis and at the global level. Across parts of the developing world, long seen as the only reliable future growth

area for the industry, tobacco taxes are rising and bans are in place.

As the range of pressures continue to build on the industry, financial impacts will be inevitable.

1.1 BANS, TAXES, DECLINES

- There are 181 parties to the World Health Organization Framework Convention on Tobacco Control (the UN Tobacco Control Treaty)^[8]

- Nearly 65% of the world's population is now covered by at least one comprehensive tobacco control measure^[9]

- Over 120 countries restrict or ban smoking in public places^[10]

- Over six years to 2014, more than 53 million people stopped smoking, a fall attributable to



the implementation of tobacco regulations^[11]

Given the prevalence of smoke-free legislation globally, it can be forgotten how rapid the pace of change has been: in 2004 Ireland became the first country in the world to introduce a comprehensive smoke-free workplaces ban.

Smoking and cigarette sales are in decline across the developed world, and bans are being upheld by governments facing legal challenges from tobacco companies. In non-OECD countries, often cited by analysts and tobacco companies themselves as their focus for growth, sales were down in 2017 by 2.9%^[17].

- The smoking rate in New Zealand has plummeted from a peak of 60% to less than 20%^[12].

- In the UK the adult smoking rate dropped nearly ten percentage points between 2002 and 2015 to under 16%^[13].

- The European Court of Justice has dismissed tobacco industry challenges regarding plain packaging and more recently upheld a ban on cigarette flavourings^[14].

- In Australia, Philip Morris International lost a challenge against plain packaging and was ordered to pay the government's legal fees^[15].

- In Uruguay, Philip Morris International lost a similar case

6 We find no evidence of the existence of a premium that pertains specifically to sin stocks, such as a reward for bearing the reputation risk involved with these stocks

and was ordered to pay \$7 million in costs^[16].

A raft of countries including Brazil, Uganda, the Philippines and Pakistan have steeply increased taxes in recent years, which decreases affordability of tobacco products. In 2015 Malaysia raised tax on cigarettes by 40%^[18] while India's announcement last year of a tax increase on cigarettes to 28% caused a \$7.5 billion drop in the value of Asia's second-largest tobacco manufacturer^[19]. In an unprecedented step India is also attempting to deny tobacco companies the legal right to trade^[20]. Countries as diverse as Honduras, Namibia, Nepal and Zambia have passed smoking bans in the last decade^[21].

At the global level the pressure on the tobacco industry has been building for some time. In 2003 the United Nations via the World Health Organization established the UN Tobacco Control Treaty. The treaty commits countries to multiple measures including a requirement that government institutions and their bodies – such as Sovereign Wealth Funds – not invest in the tobacco industry^[36].

In September 2015 the UN went further by including tobacco control in its Sustainable Development Goals (SDGs) for the future, pledging to implement the WHO Framework Convention on Tobacco Control. This is significant. Ceasing investment in tobacco would positively influence achievement of 14 of the 17 SDGs. The already unprecedented global effort to drive down the use of tobacco is about to step up another gear.

1.2 COSTS, EXCLUSION AND RETURNS

It's clear that the regulatory environment has turned decisively against tobacco, but so what? a

hypothetical investor might say. It's performance that matters, our hypothetical investor continues, and tobacco has always delivered on this front, right?

Until recently, the answer to this appeared to be yes. Whatever the ethical considerations, the investment case for tobacco seemed clear cut. But an emerging body of evidence has thrown into doubt old beliefs about tobacco outperformance.

A study conducted in September 2017 by David Blitz from Robeco Asset Management and Professor Frank Fabozzi of EDHEC Business School in Nice debunked the notion that sin stocks outperform the market. The researchers applied the latest insights into asset pricing models and found that investors can match or beat sin stock returns by selecting stocks with exposure to the same factors that drive sin stock returns.

"We find no evidence of the existence of a premium that pertains specifically to sin stocks, such as a reward for bearing the reputation risk involved with these stocks," the authors said. "There is nothing mysterious about the performance of sin stocks^[22]."

In October 2018 MSCI, using its Global Total Market Equity Model to disentangle the sources of sin stock outperformance, found that most of the gains associated with holding tobacco stocks over a studied period were not specific to the tobacco industry, and could have been obtained in other ways.

This research also showed it would have been possible to divest from tobacco without taking a hit to portfolio performance during the sample period^[23].

Alongside this new thinking regarding tobacco performance, recent studies have begun to quantify the wider economic impacts associated with tobacco. In a paper published earlier this year, researchers at the World Health Organization found that the amount of healthcare expenditure in 2012 due to smoking-related diseases totalled purchasing power parity of \$422 billion, equivalent to 5.7% of global health expenditure^[24]. They found that the total economic cost of smoking, from health expenditures and productivity losses, totalled purchasing power of \$1.43 trillion, equivalent to 1.8% of the world's annual GDP.

The Copenhagen Consensus Centre estimates that \$12.7 trillion will be lost from the world economy over the next 20 years due to tobacco-related disease and death^[25].

In a world of connected economies, these costs matter.

Through these health impacts tobacco companies externalise their costs onto society and therefore onto other potentially more robust returns-generating actors in the system.

By burdening an economy with lost productivity, tobacco companies can be viewed as extracting value from other companies whose human capital – the primary resource underlying returns – is significantly and materially harmed by the imposition of these unwanted costs. In this way tobacco companies can be seen to raise systemic risk and sit outside any virtuous circle of research, development, innovation and



co-dependence necessary to raise portfolio performance.

As well as reaping no benefits from holding tobacco stocks, by backing tobacco companies and granting them a license to operate, investors may also be undermining the ability of other companies to maximise returns.

In response to this some of the world's largest institutional investors have excluded tobacco manufacturers from their portfolios. Since 2012 many global insurers, investors and banks – including AXA, the world's largest insurer, ABP, one of the world's largest public pension plans, and bank BNP Paribas – have shifted around \$12 billion of investment away from tobacco companies, and are also no longer offering them credit. In September 2018, over 90 Founding Signatories, representing over \$6.5 trillion in assets under management,

more than \$1.8 trillion in corporate loans and \$187 billion in gross insurance premiums signed the Tobacco-Free Finance Pledge, urging a move towards implementing tobacco-free finance^[26]. For some of the world's leading investors, investment in tobacco is no longer a risk worth taking.

Our hypothetical investor could look at this evidence and say this is all well and good, but the only hard evidence we have that tobacco companies are falling behind their historical performance is the experience during 2018. And 2018 might just be a blip.

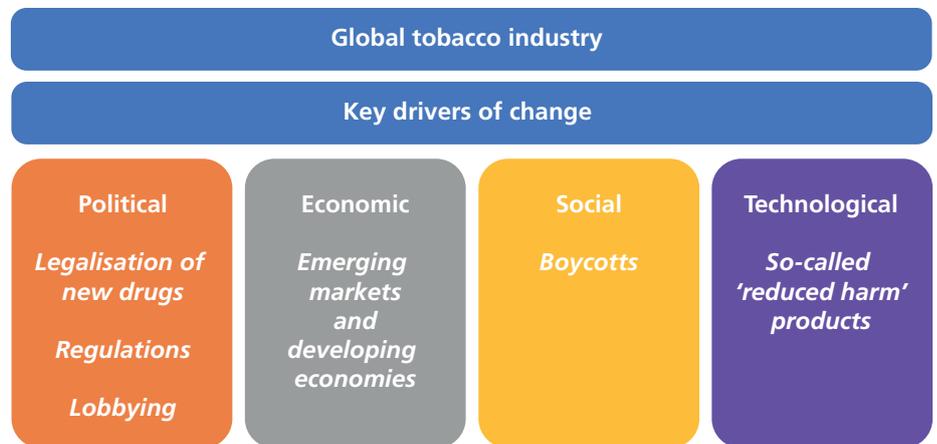
Spoiler alert:
2018 was not a blip.

To answer this, the report now turns to the latest research from Maastricht University which draws on a detailed analysis of current trends and outlines four possible futures for the tobacco industry. Spoiler alert: 2018 was not a blip.

2. Scenario thinking: anticipating future risks

For long-term institutional investors focused on generating returns for beneficiaries thirty or forty years hence, the backdrop of growing risks and seemingly accelerated decline poses a strategic challenge, raising questions about current investment and future exposure. These challenges have become especially pressing as tobacco's performance has waned through 2018.

The following scenarios, determined by an in-depth analysis of the political, economic, social and technological (PEST) drivers of change, aim to assist investors with this challenge and help determine the likeliest future for tobacco.



Alongside the PEST analysis each scenario also incorporated assumptions concerning operating revenue, the Cost of Goods Sold (COGS), Sales, General, and Administrative Expenses (SGA) and the Weighted Average Cost

of Capital (WACC) for the tobacco industry.

Finally, an adapted McKinsey & Company valuation tool was used to arrive at a range of possible future valuations for four key tobacco stocks^[27].



The four future scenarios

2.1 PAST PERCEPTIONS

2.2 LOW-GROWTH ('Smoke Alarm')

2.3 PERMANENT DECLINE ('Where there is Smoke, there is Fire')

2.4 TERMINAL DECLINE

SCENARIOS IN SUMMARY

2.1 SCENARIO I: PAST PERCEPTIONS

This scenario is a testament to the speed of change forcing itself on the industry. When the research commenced in late 2017, the assumptions this scenario rested upon appeared generous but not outrageous.

With stock prices having fallen so precipitously in 2018, there is now essentially no chance this scenario represents tobacco's future. The underpinning assumptions are clearly far too optimistic. It is included here to demonstrate how quickly conditions – and perceptions – have changed.

UNDERPINNING GROWTH ASSUMPTIONS

This scenario assumes industry trends drive overall revenue increases in both developing and developed countries and that costs, and the cost of capital, decrease. Developing markets become the main revenue drivers for tobacco products.

SCENARIO I: PAST PERCEPTIONS

<i>Manufacturer</i>	<i>Price at Jan 31st 2018</i>	<i>Price at Oct 29th 2018</i>	<i>Scenario Share price</i>	<i>% change Scenario vs Jan 2018</i>
British American Tobacco	£48.19	£35.49	£50.60	+5%
Imperial Brands	£28.98	£26.87	£92.57	+219%
Philip Morris International	\$107.23	\$89.25	\$125.37	+16.8%
Japan Tobacco	¥3,612	¥2,923	¥7,972.31	+120.7%

SCENARIO I: PAST PERCEPTIONS

	<i>2018-2022</i>	<i>2023-2032</i>	<i>Continual value</i>
Operating Revenue	Growth 3% p/y	Growth 1.5% p/y	1.5% p/y
COGS % Revenue	Decrease 1.5% p/y		
SGA % Revenue	Decrease 1.5% p/y		
WACC	Decrease 0.5% p/y	Equal to 1 in 2022	Equal to 1 in 2022



For this growth to materialise and these valuations to arise, the researchers assume the following political, economic, social and technological changes occur:

SCENARIO 1: PAST PERCEPTIONS

POLITICAL	ECONOMIC	SOCIAL	TECHNOLOGICAL
Regulatory action against tobacco stalls globally	Investors maintain or up their exposure to tobacco	Incentives are introduced to encourage farmers to work in the tobacco supply sector	In developed countries tobacco companies abolish cigarettes and switch over to heat-not-burn devices or e cigarettes
Political disagreements decrease costs and risks for tobacco companies	The replacement smoker market booms	A ban on child labour globally is instituted	
Politics creates new revenue drivers for the tobacco industry, including continued exploitation of existing loopholes		Litigation risk is very low globally and the tobacco industry reverses the current trend of lawsuits and legal defeats	

IS THIS SCENARIO CREDIBLE?

No. When the research began in late 2017, this looked like a possible if unlikely outcome for the industry. Given share price movements in 2018 it now looks implausible.

Regulatory action is not stalling and policy makers are arguably more united than ever in their determination to stop the consumption of tobacco, evidenced by the recent adoption of tobacco control as a UN Sustainable Development Goal 3 target.

It is highly unlikely that legal action against tobacco will slow and that the industry will stem the flow of defeats, given that every single tobacco manufacturer has multiple litigation cases outstanding or in process^[28].

There is no indication sales of new products can reach the volumes previously seen for traditional tobacco products

There is no indication sales of new products can reach the

volumes previously seen for traditional tobacco products. Volumes recorded by Philip Morris International for example represent only a tiny percentage of overall sales^[29]. Nicotine-based vaping (e-cigarettes) is now illegal in more than 20 countries^[30]. A ban on child labour and its effectiveness is fanciful given no cigarette currently can be guaranteed to be free of child labour^[37].



2.2 SCENARIO II: LOW-GROWTH

As of October 30th 2018 all four companies are hovering around, or falling under the valuations implied by this scenario, with Japan Tobacco barely half-way to a low-growth scenario. This implies that even the modest growth assumptions underpinning this scenario may be too liberal.

UNDERPINNING GROWTH ASSUMPTIONS

The researchers arrived at these valuations by assuming that revenues decrease in developed markets and increase in developing countries, leading to overall higher revenues. They assumed total costs increased in both developed and developing countries and that the cost of capital also increases moderately as cash flow volatility increases.

SCENARIO II: LOW-GROWTH

<i>Manufacturer</i>	<i>Price at Jan 31st 2018</i>	<i>Price at Oct 29th 2018</i>	<i>Scenario Share price</i>	<i>% change Scenario vs Jan 2018</i>
British American Tobacco	£48.19	£35.49	£35.34	-26.7%
Imperial Brands	£28.98	£26.87	£49.15	+69.6%
Philip Morris International	\$107.23	\$89.25	\$89.48	-16.6%
Japan Tobacco	¥3,612	¥2,923	¥5,308	+47.0%

SCENARIO II: LOW-GROWTH

	<i>2018-2022</i>	<i>2023-2032</i>	<i>Continual value</i>
Operating Revenue	Growth 1.5% p/y	Growth 1% p/y	Growth 1% p/y
COGS % Revenue	Increase 1.5% p/y		
SGA % Revenue	Decrease 1% p/y		
WACC	Increase 2% p/y	Equal to 1 in 2022	Equal to 1 in 2022



For this growth to materialise and these valuations to arise, the researchers assume the following political, economic, social and technological changes occur:

SCENARIO II: LOW-GROWTH

POLITICAL	ECONOMIC	SOCIAL	TECHNOLOGICAL
The majority of developed economies continue to pursue anti-tobacco regulations	Reputational damage assists divestment campaigns and investors continue to exclude tobacco	New evidence shows increases in the number of tobacco-related deaths	e-cigarettes are found not to represent a less harmful alternative to tobacco cigarettes
The potential for global cooperation is increased as developing countries step up action		Smoking is increasingly seen as threat to a well-functioning society owing to lost productivity	
Some governments show insufficient action owing to lobbying or being in a too troubled environment to act		Industry-sponsored programmes do little to lessen child labour and the problem is curbed only slightly	
Anti-smoking campaigns lead to stagnation or decline of smoking in Latin America and parts of Asia		Legal action by tobacco companies has little success in the developing world	

IS THIS SCENARIO CREDIBLE?

Yes, although current valuations imply even low-growth is too optimistic an outlook for the industry. This can be explained by the fact that a number of trends underpinning the assumptions are in play today.

Anti-tobacco legislation is being pursued by the developed world and a global policy framework has been ratified. Tobacco taxes have been steadily rising in developed and some developing countries and there is no sign that this trend will abate. Funds are being provided to NGOs to run anti-tobacco

and anti-smoking campaigns in emerging markets, such as former New York mayor Michael Bloomberg's \$1 billion contribution to global campaigns.

A number of developed world countries are exploring the downgrading or legalisation of cannabis, which may impact future tobacco consumption and stock price values.

There is little evidence for increasing smokers in lower-income brackets offsetting the decline of smokers in higher income brackets in the developed world, given that smoking rates are declining across the developed world. This



Michael Bloomberg has contributed \$1bn to anti-smoking campaigns

is therefore providing a further downside shift in the real world versus the assumptions made here.

2.3 SCENARIO III: ONGOING DECLINE

As of October 29th 2018, Japan Tobacco is falling behind what was believed to be a conservative scenario that assumed ongoing decline. Since the start of 2018 British American Tobacco share price has fallen £14, which if replicated over the next ten months would see the firm's share price hit the levels described under this scenario. Imperial Brands is currently just £6 off the scenario price, and if Philip Morris International continued on its current trajectory (18% decline since January) it would settle in the scenario range in less than two years.

UNDERPINNING GROWTH ASSUMPTIONS

Overall tobacco firms' revenues are assumed to decrease globally, and total costs as well as the cost of capital increase significantly.

SCENARIO III: ONGOING DECLINE

<i>Manufacturer</i>	<i>Price at Jan 31st 2018</i>	<i>Price at Oct 29th 2018</i>	<i>Scenario Share price</i>	<i>% change Scenario vs Jan 2018</i>
British American Tobacco	£48.19	£35.49	£21.29	-55.8%
Imperial Brands	£28.98	£26.87	£20.75	-28.4%
Philip Morris International	\$107.23	\$89.25	\$57.37	-46.5%
Japan Tobacco	¥3,612	¥2,923	¥ 3,247	-10.1%

SCENARIO III: ONGOING DECLINE

	<i>2018-2022</i>	<i>2023-2032</i>	<i>Continual value</i>
Operating Revenue	Decrease 4% p/y	Negative 0.5% p/y	Negative 0.5% p/y
COGS % Revenue	Increase 1.5% p/y		
SGA % Revenue	Increase 1.5% p/y		
WACC	Increase 5% p/y	Equal to 1 in 2022	Equal to 1 in 2022



For this growth to materialise and these valuations to arise, the researchers assume the following political, economic, social and technological changes occur:

SCENARIO III: ONGOING DECLINE

POLITICAL

In the US the Federal Drug Administration significantly reduces the amount of nicotine in cigarettes but fails to reduce the substance by its target amount of 97%

European countries tighten anti-smoking regulations but sustained lobbying efforts by the tobacco industry stave off standardised EU legislation. Some EU nations persist with relatively lenient controls

Many African governments actively promote tobacco farming and tobacco firms use their economic clout to lobby against strong controls

In China tobacco control becomes one of the focal points of overall public health policy

ECONOMIC

Further research confirms that there is no additional alpha to be captured by investing in sin stocks such as tobacco. This increases capital costs for big tobacco, which restricts investment and growth opportunities

Increasing taxes in developing countries results in lower consumption and stagnant sales

Litigation and tax risk increases for investors compel growing numbers to shift money away from tobacco

SOCIAL

Smoking rates decline in all parts of the world except Africa, the Eastern Mediterranean region, and the western Pacific.

Attempts to restrict the supply side of the tobacco industry are prevented by big tobacco lobbying

TECHNOLOGICAL

Heat-not-burn products cannibalise cigarette sales but do not create significant replacement growth as the health impacts become clearer

IS THIS SCENARIO CREDIBLE?

Yes. Japan Tobacco's share price is currently under the price described in this scenario and the other firms are trending towards the price outcomes.

Declining sales have been a feature of the tobacco landscape for some time and experiences in 2018 are evidence this is feeding through to share price performance. In October 2018 British American Tobacco cut its full-year sales target for cigarette alternatives by 10%. Its shares are down 33% this year and on track

for their first annual decline since 2008. Broad economic conditions in 2018 are very different to that crisis year, suggesting the fundamentals have shifted.

As detailed earlier, the contention that tobacco is an out-performer that boosts overall returns is challenged by new research showing no additional alpha creation in a portfolio that includes sin stocks such as tobacco^[31].

This is likely to accelerate the divestment trend.

In this scenario e-cigarettes and replacement products do not substitute for declining cigarette sales in the developed world and regulatory agencies strengthen oversight. This has been happening. This year the US Federal Drugs Agency rejected Philip Morris International's claims that its heat-not-burn product is less harmful than traditional product^[32] and the UK Government threatened legal action if it did not stop marketing IQOS (a tobacco product). Regulations on

the product are as stringent as on cigarettes^[33].

2.4 EXTREME SCENARIO: TERMINAL DECLINE

The researchers arrived at these values by undertaking a sensitivity analysis that made higher and lower assumptions on the three biggest value drivers: weighted average cost of capital, future revenue growth and costs development. Unlike the other scenarios the researchers did not apply a PEST framework to analyse the conditions underpinning a terminal decline for the industry. This scenario was envisaged by the researchers in an attempt to understand what a worst-case outcome would look like for the tobacco industry.

INDUSTRY GROWTH ASSUMPTIONS

Yearly revenues will decrease between 2022-2032 by five percentage points more than in the ongoing decline scenario. The researchers also increased by five

SCENARIO IV: TERMINAL DECLINE

<i>Manufacturer</i>	<i>Price at Jan 31st 2018</i>	<i>Price at Oct 29th 2018</i>	<i>Scenario Share price</i>	<i>% change Scenario vs Jan 2018</i>
British American Tobacco	£48.19	£35.49	£12.36	-75%
Imperial Brands	£28.98	£26.87	£ -	No value
Philip Morris International	\$107.23	\$89.25	\$28.94	-73.0%
Japan Tobacco	¥3,612	¥2,923	¥ 1,026	-71.5%

percentage points the yearly costs between 2018-2022 and increased by two percentage points the discount rate for the period to 2032.

IS THIS SCENARIO CREDIBLE?

Yes. The researchers contend this would be the outcome if “severe anti-tobacco action is undertaken” by governments.

Conditions are moving towards those outlined in the ongoing decline scenario. As a result

this terminal decline scenario is valuable in displaying the extreme risk investors would be exposed to in what would be a worst-case world for the tobacco industry.

As a purely mathematical sensitivity analysis its inclusion is justified on the basis that as conditions for big tobacco worsen, prudent risk management would take account of the potentially extreme outcomes of these growing downside risks, however unlikely it may appear today that these risks will result in this scenario coming to pass.



TOBACCO: REVIEWING THE GROWING FINANCIAL RISKS

SCENARIOS IN SUMMARY

<i>Manufacturer</i>	<i>Price at Jan 31st 2018</i>	<i>Price at Oct 29th 2018</i>	Scenario I: Past Perceptions	Scenario II: Low Growth	Scenario III: Ongoing decline	Extreme: Terminal decline	<i>% change Jan 31st to Scenario III outcome</i>
			<i>3% revenue growth</i>	<i>1.5% revenue growth</i>	<i>4% revenue decrease</i>	<i>5% revenue decrease</i>	
			<i>Regulatory action stalls</i>	<i>Divestment continues</i>	<i>Increased costs, restricted investment opportunities</i>	<i>All scenario III assumptions</i>	
			<i>Investors keep buying</i>	<i>Legal action stalls in developing world</i>	<i>Lobbying prevents supply side restrictions</i>	<i>5% increase in costs</i>	
British American Tobacco	£48.19	£35.49	£50.60	£35.34	£21.29	£12.36	-55.8%
Imperial Brands	£28.98	£26.87	£92.57	£49.15	£20.75	£ -	-28.4%
Philip Morris International	\$107.23	\$89.25	\$125.37	\$89.48	\$57.37	\$28.94	-46.5%
Japan Tobacco	¥3,612	¥2,923	¥ 7,972	¥ 5,308	¥ 3,247	¥ 1,026	-10.1%



3. CONCLUSIONS

A clear downside trend is emerging; 2018 is a glimpse of the future. The pace with which conditions have moved against the tobacco industry has been swift, and the risk to investors has grown at a concurrent speed.

The conditions that previously enabled tobacco companies to be star performers in investor portfolios have faded away. As independent trustee Ian Maybury has said “enhanced dividends cannot compensate for the overall decline in stock prices, and tobacco today is an income stock with an unusually high level of risk, more akin to a growth stock but without the upside potential.”

The researchers say that their findings “indicate the market currently values these companies at a price associated with an expectation that the future world will resemble an outcome that lies between the low-growth scenario and ongoing decline.”

Over 2018 three of the companies have experienced share price declines, pushing them towards scenario III, and in the case of Japan Tobacco, the company is on course towards the extreme loss scenario.

The researchers further say that “a continuous decline in the market capitalisation of tobacco firms in the long run” is probable.

Tobacco manufacturers are unlikely to return to a world of lax or non-existent regulation,

low taxes and a lack of social or investor pressure that would enable elevated profits. According to the researchers even the low-growth envisaged in scenario II appears optimistic in light of the trajectory of country-level and global stances on tobacco tax and regulation. The stock price change between the research start date (Dec 2017) and conclusion of the research (July 2018) indicates this scenario is not being achieved today.

The market is currently pricing tobacco consistent with a tendency towards Ongoing Decline outlined in scenario III and the diminished valuations that scenario implies.



4. RECOMMENDATIONS

Tobacco companies are confronting material risks and facing an unsupportive outlook likely to accentuate and accelerate these risks.

Investors should act to review their exposure to tobacco and if choosing to revise holdings or exclude tobacco they can do so with a greater degree of confidence than ever before, supported by a growing number of industry peers and a persuasive body of evidence.

4.1 ASSET OWNERS AND TRUSTEES MAY WISH TO TAKE THE FOLLOWING STEPS:

1. Review any existing risk frameworks in light of latest guidance and market activity to ensure they accurately reflect the funds' objectives and the funds' desired risk/reward profile.
2. Review all existing tobacco company exposure within this risk/reward framework. Include exposure to tobacco companies via equities, corporate bonds, fixed income, derivatives or through external fund managers.
3. Consider how best to assess and manage the growing downside risks arising from this exposure.
4. Review existing frameworks for methods of assessment and selection or screening of investments (e.g. risk profile; human rights; UN Global

Compact alignment; Sustainable Development Goals impact; supply chain risk; etc).

5. Adapt existing frameworks, or craft and adopt a new framework to aid decision making, and to articulate the underlying rationale for any exclusions to be applicable across the investment universe.

6. Exclude tobacco manufacturers from all active and passive investments

7. Select Ex-Tobacco Involvement indexes for passive investment.

8. Consider reviewing commercial relationships with tobacco manufacturers outside of direct (or indirect) investments.

9. Discuss with peer group re decisions already made to review or to move to tobacco-free investment [see Tobacco Free Finance Pledge list of signatories (www.unepfi.org/psi/tobacco-free-finance-signatories)].

10. Contact Tobacco Free Portfolios for confidential advice (<https://tobaccofreeportfolios.org/who-we-are>).

4.2 EXAMPLE INDUSTRY FRAMEWORKS

Investors may wish to refer to others in their peer group who employ frameworks to determine whether to exclude certain companies or industries.

Two such frameworks are detailed here.

The Dutch pension fund ABP, a global, Top 10, €400bn + pension fund, overlays the following standards-related framework onto its existing investment framework.

This has resulted in the fund excluding tobacco and nuclear weapons manufacturers from

its portfolio. Companies are considered for exclusion:

- if the product is by definition harmful to people
- if ABP's influence as a shareholder can't change anything about that fact
- if no harm results from elimination of the product
- if a worldwide treaty exists for the purpose of eliminating the product

Australian asset manager AMP Capital, which manages A\$187.7bn, employs a framework based on degrees of harm or denial of humanity.

AMP Capital may seek to exclude particular companies, asset types or industry sectors for a number of reasons, including if the products, services or conduct of the entity contravene principles accepted under international human rights laws, including but not limited to UN conventions. The firm will also consider the extent to which the relevant activity, product or service is material to the conduct of the company in which the investment is to be made.

For a fuller overview of AMP Capital's framework please visit: www.ampcapital.com/europe/en/capabilities/responsible-investment/ethical-framework

The Tobacco Free Portfolios suggested framework can be found in the Tobacco Free Portfolios Toolkit, section 3.

<https://tobaccofreeportfolios.org/how-to-go-tobacco-free>

4.3 FIDUCIARY DUTY

An additional support for investor action on tobacco is the shifting concept of fiduciary duty. Previously viewed narrowly, fiduciary duty



is evolving to support forward-looking investment decisions that seek to scale back exposure to potentially “stranded assets” – companies whose future value is likely to be materially impaired by structural changes underway within an industry. In late 2016 a new EU pensions directive asserted that fund managers will not be exposed to legal liability if they choose to prioritise ESG considerations in their investment processes^[34]. The directive also requires pension funds to include a stranded asset strategy as part of their risk management procedure. And the UK government in 2018 proposed new rules “intended to reassure trustees that they can (and indeed should) take account of financially material risks, whether these stem from investee firms’ traditional financial reporting, “or from broader risks covered in non-financial reporting or elsewhere^[35].” 2018 also saw the UK’s Environment Audit Committee request that the largest pension schemes outline their response to climate change risk, a move which underscores the growing focus on

responsible investment and the need for trustees to respond when concerns are raised.

4.4 INDUSTRY VOICES

While ESG considerations have played a role for funds that have gone tobacco-free, they have also done so with a clear-headed view on the financial implications, invariably finding that the case for exclusion is not a challenging one to make.

The following quotes from leading industry figures provide additional rationale and context for investors considering the merits of a tobacco-free investment approach.

Alan Brown, former Chief Investment Officer of Schroders and Governor of the Wellcome Trust says that “trustees should consider whether the companies they invest in have a legitimate, long-term franchise. If the answer is that they don’t, and I would certainly argue that that would apply to tobacco companies, then trustees should seriously consider

excluding them on risk mitigation grounds.”

Åsa Wallenberg, Head of Funds at Storebrand Asset Management, Norway’s largest Asset Manager, and tobacco-free since 2005, said at the launch of the Tobacco Free Finance Pledge at UN Headquarters in September 2018, that in their experience tobacco can easily be replaced with other non-cyclical investments without compromising returns.

“In an interview with the Financial Times in October 2018, BlackRock chairman and CEO Larry Fink said that funds that exclude harmful industries such as tobacco are likely to perform more strongly than traditional funds in the future. “We are going to see evidence over the long term that sustainable investing is going to be at least equivalent to core investments. I believe personally it will be higher,” he said.

John Chiang, California State Treasurer, December 2016: “I continue to believe investing in tobacco-related securities [would be] a bad economic decision for CalPERS beneficiaries, for the state in general and for the world as a whole.”

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