

# STRANDED ASSETS

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PROGRAMME



Stranded assets and the fossil fuel divestment campaign: what does divestment mean for the valuation of fossil fuel assets?

October 2013

**Authors** Atif Ansar | Ben Caldecott | James Tilbury

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## About the Stranded Asset Programme

There are a wide range of current and emerging risks that could result in 'stranded assets', where environmentally unsustainable assets suffer from unanticipated or premature write-offs, downward revaluations or are converted to liabilities. These risks are poorly understood and are regularly mispriced, which has resulted in a significant over-exposure to environmentally unsustainable assets throughout our financial and economic systems.

Some of these risk factors include:

- Environmental challenges (e.g. climate change, water constraints)
- Changing resource landscapes (e.g. shale gas, phosphate)
- New government regulations (e.g. carbon pricing, air pollution regulation)
- Falling clean technology costs (e.g. solar PV, onshore wind)
- Evolving social norms (e.g. fossil fuel divestment) and consumer behaviour (e.g. certification schemes)
- Litigation and changing statutory interpretations (e.g. changes in the application of existing laws and legislation)

The Stranded Assets Programme at the University of Oxford's Smith School of Enterprise and the Environment was established in 2012 to understand these risks in different sectors and systemically. We analyse the materiality of stranded asset risks over different time horizons and research the potential impacts of stranded assets on investors, businesses, regulators and policy makers. We also work with partners to develop strategies to manage the consequences of stranded assets.

The Programme is currently being supported through donations provided generously from The Ashden Trust, Aviva Investors, Bunge Ltd, HSBC Holdings plc, The Rothschild Foundation and WWF-UK. Our non-financial partners currently include Standard & Poor's, Trucost, Carbon Tracker Initiative, Asset Owners Disclosure Project and RISKERGY.

The Programme is led by Ben Caldecott and its work is guided by a high-level Consultative Panel chaired by Professor Gordon Clark, Director of the Smith School. Members of the Consultative Panel currently include:

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Michael Wilkins	Managing Director, Infrastructure Finance Ratings, Standard & Poor's
Dimitri Zenghelis	Principal Research Fellow, Grantham Institute, London School of Economics

If you have any enquiries about the Stranded Assets Programme, please contact the Director via [ben.caldecott@smithschool.ox.ac.uk](mailto:ben.caldecott@smithschool.ox.ac.uk)

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## About the Authors

**Atif Ansar** is a Lecturer at the Blavatnik School of Government, University of Oxford and an Associate Fellow of the Saïd Business School. His research focuses on improving the performance of major infrastructure, energy, and integrated real estate programmes. At Oxford, Atif teaches on the Master in Public Policy (MPP), the Masters in Business Administration (MBA), and the MSc in Major Programme Management and the UK Government's Major Projects Leadership Academy (MPLA) for top civil servants.

**Ben Caldecott** is a Programme Director and Research Fellow at the Smith School, where he established and leads the Stranded Assets Programme. He is concurrently Head of Government Advisory at Bloomberg New Energy Finance. Ben has been recognised as a leader in his field by the US Department of State and *Who's Who*, and as 'a leading thinker of the green movement' by *The Independent*.

**James Tilbury** is a researcher in the Smith School's Stranded Assets Programme. James moved to Oxford in 2011 to complete his MSc in Environmental Change and Management where he focused on the economic impact of potential climate change policy. Previously James has worked for CARE International in Cambodia, where he researched the impact of climate change on the region, and for the climate change and sustainability division of Ernst & Young.

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## Executive Summary

‘Stranded assets’, where assets suffer from unanticipated or premature write-offs, downward revaluations or are converted to liabilities, can be caused by a range of environment-related risks. This report investigates the fossil fuel divestment campaign, an extant social phenomenon that could be one such risk. We test whether the divestment campaign could affect fossil fuel assets and if so, how, to what extent, and over which time horizons.

Divestment is a socially motivated activity of private wealth owners, either individuals or groups, such as university endowments, public pension funds, or their appointed asset managers.<sup>1</sup> Owners can decide to withhold their capital—for example, by selling stock market-listed shares, private equities or debt—firms seen to be engaged in a reprehensible activity. Tobacco, munitions, corporations in apartheid South Africa, provision of adult services, and gaming have all been subject to divestment campaigns in the 20th century.

Building on recent empirical efforts, we complete two tasks in this report. First, we articulate a theoretical framework that can evaluate and predict, albeit imperfectly, the direct and indirect impacts of a divestment campaign.

Second, we explore the case of the recently launched fossil fuel divestment campaign. We have documented the fossil fuel divestment movement and its evolution, and traced the direct and indirect impacts it might generate. In order to forecast the potential impact of the fossil fuel campaign, we have investigated previous divestment campaigns such as tobacco and South African apartheid.

### Aims of the fossil fuel divestment campaign

The aims of the fossil fuel divestment campaign are threefold: (i) ‘force the hand’ of the fossil fuel companies and pressure government—e.g. via legislation—to leave the fossil fuels (oil, gas, coal) ‘down there’<sup>2</sup>; (ii) pressure fossil fuel companies to undergo ‘transformative change’ that can cause a drastic reduction in carbon emissions—e.g. by switching to less carbon-intensive forms of energy supply; (iii) pressure governments to enact legislation such as a ban on further drilling or a carbon tax. Inspiration for the fossil fuel divestment idea leans heavily on the perceived success of the 1980s South Africa divestment campaign to put pressure on the South African government to end apartheid.

#### Footnotes:

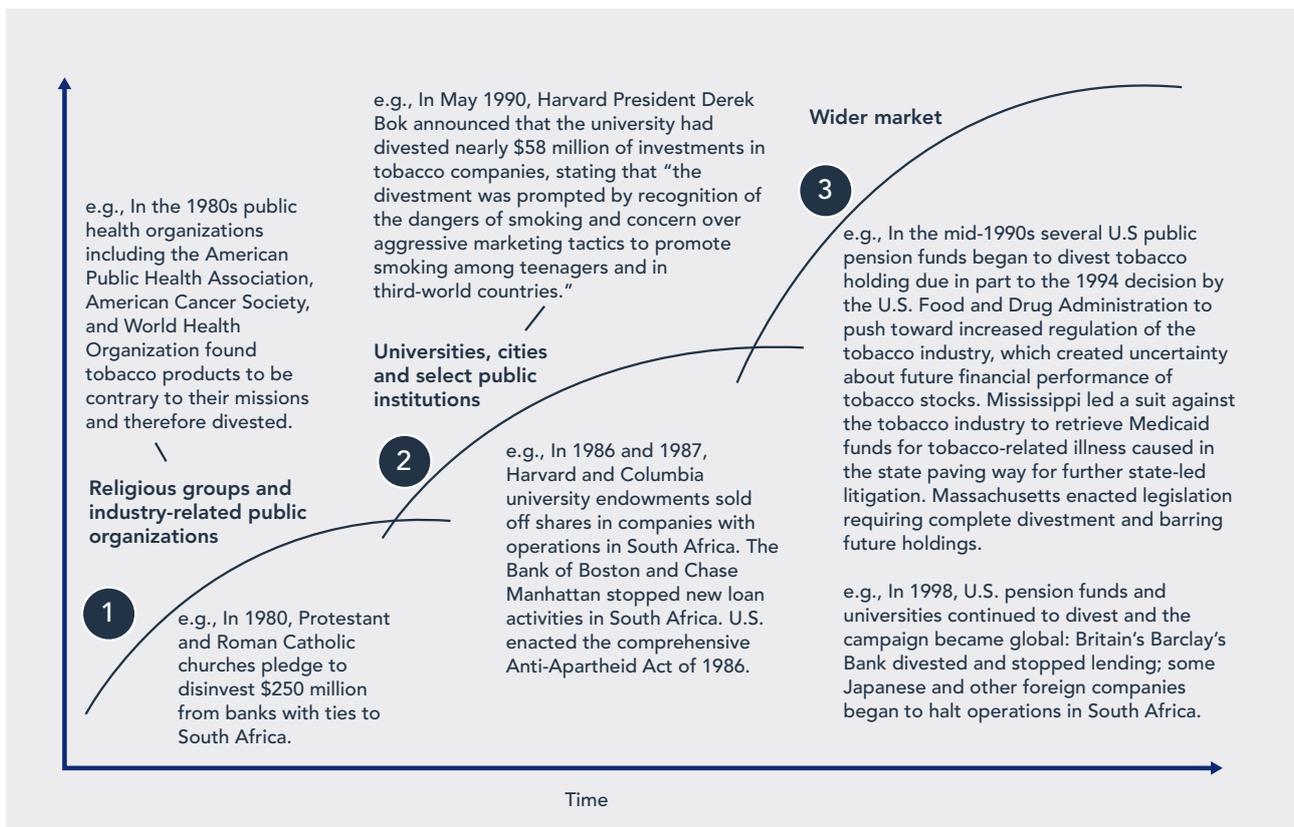
<sup>1</sup> Kaempfer, Lehman, and Lowenberg, ‘Divestment, Investment Sanctions, and Disinvestment.’

<sup>2</sup> The Economist, ‘Unburnable Fuel.’

## Evolution of divestment campaigns

Divestment campaigns typically evolve over three waves, with examples drawn from the tobacco and South African experiences included in the figure below.

### *The three waves of a divestment campaign*



The first wave begins with a core group of investors divesting from the target industry. All previous divestment campaigns have found their origin in the United States and in the first phase focus on US-based investors and international multilateral institutions. The amounts divested in the first phase tend to be very small but create wide public awareness about the issues.

Both in the case of tobacco and South Africa the campaigns took some years to gather pace during the first wave until universities such as Harvard, Johns Hopkins and Columbia announced divestment in the second phase. Previous research typically credits divestment by these prominent American universities as heralding a tipping point<sup>3</sup> that paved the way for other universities, in the US and abroad, and select public institutions such as cities to also divest.

#### Footnotes:

<sup>3</sup> Teoh, Welch, and Wazzan, 'The Effect of Socially Activist Investment Policies on the Financial Markets: Evidence from the South African Boycott.'

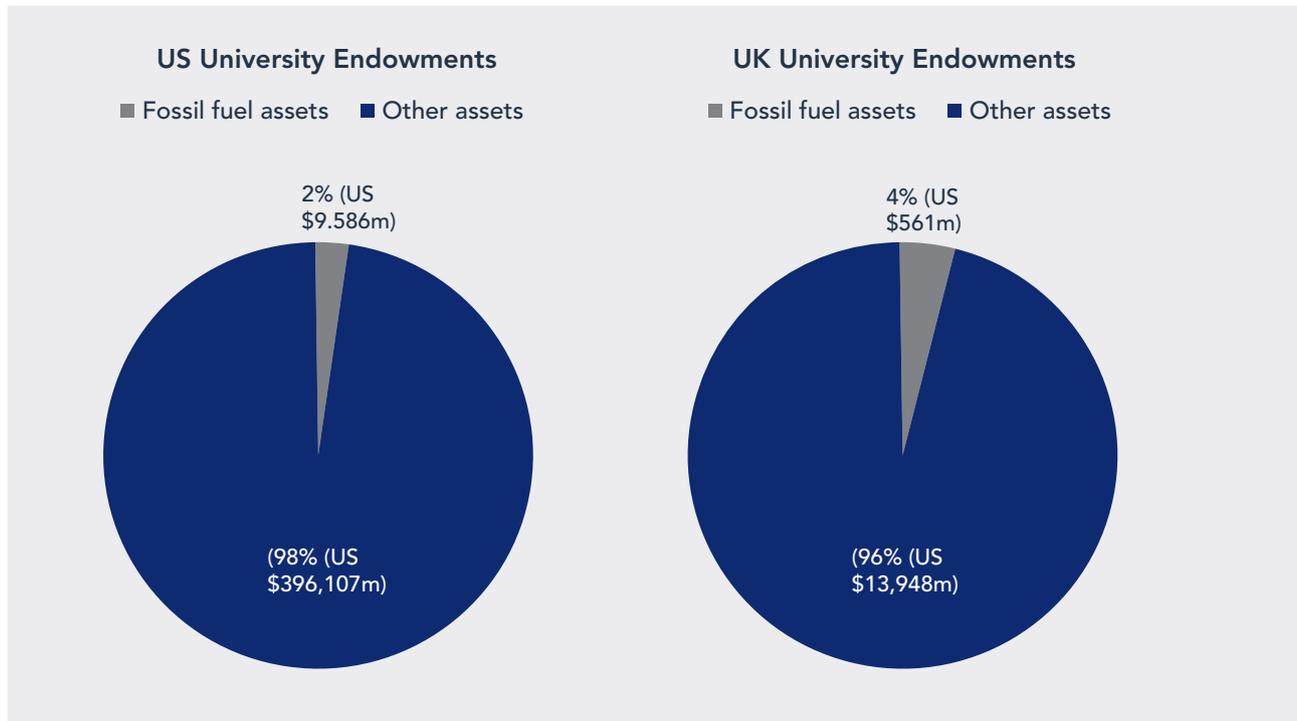
In the third wave, the divestment campaign goes global and begins to target very large pension funds and market norms, such as through the establishment of social responsibility investment (SRI) funds.

Like all previous divestment campaigns, the fossil fuel divestment campaign has started in the US and in the short term focused on US-based investors. In recent months, the campaign has attempted to build global momentum by targeting other universities with large endowments such as the universities of Oxford and Cambridge in the United Kingdom. Despite its relatively short history, the fossil fuel campaign can be said to entering the second wave of divestment.

## Exposure of university endowments and public pension funds to fossil fuel assets

Fossil fuel equity exposure is a ratio of the broader equity market exposure for each fund. Thus, on average, university endowments in the US have 2-3% of their assets committed to investable fossil fuel public equities. The proportion in the UK is higher with an average of 5% largely because the FTSE has a greater proportion of fossil fuel companies.

*Equity exposure to fossil fuel stocks is relatively limited<sup>4</sup>*



Public pension funds, likewise, have 2-5% of their assets invested in fossil fuel related public equities.

**Footnotes:**

<sup>4</sup> NACUBO-Commonfund, *Study of Endowments*; The Economist, 'Unburnable Fuel'; World Federation of Exchanges, 'Statistics'; Acharya, *Endowment Asset Management: Investment Strategies in Oxford and Cambridge*.

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University endowments and public pension funds also invest in bonds. In summary, of the \$12 trillion assets under management among university endowments and public pension funds — the likely universe of divestment candidates — the plausible upper limit of possible equity divestment for oil & gas companies is in the range of \$240-\$600 billion (2-5%) and about another half that for debt.

## Direct impact of divestment

In this report we find that the direct impacts of fossil fuel divestment on equity or debt are likely to be limited. The maximum possible capital that might be divested by university endowments and public pension funds from the fossil fuel companies represents a relatively small pool of funds. Even if the maximum possible capital was divested from fossil fuel companies, their shares prices are unlikely to suffer precipitous declines.

*the direct impacts of fossil fuel divestment on equity or debt are likely to be limited.*

Divested holdings are likely to find their way quickly to neutral investors. Some investors may even welcome the opportunity to increase their holding of fossil fuel companies, particularly if the stocks entail a short-term discount.

We find that there are likely to be greater direct effects on coal valuations. Coal companies represent a small fraction of the market capitalisation of fossil fuel companies. Coal stocks are also less liquid. Divestment announcements are thus more likely to impact coal stock prices since alternative investors cannot be as easily matched as in the oil & gas sector.

Looking back to earlier divestment campaigns also suggests that only a very small proportion of the total divestable funds are actually withdrawn. For example, despite the huge interest in the media and a three-decade evolution only about 80 organisations and funds (out of a likely universe of over 1,000) have ever substantially divested from tobacco equity and even fewer from tobacco debt.

*We find that there are likely to be greater direct effects on coal valuations.*

As a result, if divestment outflows are to have any direct impact on the valuations of fossil fuel companies, they would have to emerge from (i) changes in market norms, or (ii) constrained debt markets.

### *Changes in market norms*

Even when divestment outflows are small or short term and do not directly effect future cash flows, if they trigger a change in market norms that closes off channels of previously available money, then a downward pressure on the stock price of a targeted firm is possible.

The potential trajectory of a divestment campaign might entail small outflows from 'lead investors' in a trickle-like fashion in early phases of a campaign, followed by a more drastic deluge once a certain tipping point has been reached.

### *Debt financing*

The withdrawal of debt finance from fossil fuel companies by some banks or an increase in discount rate is unlikely to pose serious debt financing problems (either in terms of short-term liquidity or Capex) for fossil fuel companies. Our analysis, however, suggests two caveats. First, change in market norms are more relevant in relatively poorly functioning markets. In particular, borrowers in countries with low financial depth will experience a restricted pool of debt financing if any banks pre-eminent in the local financial network withdraw. Second, while an increase in discount rate is unlikely to have an effect on overall corporate finance of major fossil fuel companies, their ability to undertake large Capex projects in difficult technical or political environments will be diminished due to a higher hurdle rate and lower availability of debt financing.

*A diminishing pool of debt finance and a higher hurdle rate will thus have the greatest effect on companies and marginal projects related to coal and the least effect on those related to crude oil.*

While markets for crude oil and many oil products are very liquid, markets for coal are more fragmented and less liquid, with markets for natural gas in-between. A diminishing pool of debt finance and a higher hurdle rate will thus have the greatest effect on companies and marginal projects related to coal and the least effect on those related to crude oil.

### *Indirect impact of divestment*

Even if the direct impacts of divestment outflows are meagre in the short term, a campaign can create long-term impact on the enterprise value of a target firm if the divestment campaign causes neutral equity and/or debt investors to lower the subjective probability of target firm's net cash flows. The outcome of the stigmatisation process, which the fossil fuel divestment campaign has now triggered, poses the most far-reaching threat to fossil fuel companies and the vast energy value chain. Any direct impacts pale in comparison.

*The outcome of the stigmatisation process, which the fossil fuel divestment campaign has now triggered, poses the most far-reaching threat to fossil fuel companies and the vast energy value chain.*

### *Stigmatisation outcomes*

As with individuals, a stigma can produce negative consequences for an organisation. For example, firms heavily criticised in the media suffer from a bad image that scares away suppliers, subcontractors, potential employees, and customers.<sup>5</sup> Governments and politicians prefer to engage with ‘clean’ firms<sup>6</sup> to prevent adverse spill-overs that could taint their reputation or jeopardise their re-election. Shareholders can demand changes in management or the composition of the board of directors of stigmatised companies. Stigmatised firms may be barred from competing for public tenders, acquiring licences or property rights for business expansion, or be weakened in negotiations with suppliers. Negative consequences of stigma also include cancellation of multibillion-dollar contracts or mergers/acquisitions.<sup>7</sup> Stigma attached to merely one small area of a large company may threaten sales across the board.

*In almost every divestment campaign we reviewed from adult services to Darfur, from tobacco to South Africa, divestment campaigns were successful in lobbying for restrictive legislation affecting stigmatised firms.*

### *Restrictive legislation*

One of the most important ways in which stigmatisation could impact fossil fuel companies is through new legislation. In almost every divestment campaign we reviewed from adult services to Darfur, from tobacco to South Africa, divestment campaigns were successful in lobbying for restrictive legislation affecting stigmatised firms.

If during the stigmatisation process, campaigners are able to create the expectation that the government might legislate to levy a carbon tax, which would have the effect of depressing demand, then they will materially increase the uncertainty surrounding the future cash flows of fossil fuel companies. This will indirectly influence all investors—those considering divestment due to moral outrage and those who are neutral—to go underweight on fossil fuel stocks and debt in their portfolios.

*a handful of fossil fuel companies are likely to become scapegoats.*

### *Multiples compression*

Stigmatisation can lead to a permanent compression in the trading multiples, e.g. the share price to earnings (P/E) ratio, of a target company. For example, Rosneft (RNFTF) produces 2.3 million barrels of oil of day, slightly more than ExxonMobil (XOM). Rosneft was, however, valued at \$88 billion versus \$407 billion for ExxonMobil as of June 2013. Rosneft suffers from the stigma of weak corporate governance. Investors thus place a lower probability on its reserves being converted into positive cash flows. If ExxonMobil (and similar publicly traded fossil fuel firms) was to become stigmatised due to the divestment campaign, its enterprise value per 2P reserves ratio might also slide towards that of Rosneft permanently lowering the value of the stock.

#### **Footnotes:**

<sup>5</sup>Vergne, ‘Stigmatized Categories and Public Disapproval of Organisations: A Mixed-Methods Study of the Global Arms Industry, 1996–2007.’

<sup>6</sup>Javers and Kopecki.

<sup>7</sup>Ibid.

### *Stigma dilution*

While the above negative consequences are economically relevant, stigma does not necessarily drive whole industries out of business such that a particular activity stops altogether. Target firms, particularly when a whole industry is being stigmatised, take steps to counteract it. For example, in stigmatised industries, such as arms or tobacco, some players are able to avoid disapproval, while others face intense public vilification.

Fossil fuel companies will attempt to dilute stigma and while stigmatisation will slow fossil fuel companies down, its outcomes are unlikely to threaten their survival. The outcomes of stigmatisation will be more severe for companies seen to be engaged in willful negligence and 'insincere' rhetoric<sup>8</sup> saying one thing and doing another.<sup>9</sup> Moreover, a handful of fossil fuel companies are likely to become scapegoats. From this perspective, coal companies appear more vulnerable than oil & gas.

Due to the phased nature of the process of stigmatisation, investors seeking to reduce their fossil fuel exposure in general are thus likely to begin by liquidating coal stocks. Storebrand—a Scandinavian asset manager with \$74 billion under management—has taken precisely such a step.

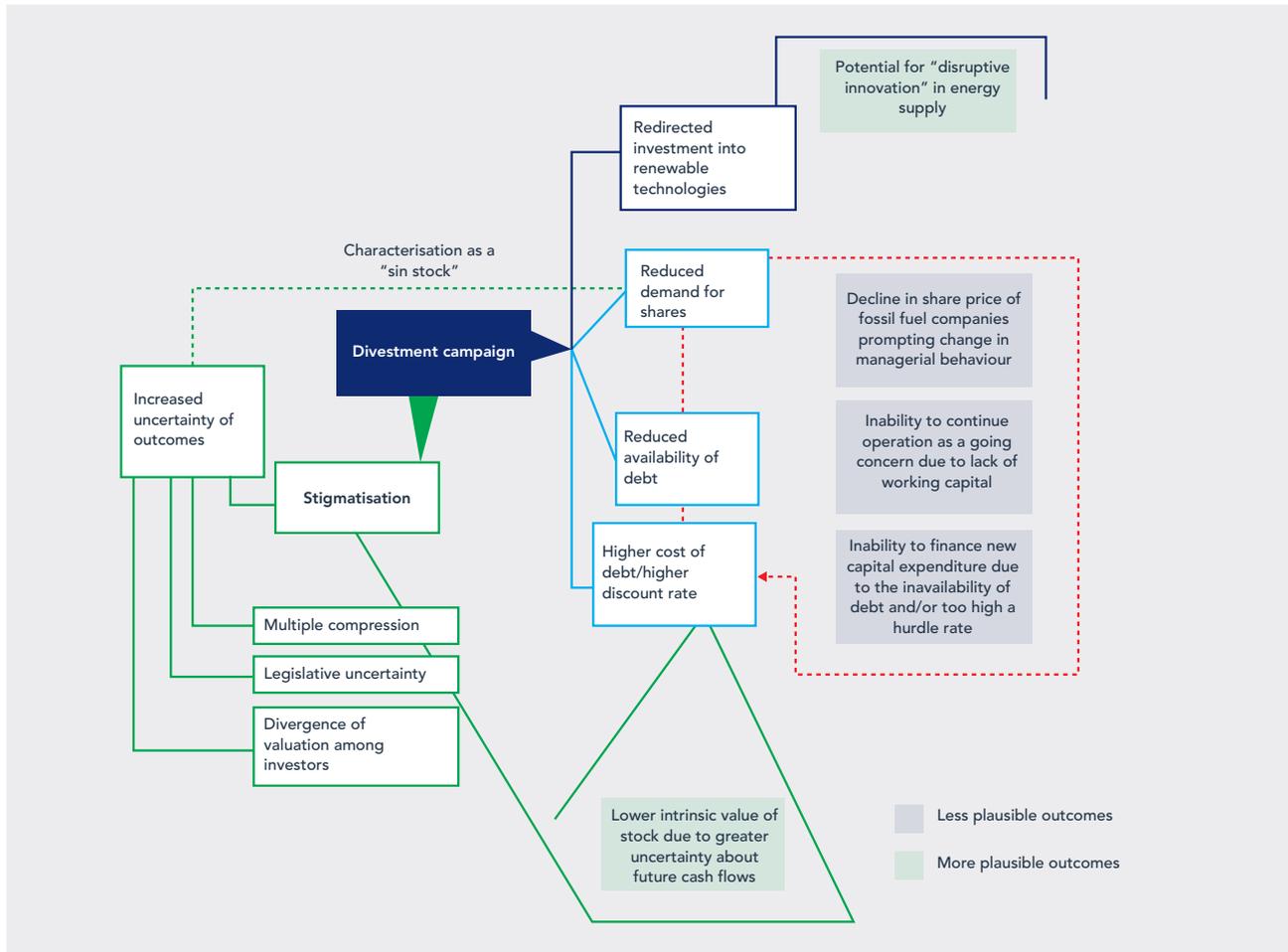
*in stigmatised industries, such as arms or tobacco, some players are able to avoid disapproval, while others face intense public vilification.*

#### Footnotes:

<sup>8</sup>Yoon, Gürhan-Canli, and Schwarz, 'The Effect of Corporate Social Responsibility (CSR) Activities on Companies With Bad Reputations.'

<sup>9</sup>Sæverud and Skjærseth, 'Oil Companies and Climate Change: Inconsistencies Between Strategy Formulation and Implementation?'

Potential direct and indirect impacts of a fossil fuel divestment campaign



Recommendations for investors, companies and campaigners

Investors

As fiduciaries, managing long-term savings on behalf of their beneficiaries, endowments, pension funds and similar institutional investors have a duty to understand and respond to challenges posed by the fossil fuel divestment campaign—whether considering fossil fuel divestment or not. To this end our recommendations can be divided into the following:

1. Closely monitor fossil fuel exposure. Fossil fuel and related industries comprise a surprisingly large variety of sectors from coal mining to shipping to the manufacture of premium steel. Conduct an audit of the carbon intensity (and pollution in the case of coal) of portfolio constituents. There are a wide range of current and emerging environmental risks that could result in stranded assets. These risks are poorly understood and are regularly mispriced, which may result in a significant over-exposure to environmentally unsustainable assets throughout portfolios.

2. Stress test portfolios for potential environment-related risks that could impact fossil fuel companies. Companies unable to withstand the internalisation of environmental costs or competition from more efficient rivals should be more closely monitored.
3. Be explicit about strategy on fossil fuel investment and consult with beneficiaries. Holding a passive view is also a strategy.
4. For institutions considering divestment, engage with the management of target firms. Are they paying lip-service to concerns or are they serious about tackling them? Divestment is perhaps the final, and most drastic, instrument in an investor's corporate engagement toolkit. Considerable communication with management of the target firm can be undertaken to influence behaviour before using up the trump card of divestment.
5. Understand the costs of divestment. Liquidating holdings entails transaction costs.
6. For institutions considering divestment, engage with peers and market participants. Large investors can shape market norms. Use banks and consultants that can advise altering practices.
7. Those that commit to divestment should engage with the media. Divestment, our research shows, creates far more indirect impact by raising public awareness, stigmatising target companies and influencing government officials.
8. Those that commit to divestment should consider re-directing investment to renewable energy alternatives that can trigger 'disruptive innovation' and substitute fossil fuels as a primary source of energy supply.

*Divestment, our research shows, creates far more indirect impact by raising public awareness, stigmatising target companies and influencing government officials.*

## Fossil Fuel Companies

The divestment campaign could pose considerable reputational risk to fossil fuel companies even if its immediate direct effects are likely to be limited. Previous instances of divestment campaigns suggest that investors sympathetic to the campaign's cause are likely to table strongly worded resolutions during annual meetings, and even if voted down stir debate with which management needs to be prepared to engage. Investors, more than ever, are also keenly aware of whether managers do what they say when it comes to addressing the social responsibilities of a company.

Indirectly, by triggering a process of stigmatisation, the divestment campaign is likely to make the operating and legislative environment more challenging. Greater uncertainty over future cash flows can permanently depress the valuation of fossil fuel companies, e.g. by compressing the price/earnings multiples.

How could fossil fuel companies tackle these challenges? Our recommendations are as follows:

1. Fossil fuel companies have to decide whether to play 'hardball' or to engage with the campaigners. Evidence suggests that hardball strategies intensify stigmatisation, focusing attention on companies that are unrepentant about violating social norms. When an entire industry is in the process of being stigmatised the effect on constituent companies is uneven.

2. While some firms successfully manage to escape disapproval by diluting association with stigmatised categories, a handful in the industry are used as scapegoats. The scapegoats are often not the largest companies,<sup>10</sup> but the ones that fail to reinvent.
3. Fossil fuel companies, particularly in the coal industry, should view their near-term cash flows as an opportunity to transition or diversify away from the assets and activities most at risk. They should develop strategies to do so.

### Campaigners

At the heart of the fossil fuel divestment campaign is concern for the climate change that burning fossil fuel reserves is likely to hasten. From this perspective, the divestment campaign is merely an intermediate objective to achieve far-reaching changes in the energy sector. For the campaigners, our recommendations are:

1. With respect to the divestment campaign, understand that the direct impacts are likely to be minimal. Instead the campaign might be most effective in stigmatising the fossil fuel industry, with the coal industry being most vulnerable, and particular companies within the industry.
2. With regards to maximising the direct impacts, the potential target area where campaigners can hope to achieve some measure of success is fossil fuel debt. The analogy we present here is that money flows like mercury—i.e. money has a tendency to form pools that move together through common channels driven by market norms. From this perspective, debt markets—particularly market for banks loans—are ‘clumpier’ than the more decentralised equity markets. Our research suggests that it might be easier to block off channels of debt finance than equity. Campaigners can thus target large lending banks and pressure them to commit to a set of principles—equivalent to the anti-apartheid Sullivan Principles—that create obstacles for the debt financing of marginal fossil fuel projects. Closing off debt channels will not threaten survival, but it will make marginal projects harder to undertaking reducing fossil fuel Capex.
3. Divestment is the most drastic instrument in an investor’s corporate engagement toolkit. Communication with management of the target firm might be more effective in influencing corporate behaviour than divestment. Encourage investors to engage with fossil fuel companies to change corporate decision-making.
4. Divested holdings are likely to find their way quickly to neutral investors. These investors might have less developed corporate engagement toolkits and might be less willing to pressure fossil fuel companies on issues of environmental sustainability. This could have unintended consequences and should be considered when developing advocacy strategies.

#### Footnotes:

<sup>10</sup> Vergne, ‘Stigmatized Categories and Public Disapproval of Organisations: A Mixed-Methods Study of the Global Arms Industry, 1996–2007.’

## Introduction

Worried about the impact of climate change, civic group 350.org launched a campaign in 2012 encouraging ‘institutions to immediately freeze any new investment in fossil fuel companies, and divest from direct ownership and any commingled funds that include fossil fuel public equities and corporate bonds within 5 years’.<sup>11</sup> 350.org is a not-for-profit organisation that aims to address climate change through online campaigns, grassroots organisation and mass public actions. The number 350 refers to the concentration of carbon dioxide in parts per million that the atmosphere can safely absorb according to climate scientists.<sup>12</sup> In July 2012 Bill McKibben, the founder of 350.org, published an article in *Rolling Stone* calling for divestment from fossil fuel companies to ‘spark a transformative challenge to fossil fuel...[by] moral outrage’.<sup>13</sup> 350.org has led the divestment campaign through a separate platform called Fossil Free.

Divestment campaigns are a poorly understood phenomenon. There is an important but relatively small literature related to divestment campaigns particularly South African apartheid and tobacco.<sup>14</sup> More broad-based attempts at understanding the phenomenon have been made in recent years in the literature on financial economics,<sup>15</sup> business ethics,<sup>16</sup> corporate social responsibility (CSR)<sup>17</sup> and socially responsible investing (SRI)<sup>18</sup>—see Table 4 (Page 43). Despite these developments, theoretical frameworks that can predict direct and indirect impacts of a divestment campaign on the target firms are in short supply.

Figure 1 summarises the most commonly suggested model of the effects of a divestment campaign (Kaempfer et al<sup>19</sup>). We argue in this paper that such a one-dimensional (1D) model and its variants that incorporate some elements of political pressure are inaccurate depictions of reality.

### Footnotes:

<sup>11</sup> Fossil Free, ‘About the Fossil Free Campaign.’

<sup>12</sup> 350.org, ‘About 350.’

<sup>13</sup> McKibben, ‘Global Warming’s Terrifying New Math.’

<sup>14</sup> Kobrin, ‘Foreign Enterprise and Forced Divestment in LDCs’; Kaempfer, Lehman, and Lowenberg, ‘Divestment, Investment Sanctions, and Disinvestment’; Meznar, Nigh, and Kwok, ‘Announcements of Withdrawal From South Africa Revisited’; Teoh, Welch, and Wazzan, ‘The Effect of Socially Activist Investment Policies on the Financial Markets: Evidence from the South African Boycott.’

<sup>15</sup> Hong and Kacperczyk, ‘The Price of Sin: The Effects of Social Norms on Markets.’

<sup>16</sup> Hummels and Timmer, ‘Investors in Need of Social, Ethical, and Environmental Information’; Wander and Malone, ‘Making Big Tobacco Give in: You Lose, They Win’; Wander and Malone, ‘Keeping Public Institutions Invested in Tobacco’; Cogan, *Tobacco Divestment and Fiduciary Responsibility: a Legal and Financial Analysis*; Yach, ‘Healthy Investments in Investing in Health.’

<sup>17</sup> Mackey, Mackey, and Barney, ‘Corporate Social Responsibility and Firm Performance: Investor Preferences and Corporate Strategies.’

<sup>18</sup> Clark and Knight, ‘Implications of the UK Companies Act 2006 for Institutional Investors and the Corporate Social Responsibility Movement’; Clark and Hebb, ‘Why Should They Care? The Role of Institutional Investors in the Market for Corporate Global Responsibility’; Clark and Hebb, ‘Pension Fund Corporate Engagement: The Fifth Stage of Capitalism.’

<sup>19</sup> Kaempfer, Lehman, and Lowenberg, ‘Divestment, Investment Sanctions, and Disinvestment.’

Figure 1: A typical and erroneous model of divestment effects



Building on recent empirical efforts, our aims in this report are twofold. Our first aim is to articulate an alternative theoretical framework that can evaluate and predict, albeit imperfectly, the direct and indirect impacts of a divestment campaign. To this end we build on theories of weak-form efficient markets to understand the direct and indirect mechanisms by which divestment by one segment of the market, either in the equity or debt markets, might impact the enterprise value and financial viability of target firms. Specifically, we articulate a three-dimensional (3D) temporal model of firm valuation that not only focuses on the size of outcomes and choice of discount rate over time (the typical concern in literature and debates among practitioners), but also on the change in probabilities of outcomes over long temporal horizons. We then build on insights from the literature on market norms in financial markets<sup>20</sup> and burgeoning interest in corporate stigma<sup>21</sup> to assess how a divestment campaign might impact probabilities of outcomes and its corollary impact on target firms' valuations and their conduct.

Our second, and empirical, aim is to explore the case of the recently launched fossil fuel divestment campaign. We begin by documenting the fossil fuel divestment movement and its evolution. Using the theoretical lens we develop, we then trace the potential trajectories of direct and indirect impacts the fossil fuel divestment might generate. We recognise that potential trajectories follow non-linear paths and it is not possible to generate overly precise predictions. Thus in the interest of being broadly right rather than precisely wrong we focus on a qualitative discussion rather than regression analysis. In order to forecast the potential impact of the fossil fuel campaign, we also draw on evidence from previous divestment campaigns targeting tobacco and South African apartheid. In looking back to earlier campaigns to forecast outcomes of the fossil fuel divestment campaign, our methodology is motivated by the 'outside view' proposed by the Noble Prize-winning economist and psychologist, Daniel Kahneman.

**Footnotes:**

<sup>20</sup> Hong and Kacperczyk, 'The Price of Sin: The Effects of Social Norms on Markets.'

<sup>21</sup> Devers, Dewett, and Belsito, 'Falling Out of Favor: Illegitimacy, Social Control, and the Process of Organisational Stigmatization'; Devers et al. 'A General Theory of Organisational Stigma'; Mishina and Devers, 'On Being Bad: Why Stigma Is Not the Same as a Bad Reputation.'

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## Theoretical framework building blocks

Before developing the theoretical framework, it is helpful to outline its key constructs and specify its central assumptions.

### *Divestment*

Divestment is a socially motivated activity of private wealth owners, either individuals or groups such as university endowments, public pension funds, or their appointed asset managers.<sup>22</sup> Owners can decide to withhold their capital—for example, by selling stock market listed shares, private equities, or debt—from firms engaged in a reprehensible activity. Tobacco, munitions and corporations in apartheid South Africa, provision of adult services, or gaming have all been subject to divestment campaign in the 20th century. The term divestment, as used in this paper, should not be confused with an economically motivated choice by investors or creditors to forgo or liquidate investments in a firm, for example due to poor financial performance.

Divestment ought to also be distinguished from disinvestment. Disinvestment is the process of eliminating private individuals' or corporations' ownership of physical assets in an industry or jurisdiction.<sup>23</sup> Sometimes disinvestment can take the form of the forced sale of existing physical assets, for example due to legislative action requiring such disinvestment. In contrast, divestment is about withdrawing or withholding financial capital. This study focuses solely on divestment. The divestment/disinvestment distinction is particularly relevant to the case of South African apartheid discussed below.

### *Firm Value and Firm Performance*

Many definitions of firm value and firm performance have been proposed in the literature.<sup>24</sup> With reference to firm value, our primary concerns relate to the following three questions; does investor divestment affect: shareholder wealth of a target firm, the ability of a target firm to undertake business expansion, or the ability of a firm to continue as a going concern? In the framework developed here, we differentiate a market definition of firm value from an economic (or intrinsic definition) of firm value. All else being equal, we assume higher market value to be a measure of better firm performance.

- Market value is defined as the price of a firm's equity multiplied by the number of its shares outstanding or its market capitalisation. Thus, first, our framework addresses the following question: assuming no change in the supply of shares outstanding of a target firm, does investor divestment cause a decline in the price of a firm's equity and hence its market capitalisation?

#### **Footnotes:**

<sup>22</sup> Kaempfer, Lehman, and Lowenberg, 'Divestment, Investment Sanctions, and Disinvestment.'

<sup>23</sup> Ibid., 459.

<sup>24</sup> Barney, Gaining and Sustaining Competitive Advantage; Mackey, Mackey, and Barney, 'Corporate Social Responsibility and Firm Performance: Investor Preferences and Corporate Strategies.'

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- Economic (or intrinsic) value is defined as the present value of the target firm’s cash flows. Second, our framework addresses the following question: assuming managers seek to maximise the market value of their firm in their decision-making,<sup>25</sup> will investor divestment reduce the present value of the target firm’s cash flows?
  - We acknowledge that the enterprise value of a firm is made up of its market cap plus debt, minority interest and preferred shares, minus total cash and cash equivalents. Thus, third, our framework addresses the following question: will investor divestment reduce the availability of debt (short-term working capital and long-dated securities) or drive up cost of debt sufficiently to thwart future business expansion or possibly even force a firm into bankruptcy?

### *Weak-Form Efficient Markets and Boundedly-Rational Expectations*

The framework presented here builds on the theory that capital markets are weak-form efficient (as opposed to strong form or semi-strong form). Table 1, albeit a simplification, illustrates the differences among weak, semi-strong, and strong forms of market efficiency based on Eugene Fama’s pioneering research.<sup>26</sup> Market efficiency concerns the extent to which market prices incorporate available information.

If market prices do not fully incorporate information, then opportunities may exist to make a profit from the gathering and processing of information. An efficient market is one in which asset prices quickly reflect available information; market transactions are the mechanism by which information is incorporated in price. If there are considerable time lags or spatial differences among prices, traders can easily earn profits by arbitrage. The market in such a case is considered relatively inefficient.

Weak-form efficient markets are those in which publicly available information about the perceived value of a firm’s assets is, on average, reflected in the market price of the assets in question. In contrast in strong-form markets asset prices reflect both public and privately held (insider) information.

In weak-form efficient markets the market value of an asset or financial security (e.g. a share in a listed company) reflects the estimates of the discounted future cash flows under a probability distribution subjectively assigned by an investor. Market values can deviate from intrinsic value for considerable periods of time in weakly efficient markets but ultimately correct as investors are drawn to buy/short undervalued/overvalued assets. In contrast, in strong-form markets discrepancies between market and intrinsic value of an asset are very quickly adjusted.

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#### Footnotes:

<sup>25</sup> Copeland et al; Friedman; cf Jensen and Meckling.

<sup>26</sup> Fama.

*Table 1: Forms of market efficiency*

Forms of market efficiency	MARKET PRICES REFLECT:			FACTORS AFFECTING MARKET EFFICIENCY:		
	Past market data	Public information	Private information	Time lag in price adjustment	Does market value reflect intrinsic value	Information acquisition costs
Weak form	x	Imperfectly		Potentially high	Maybe	High/medium
Semi-strong form	x	x		Medium	Likely yes	Medium
Strong form	x	x	x	Low/instantaneous	Yes	Low

We acknowledge the behavioural finance critique of (even the weak-form) efficient market hypothesis.<sup>27</sup> There is broad-based evidence that investors are prone to over-optimism, systematic biases and ‘timid choices and bold forecasts’.<sup>28</sup> Descriptively, individual investor choices and aggregate market behaviour may thus deviate from efficient market behaviour, particularly semi-strong and strong-form (Mandelbrot<sup>29</sup>). To address this critique, we incorporate a second assumption of boundedly-rational expectations. This means that investors face non-trivial costs in accessing information; investors are likely to face computational limitations in processing the information even when they have gathered it; and investors are prone to systematic biases about judgements made under uncertainty. Such biases can arise from the individual or organisational-level heuristics investors use in decision-making or from market-level norms and routines that deviate from rational choice.<sup>30</sup>

In simpler terms, the bounded-rationality assumption suggests that investors will face difficulty in both assigning the appropriate discount rate and the probability distribution to the future cash flows. Moreover, the forecasting errors between investors’ estimates of the stock price (the discounted cash flows) and the actual stock price will systematically have a mean different from zero. Given subjective differences in estimates of the present value of a firm’s cash flows, the market as a whole will have divergent views on the stock price despite similar publicly accessible information available to all investors. Stock price and market value will be subject to considerable volatility particularly as new information—that causes investors to reevaluate their discounted cash flow model—is revealed.

Bringing the discussion on market versus intrinsic value, weak efficient markets, and boundedly-rational expectations concepts together we suggest the following. Due to investor cognitive biases (bounded-rationality), considerable deviation between the market value and the intrinsic value of firms can exist at any given cross-section of time. However, since weakly efficient markets eventually adjust (i.e. new information is incorporated into the price of the asset), egregious under-valuation of a stock cannot last for too long since profit-motivated investors will spot the opportunity and buy the under-valued stock.

**Footnotes:**

<sup>27</sup> Schiller, *The Irrational Exuberance*; Thaler, *Advances in Behavioral Finance*.

<sup>28</sup> Kahneman and Lovallo; Kahneman, *Thinking, Fast and Slow*.

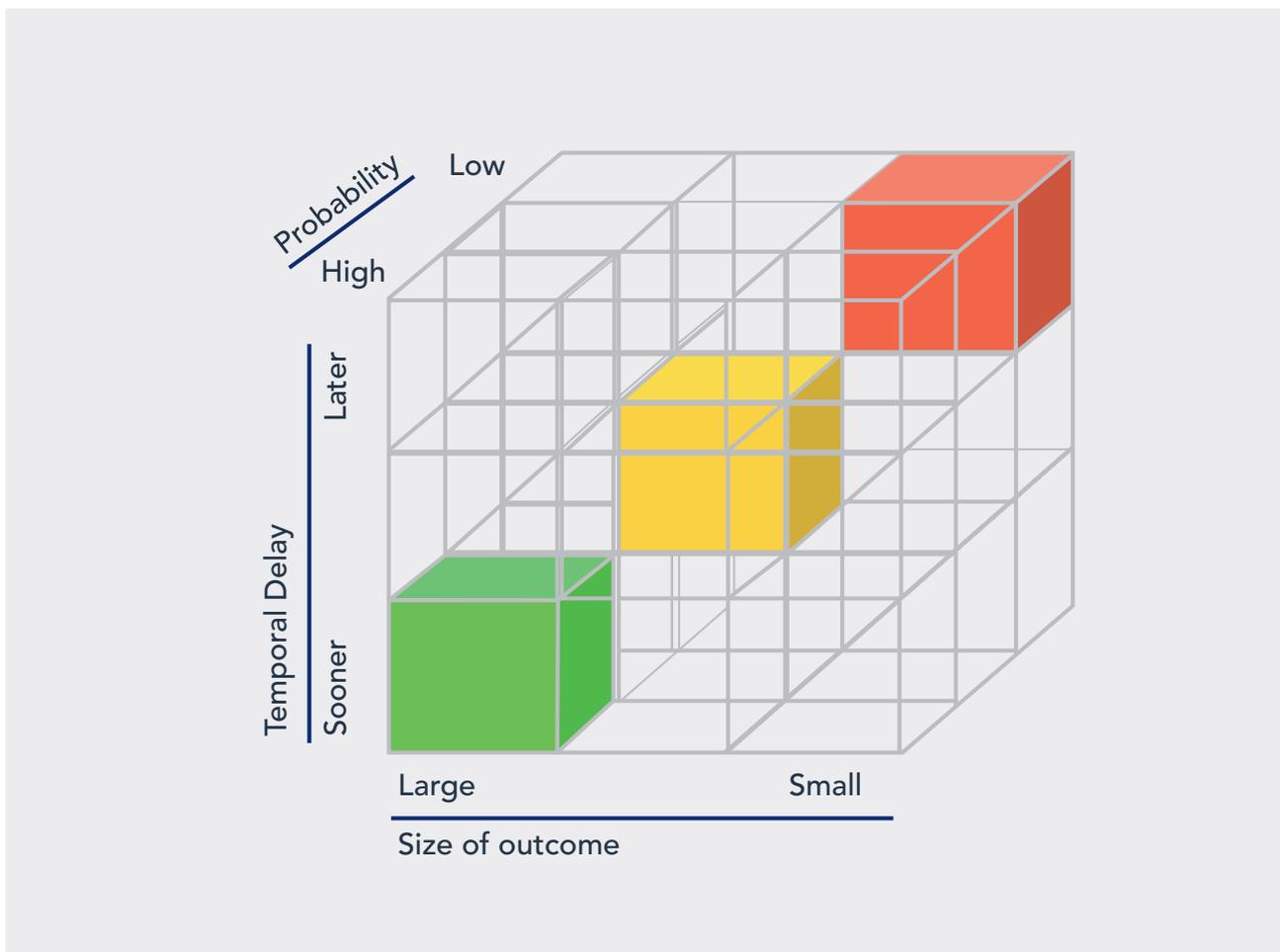
<sup>29</sup> Mandelbrot.

<sup>30</sup> Durand, ‘Predicting a Firm’s Forecasting Ability: The Roles of Organisational Illusion of Control and Organisational Attention.’

## A 3D model of investment valuation

In valuing and allocating scarce capital to alternative investments, investors face trade-offs across three dimensions: size, temporal delay and probability of outcomes, as illustrated in Figure 2.<sup>31</sup> Choices between alternatives that differ along only one dimension (1D) are straightforward. All other things being equal, investors tend to prefer larger to smaller gains; earlier to later gains; more certain to less certain gains.<sup>32</sup> More effort is required when choices differ across two dimensions (2D) holding the third constant. In this 2D representation of the world, investors face three salient trade-offs. Ought investors to prefer larger but less certain gains to smaller, more certain gains today (varying size/probability, holding delay constant)? Conversely, ought investors prefer larger but later rewards to smaller, earlier ones (varying size/delay, holding probability constant)? Finally, ought investors prefer more certain but delayed gains to less certain but earlier gains of the same size (varying delay/probability, holding size constant)?

Figure 2: A 3D model of investment choice



**Footnotes:**

<sup>31</sup> Ansar et al.; Prelec and Loewenstein; Loewenstein and Thaler; Green and Myerson.

<sup>32</sup> Green and Myerson.

### *Discount Rate*

With respect to 2D trade-offs of inter-temporal choice, capital budgeting theory in financial economics<sup>33</sup> advocates a net present value (NPV) based decision rule.<sup>34</sup> Barring resource constraints, investors are advised to invest in all ventures that generate discounted cash flows greater than the amount invested—i.e. a positive NPV. With respect to mutually exclusive alternatives, the one yielding the higher NPV ought to be selected.<sup>35</sup>

Applying an appropriate discount rate is essential to computing the intrinsic value of a firm. For a company sure to generate net cash flows of \$1 billion each year between 2013 and 2050 the intrinsic value is \$10.7 billion at a 10% discount rate obtained by the following formula standard in corporate finance textbooks and illustrated in Figure 3.

$$\text{NPV}(i, N) = \sum_{t=0}^N \frac{R_t}{(1+i)^t}$$

Where:

$t$  - the time of the cash flow

$i$  - the discount rate

$R_t$  - the net cash flow i.e. cash inflow-cash outflow, at time  $t$

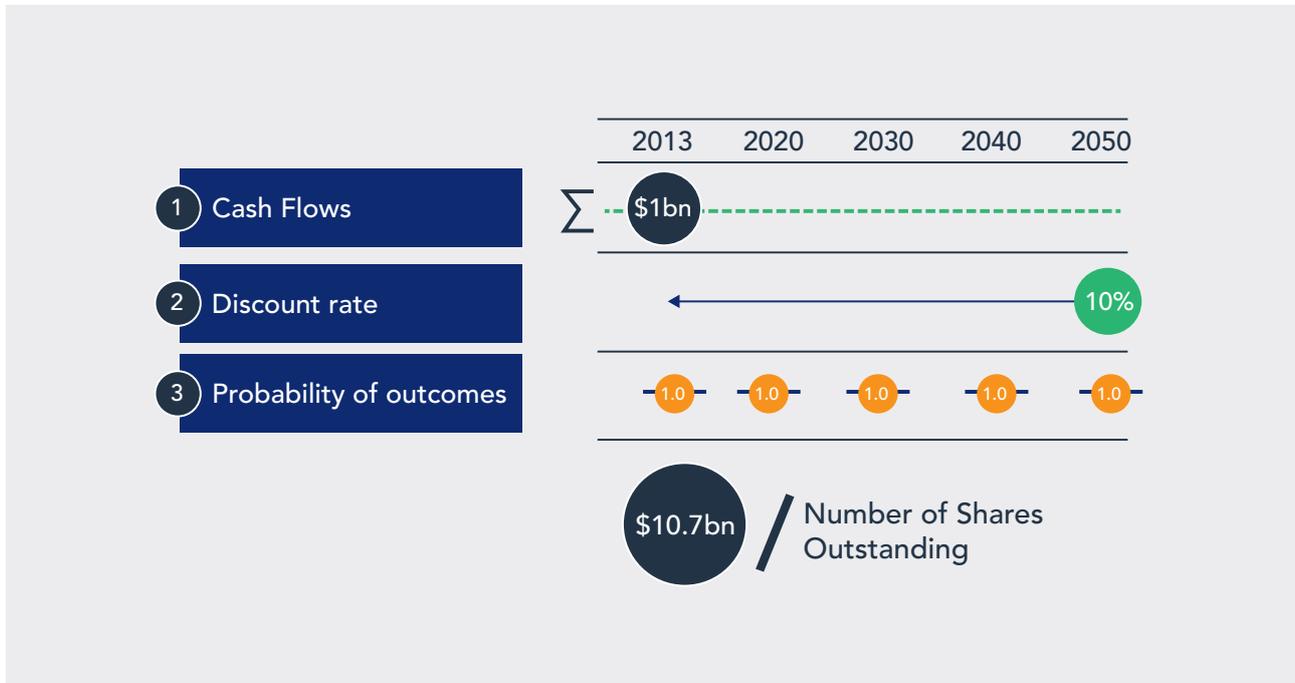
#### **Footnotes:**

<sup>33</sup> von Neumann and Morgenstern; Savage; Koopmans; Samuelson.

<sup>34</sup> Mizruchi and Stearns.

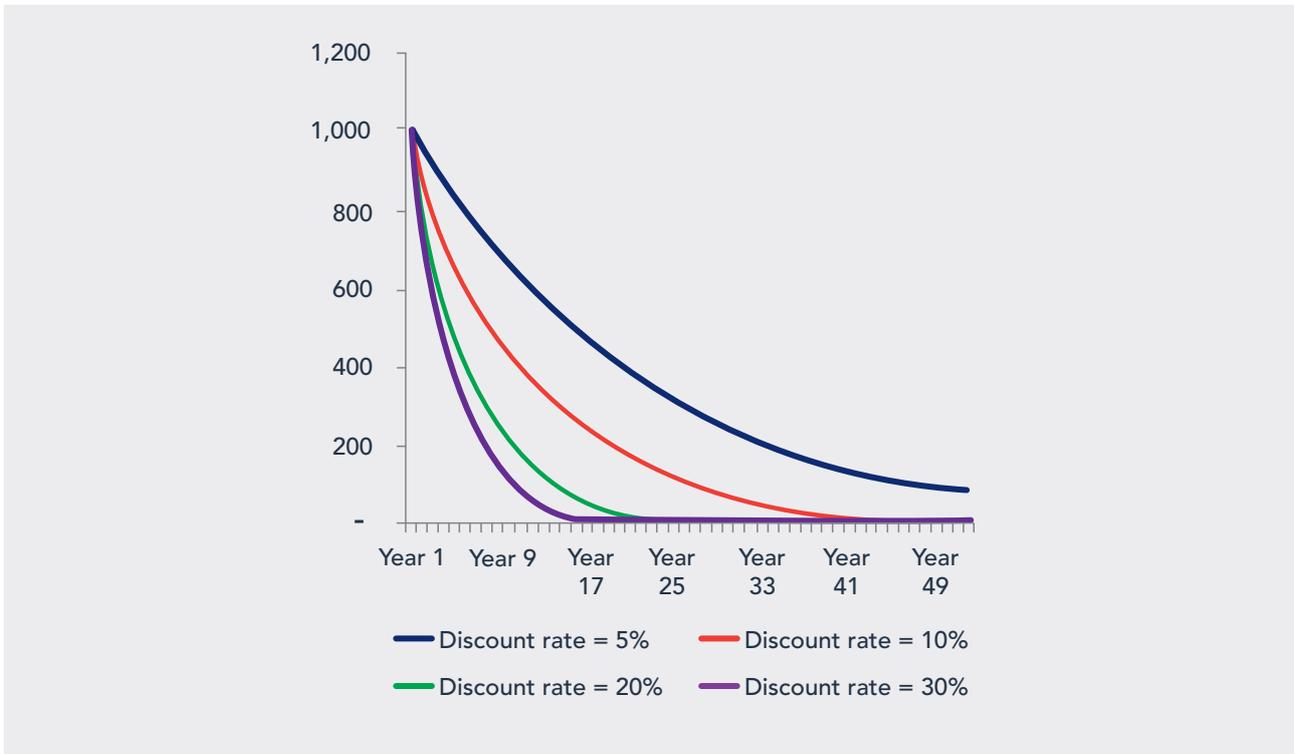
<sup>35</sup> Brealey and Myers.

Figure 3: Intrinsic value of stock



Since the discount rate is compounded, even large net cash flows occurring far in the future may not be as valuable as small net cash flows in the present. Figure 4 illustrates the effect of different compound discount rates on a \$1,000 net cash flow. For example, at the low 5% discount rate, a \$1,000 net cash flow contributes positively to the NPV of an investment for over 200 years. This time horizon shrinks to approximately 40 years at a 20% discount rate.

Figure 4: Present value of \$1,000 with different discount rates



Due to the sensitivity of NPV to discount rate, debates in literature tend to anchor on determining the appropriate discount rate. Proponents of the economic short-termism hypothesis, for example, suggest that investors are prone to using the ‘hyperbolic discounting model’, valuing rewards more than the distant future risks thereby unduly overvaluing risky ventures that generate high cash flows today but might run into problems over longer temporal horizons.<sup>36</sup>

### Probability of outcomes

Despite an extensive literature on choice and application of discount rates, theory and practice tend to overlook the significance of probability of outcomes—the third dimension of our 3D model. Probabilities range strictly between 0.0 and 1.0. An outcome with a probability of 0.0 or 1.0 signifies absolute certainty. In contrast a probability 0.5—the same as a toss of a coin—is a useful approximation of random outcomes.

**Footnotes:**

<sup>36</sup> Lavery, 1996; Lavery, 2004.

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Notwithstanding the sensitivity of temporally distant outcomes to changes in the discount rate, the effect of changes in the probability of outcomes tends to be even stronger. Consider for example the following example: a sure gain (probability of 1.0) of \$1,100 one year from today at a 10% discount rate has a present value of \$1,000 ( $\$1,100_{t=1}/(1.1)^{t=1}$ ). However, if the probability of the sure gain were to fall to 0.7 the present value falls commensurately to \$700. The effect of the probability of outcomes lowering from a sure gain to a 70% change of a gain on the present value is equivalent to the discount rate jumping from 10% to 57%!

Unlike games of chance on which typical economics models are based, real world decisions rarely present themselves with well-defined probabilities of monetary gains or losses.<sup>37</sup> Research in psychology suggests that in inter-temporal choice, graver problems arise when a decision requires investors to think probabilistically<sup>38</sup> (see also Rottenstreich and Kivetz<sup>39</sup> for an extensive review of literatures in management and psychology). Evidence in these studies finds that investors are insensitive to estimating the probabilities of possible outcomes.

### *Determining the Stock Price: Plausibility of Direct Impact of a Divestment Campaign on Firm Equity*

Now we turn to extending our 3D investment model to evaluate the potential impacts of a divestment campaign on a target firm. Determining the market price of the stock of a firm—i.e. the market value—depends on establishing the supply of and demand for the stock in the market. Demand can be thought of as the total amount of money controlled by different kinds of investors in the market. The most obvious way that a divestment campaign could impact a company is simply by lowering the demand for its shares and therefore lowering its share or stock price as shown in Figure 5.

#### **Footnotes:**

<sup>37</sup> Hastie; Rettinger and Hastie.

<sup>38</sup> March and Shapira; McGraw, Shafir, and Todorov; Shapira.

<sup>39</sup> Rottenstreich and Kivetz.

Figure 5: Effect of reduced demand for shares on a firm's stock price



The plausibility of a direct impact of a divestment campaign on the stock price of a target firm rests on the current market cap of a target firm relative to the size of divestment outflows. If divestment outflows are large and the firm's market cap small then the target firm will face a precipitous decline in share price, at least in the short term. Conversely, if market cap is large and the amount of funds divested small then the effect on stock price will be minimal in the short term.

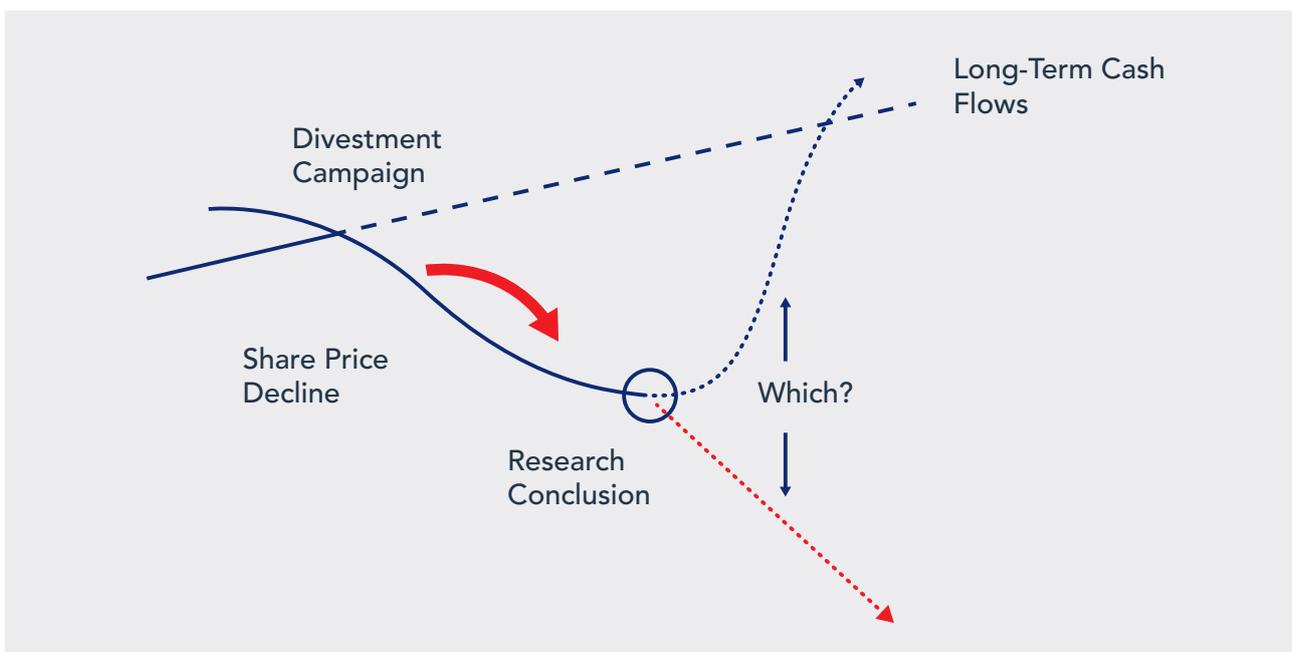
We will shortly return to changes in market norms as an outcome of a process of organisational stigmatisation. For now it is sufficient to arrive at the following:

*Proposition 1: The direct impact on the stock price of a firm targeted by a divestment campaign depends on the size of the divestment outflows and the market capitalisation of the target firm. If its market cap is large, the effect of a divestment campaign's outflows, unless commensurately large, on the stock price of the target firm will be minimal.*

### Divestment Campaigns and Future Cash Flows

Thinking back to the distinction between the market value and intrinsic value of a firm, there is little reason to assume that a short-term decrease in stock price due to a divestment campaign is likely to be permanent. Irrespective of whether motivated by economic or social objectives, a decrease in the short-term market value of a company does not typically affect operational cash flows. Even if a divestment campaign depresses the stock price of a target firm in the short term, neutral investors — those not participating in the divestment campaign—have a chance to research whether or not the long-term cash flows of the target firm will alter. If neutral investors do not have cause to revise the discount rate upwards or the probability of future net cash flows downwards, a short-term fall in the demand for a company’s share does not signal any change in the intrinsic value of a company. In such an instance, the depressed share price will revert up towards its intrinsic value over medium to longer time horizons as illustrated in Figure 6.

Figure 6: Longer-term direct impacts of a divestment campaign on stock price likely to be mute



In formal terms;

*Proposition 2: Even if the divestment outflows are large, the long-term direct impact on the stock price of a firm targeted by a divestment campaign will be minimal if the net present value of the target firm’s cash flows is not meaningfully affected.*

## *Impact of Change in Market Norms*

Recent literature, such as Hong and Kacperczyk<sup>40</sup>, has begun to suggest that divestment outflows, even when relatively meagre in the first wave of divestment, can significantly and permanently depress stock price of a target firm if they trigger a change in market norms. Norms are germane to financial markets on two, somewhat contradictory, levels.

First, large pools of capital tend to be governed by homogenised routines and market conventions. The process of collection and allocation of money takes place within well-defined networks. These routines are established to ‘foster stability in investment decisions’, use of consistent criteria in decision-making and decrease uncertainty surrounding decision outcomes.<sup>41</sup> For example, the top management team of a lending institution may want to ensure that all its lending offices are issuing mortgages to creditworthy homeowners using a standardised set of criteria to avoid excessive risk-taking. Similarly, in order to undertake a successful initial public offering (IPO), a company is obliged to hire a set of advisers such as accountants, lawyers and underwriting investment banks. A company that tries to bypass these intermediaries to file an IPO on its own is often shunned by investors even if the company’s prospectus is clearly drawn up and presents a compelling investment thesis. Conversely, if a company is able to package its investment story convincingly—the right ‘look and feel’<sup>42</sup>—with the aid of the right advisers it can access large pools of capital even when the investment thesis is weak, as in the recent case of Groupon’s IPO or a range of doomed technology IPOs in the late 1990s.<sup>43</sup>

Second, market norms and routines, as ‘preprogrammed sequences of behavior...[can] short-circuit individuals’ autonomous judgments’ and lead organisations and markets—as collectives of individuals—to behave irrationally.<sup>44</sup> For example, norms that made lending to subprime borrowers acceptable became routinised in the mortgage markets in the late 1990s and early 2000s. Even reputedly conservative HSBC felt compelled to follow this ‘market stampede’, even though influential voices within the bank were sceptical whether the underlying economics of the burgeoning subprime market were sound.<sup>45</sup> There is further broad-based evidence that herding in markets does exist.<sup>46</sup> Cases of bank runs or collapse of a firm’s share price due to unfounded market panics are well documented.<sup>47</sup>

In order to conceptualise the double-edged importance of market norms, Clark<sup>48</sup> proposes the analogy that ‘money flows like mercury’—the liquid metal. ‘Mercury tends to (1) run together at speed, (2) form in pools, (3) re-form in pools if disturbed, (4) follows the rivulets and channels of any surface however smooth it may appear to be, (5) is poisonous in small and large doses if poorly managed.’ In other words, money has a tendency to herd in puddles that move in tandem—at time based on rational and other times ‘irrational’ grounds.<sup>49</sup>

### Footnotes:

<sup>40</sup> Hong and Kacperczyk, ‘The Price of Sin: The Effects of Social Norms on Markets.’

<sup>41</sup> Sutcliffe and McNamara, ‘Controlling Decision-Making Practice in Organisations.’

<sup>42</sup> Personal communication, anonymised investment banking executive.

<sup>43</sup> Kam, ‘No Pain, No Gain: Rethinking the Telecoms Crash.’

<sup>44</sup> Durand, ‘Predicting a Firm’s Forecasting Ability: The Roles of Organisational Illusion of Control and Organisational Attention,’ 821.

<sup>45</sup> Personal communication with anonymised HSBC executive.

<sup>46</sup> Thaler, *Advances in Behavioral Finance*.

<sup>47</sup> Offer

<sup>48</sup> Clark, 105.

<sup>49</sup> Schiller, R. J. (2000). *The Irrational Exuberance*. Wiley Online Library

The implication the discussion on market norms carries for a divestment campaign is that even a small divestment campaign event has the potential to snowball since revision of market norms can begin to close off the previous channels through which money may have flown to target firms. From this perspective, a potential trajectory of a divestment campaign might entail small outflows from lead investors in a trickle-like fashion in early phases of a campaign followed by a more drastic deluge once a certain tipping point has been reached.

As a qualifier to Propositions 1 and 2, thus:

*Proposition 3: Even when divestment outflows are small or short term and do not directly affect future cash flows, if they trigger a change in market norms that closes off channels of previously available money, then a downward pressure on the stock price of a targeted firm will be large and permanent.*

### *Impact on Debt and Discount Rate*

We have thus far considered the direct impacts of a divestment campaign on firm value only from the perspective of equity and the stock market. A divestment campaign can, however, restrict the availability of debt and lead investors to revise upwards the discount rate applied to the future cash flows of the target firm. This would have the effect of increasing the Weighted Average Cost of Capital (WACC)—i.e. an increase in the cost of the debt and an increase in the return demanded by equity investors.

Debt easily constitutes the largest source of external financing for large firms. Despite the global financial crisis, large firms raise large amounts of debt with medium and long-term maturities via syndicated bank loans or corporate bond markets. From the perspective of market norms and ‘money flows like mercury’, market for banks loans—but not corporate bonds—is ‘clumpier’ than the more decentralised equity markets. For example, five banks—J.P. Morgan, Bank of America Merrill Lynch, Citi, Wells Fargo, Mizuho—have a 40% market share of the global syndicated lending.<sup>50</sup> Thus, if a divestment campaign were able to influence these large banks then debt financing for fossil fuel companies may be restricted.

In formal terms,

*Proposition 4: Even when equity divestment outflows are small, if they influence large banks, they can close off channels of debt finance to fossil fuel companies.*

#### Footnotes:

<sup>50</sup> Thomson Reuters, *Global Syndicated Loans Review – Full Year 2012*.

Even if a divestment campaign were successful in influencing large banks in withdrawing further debt finance, would it effect fossil fuel companies' survival? Theory in mainstream finance suggests that fossil fuel companies will simply be able to substitute existing banks, if they were to stop lending, with other sources of finance—such as corporate bonds or neutral banks. There are strong mechanisms which support the logic of the mainstream theory: debt like equity is ultimately a claim on the future cash flows of a company. Since a divestment campaign has little hope of directly impacting the future cash flows of fossil fuel companies, other lenders would spot the opportunity—effectively the spread between the bank's own borrowing costs and what it can charge fossil fuel companies given their cash flows. Neutral lenders would thus swiftly replace any lenders withdrawing finance. Theory in geography of finance, however, adds an important refinement to mainstream finance theory.<sup>51</sup> The depth of financial markets and the shape of financing networks differ by country. Whereas financial depth—typically measured as the percentage proportion of private credit to gross domestic product (GDP) of a country<sup>52</sup> is very high in the US or the UK<sup>53</sup>, it is very low in burgeoning fossil fuel markets of Angola, Nigeria and Mexico.

Similarly, while the market for corporate bonds in India is merely 1% of the country's GDP, it is 111.8% of US GDP and 42.4% in Japan.<sup>54</sup> In terms of the shape of financing networks, deeper markets present dense networks with many hubs and spokes linking with each other. Even if a few hubs go dark for fossil fuel companies, the overall network remains active. In contrast in emerging markets a handful of organisations, including multilateral institutions such as the World Bank, International Finance Corporation (IFC), European Investment Bank (EIB), or state-owned banks such as State Bank of India, Brazil's BNDES or Russia's Sberbank acquire pre-eminence in securing financing. If any of these hubs go dark for fossil fuel companies in emerging markets, the overall functioning of the financing network is considerably diminished.

Fossil fuel companies borrowing in countries such as the US, UK, or Japan have little reason to fear a few banks withdrawing finance. Whereas in developing countries, where debt finance is much harder to come by, even one or two banks withdrawing can have substantial direct implications for borrowers. Thus;

*Proposition 5: Withdrawal of debt finance from fossil fuel companies by some banks will be quickly substituted by alternative sources of debt finance. The survival of fossil fuel companies will not be directly threatened. The exception, however, is borrowers in countries with low financial depth; they will experience a restricted pool of debt financing if any banks pre-eminent in the local financial network withdraw.*

Finally, with respect to direct impacts, is the question of cost of debt. It has been argued that firms perceived to be socially less responsible are regarded as riskier and may have higher risk premiums than more socially responsible companies and vice versa.<sup>55</sup> Creditors could thus play a seminal role in the transmission of social norms to the valuation of debt instruments by increasing the cost of debt. Figure 7 illustrates that even if creditors were to increase the discount rate, the overall effect on firm valuation is relatively mute. As previously shown in Figure 4, page 27, the discount rate has to increase very substantially to have a meaningful impact on the present value of an investment with rich net cash flows as is typical in oil and gas companies. However increased discount rates, by also increasing the investment hurdle rate, may affect marginal projects in more difficult technical or political environments. For example, fossil fuel companies may forgo investments in complex deep offshore projects or coalmines in challenging geographies.

#### Footnotes:

<sup>51</sup> Clark and Wójcik, *The Geography of Finance: Corporate Governance in the Global Marketplace*.

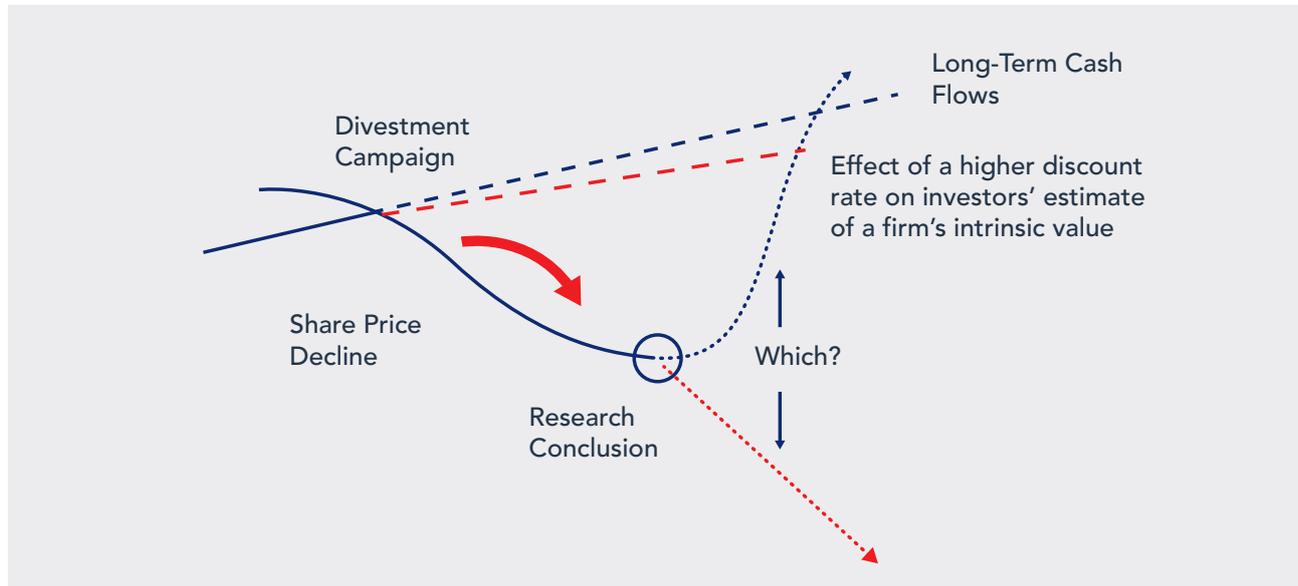
<sup>52</sup> World Bank, 'Key Terms Explained.'

<sup>53</sup> Private credit to GDP is 194% and 179% respectively for the US and the UK—i.e. the nominal value of private credit is roughly twice the size of the economy. See <http://data.worldbank.org/indicator/FS.AST.PRVT.GD.ZS>

<sup>54</sup> Ansar. *Project Finance in Emerging Markets*.

<sup>55</sup> See Menz for a discussion.

Figure 7: Mute effect of a change in the discount rate



*Proposition 6: An increase in the discount rate will have a minor effect in lowering the intrinsic value of fossil fuel companies. Due to the higher discount rate, fossil fuel companies will likely forgo the undertaking of marginal projects in difficult technical or political geographies.*

### Indirect Impacts of Divestment Campaigns and Change in Probabilities of Future Outcomes

As discussed earlier, inter-temporal investment not only requires forming judgements about the discount rate but also the level of certainty associated with expected outcomes. An event or new information that causes investors to reassess the probabilities associated with a stream of future cash flows leads to a revision of investors' estimates of the intrinsic value of a firm. For example, OGX, Brazil's largest private sector petroleum company, owns over 30 exploratory blocks in Brazil and Colombia with an estimated ten billion barrels of petroleum reserves. In recent months, however, OGX is facing a threat to its survival after its few producing wells were deemed flops and further production from them unviable. Either operationally or in terms of assets or management there has not been any change in the company. However, investors' expectations of the probability of future cash flows has plummeted causing a downward revision of the intrinsic value of OGX. In turn, this has also triggered a sell-off of OGX shares.

The probabilities investors assign to a stream of future cash flows hinge on their subjective perception of a variety of technical, operational, political-economic, legal, regulatory and psychological factors (Harrison and Kreps<sup>56</sup>). A change, material or perceptual, in any number of these factors triggers a reassessment of the prospects of a firm. Experimental evidence suggests that people do not typically follow the principles of probability theory in judging the likelihood of uncertain events.<sup>57</sup> Any process of reassessment of a firm's prospects is likely to be heterogeneous and uneven across time.

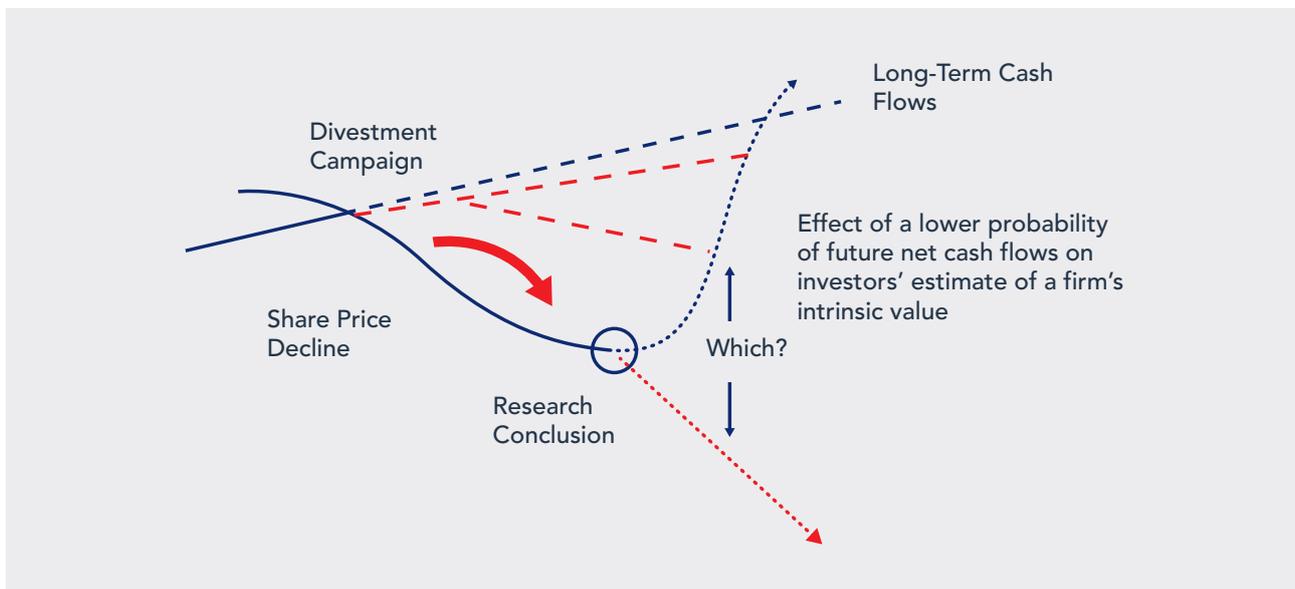
**Footnotes:**

<sup>56</sup> Harrison and Kreps.

<sup>57</sup> Kahneman and Tversky.

The heterogeneous process by which investors form judgements about the probabilities of future cash flows, and hence the intrinsic value of a firm, is salient to a divestment campaign. A divestment campaign, by even a very small number of investors, may create perceptual uncertainty about factors such as availability of suppliers, human resources, legislation, financing or licences that impact the certainty by which future cash flows will accrue. This may, in turn, lead a far larger number of investors to revise downwards their subjective probability of future net cash flows as shown in Figure 8.

Figure 8: Effect of lower probability of future net cash flows



In formal terms;

*Proposition 7: Even if the initial divestment outflows are small, the long-term impact on the enterprise value of a target firm will be large if the divestment campaign causes neutral equity and/or debt investors to lower the subjective probability of a target firm's net cash flows.*

While it is plausible that a divestment campaign will increase uncertainty about the future cash flows on a target firm, the precise mechanism by which this may come about has not been explained before. The most frequently cited mechanisms rely on some kind of interest group pressure, which ‘forces the hand’<sup>58</sup> of lawmakers to make legislation more restrictive.<sup>59</sup> Why lawmakers—or other market participants such as banks, suppliers or potential employees—would cave in to the pressure of the divestment campaigners is rarely clarified. To fill this gap we next turn to literature on organisational stigma. The stigmatisation process presents valuable clues as to why socially motivated divestment campaigns, particularly those that prompt lawmakers to enact restrictive legislation, may succeed in creating indirect impacts across the marketplace that affect the certainty of future cash flows of target firms.

Footnotes:

<sup>58</sup> McKibben, ‘Global Warming’s Terrifying New Math.’

<sup>59</sup> Kaempfer, et al, 459.

## Organisation Stigma – Plausibility of Indirect Impacts of a Divestment Campaign

In recent years research has begun to study organisational stigma both theoretically<sup>60</sup> and empirically.<sup>61</sup> These efforts have sought to address questions such as: what is an organisational stigma? What types of events or issues lead to it? How does the process of stigmatisation evolve over time? What roles do broader market participants and audience play in this process? What are the outcomes for the stigmatised organisations?<sup>62</sup>

An organisational stigma is a label that evokes a collective perception from a social audience that a target organisation ‘possesses a fundamental, deep-seated flaw that deindividuates and discredits the organisation’.<sup>63</sup> An organisational stigma is thus based on a negative social evaluation that expresses disapproval, even ‘disgust’ (e.g. Goffman<sup>64</sup>), at an organisation’s activities, values or behaviour. Devers et al<sup>65</sup> suggest that, despite their interrelatedness, organisational stigma differs from other organisational-level constructs of reputation, status, celebrity and legitimacy on a variety of dimensions, which are summarised in Table 2.

*Table 2: Comparison of different social evaluation constructs<sup>66</sup>*

	REPUTATION	STATUS	CELEBRITY	LEGITIMACY	STIGMA
Definition	Signal of quality and behaviour	Agreed-upon social rank	Combination of prominence and under-conformance or over-conformance to norms	Perceptions of appropriateness	A label that evokes a collective perception that the organisation is deeply flawed and discredited
Individuating?	Individuating	Individuating	Individuating	Non-individuating	De-individuating
Foundation literature	Signalling theory	Network theory	Sociology of media	Neo-institutional theory	Labelling theory
Social basis	Performance and quality signals	Pattern of affiliations and centrality	Media stories	Normative fit	Labelling and social control
Requires affective response	No	No	Yes Positive affect	No	Yes Negative affect
Outcomes	Performance, attractiveness as a partner	Preferential interpretation of statements and actions	Access to resources and opportunities	Access to resources	Dis-identification and social and economic sanctions

### Footnotes:

<sup>60</sup> e.g. Devers et al. ‘A General Theory of Organisational Stigma’; Hudson, ‘Against All Odds: A Consideration of Core-stigmatized Organisations’; Devers, Dewett, and Belsito, ‘Falling Out of Favor: Illegitimacy, Social Control, and the Process of Organisational Stigmatization.’

<sup>61</sup> e.g. Hudson and Okhuysen, ‘Not with a Ten-Foot Pole: Core Stigma, Stigma Transfer, and Improbable Persistence of Men’s Bathhouses’; Vergne, ‘Stigmatized Categories and Public Disapproval of Organisations: A Mixed-Methods Study of the Global Arms Industry, 1996–2007’; Armantier et al. ‘Stigma in Financial Markets: Evidence from Liquidity Auctions and Discount Window Borrowing During the Crisis.’

<sup>62</sup> Devers, Dewett, and Belsito, ‘Falling Out of Favor: Illegitimacy, Social Control, and the Process of Organisational Stigmatization.’

<sup>63</sup> Devers et al. ‘A General Theory of Organisational Stigma,’ 157.

<sup>64</sup> Goffman.

<sup>65</sup> Devers et al. ‘A General Theory of Organisational Stigma,’ 155.

<sup>66</sup> Ibid.

The events or issues that lead to organisational stigma generally trace their origin to internal misconduct within an organisation based on the specific actions and choices of organisational members. For example, in recent years Starbucks and Google have actively avoided paying tax in the United Kingdom which has led to public disapproval. Such disapproval overrides previous expectations about an organisation by publicly recasting its operations as a violation of broader social norms.<sup>67</sup> Thus, despite positive evaluation of Google's search services, customers and politicians in the UK now expect it to be more likely to avoid tax than its peers.<sup>68</sup> Even local instances of stigma can be globally harmful for companies. For example, Google's brand equity is in part built on its informal motto of 'don't be evil'. News of Google's conduct in the UK can dilute its brand equity in other geographies as customers elsewhere begin to reassess whether Google's motto squares with reality.<sup>69</sup>

Conduct stigmas can also be rooted in external changes in social norms. For example, while from an operational perspective McDonald's is still one of the world's most admired companies, in light of the recent anti-obesity campaigns its fast-food business model has been publicly 'vilified'.<sup>70</sup> Similarly, increased public concerns about climate change can stigmatise fossil-fuel companies even if their internal corporate conduct continues to meet the highest business ethics.

Devers, Dewett and Belsito<sup>71</sup> propose that the process of stigmatisation or 'falling out of favor' follows six stages. These six stages are summarised in Figure 9 adapted from Devers et al.<sup>72</sup> The stigmatisation process model can best be characterised as an action-reaction model in which dynamic interactions between a social audience and a target organisation either lead to stigmatisation or a discontinuation of the stigmatisation process or in some cases even 'stigma dilution'.<sup>73</sup>

The first stage starts with either an internal or external legitimacy threatening issue encountered jointly by a target organisation or even an industry and its audiences. This issue arises when a group—whom we call the campaigners—within the external audiences attributes responsibility to the organisation/industry for its involvement in an event or controversy that violates social norms. In turn, this violation calls the legitimacy of the organisation/industry into question across all external audiences—those sympathetic to the cause of the campaigners, those antagonistic to it and those who are neutral. The stakeholders of the target organisation cut across all audiences. The presence of this issue leads to divergent accounts expressed by the campaigners, sympathisers, antagonists, neutral audiences and the organisation/industry in its defence. A process of sense-making, the unfolding of which follows ambiguous trajectories, may result in the target organisation/industry, or merely one organisational scapegoat within an industry, becoming stigmatised. If the campaigners are successful in projecting deviant, undesirable and irrational characteristics onto the organisation/industry, all audiences—even the antagonists—come to project a single illegitimizing image that assumes master status over all other labels and stigmatises the target's reputation.<sup>74</sup>

#### Footnotes:

<sup>67</sup> Deephouse and Suchman.

<sup>68</sup> House of Commons, *Tax avoidance-Google: Ninth Report of Session 2013-14, Report, Together with Formal Minutes, Oral and Written Evidence*.

<sup>69</sup> Petrie, 'Is Google Evil?'

<sup>70</sup> Vergne, 'Stigmatized Categories and Public Disapproval of Organisations: A Mixed-Methods Study of the Global Arms Industry, 1996–2007.'

<sup>71</sup> Devers, Dewett, and Belsito, 'Falling Out of Favor: Illegitimacy, Social Control, and the Process of Organisational Stigmatization.'

<sup>72</sup> Devers et al., 3–4.

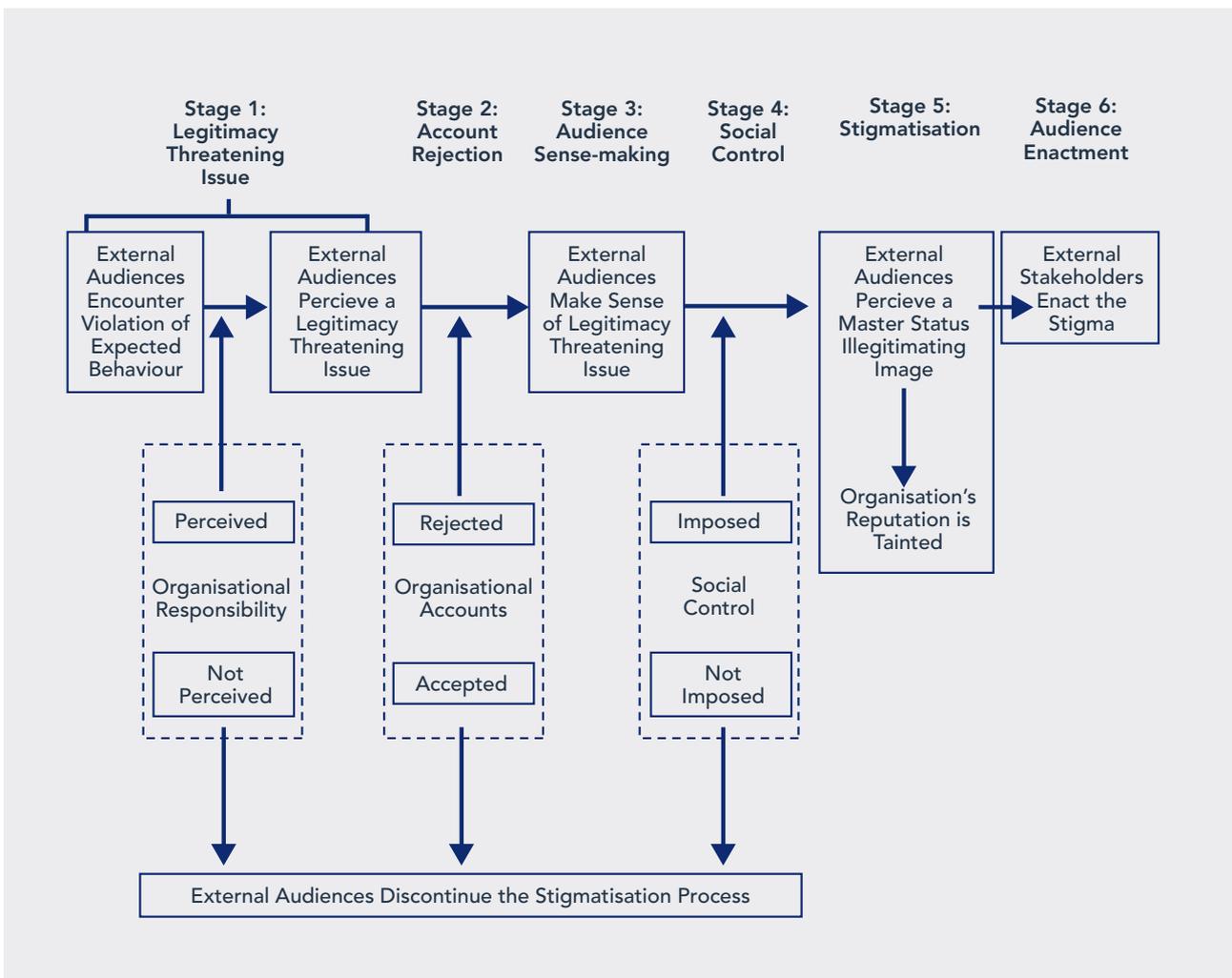
<sup>73</sup> Vergne, 'Stigmatized Categories and Public Disapproval of Organisations: A Mixed-Methods Study of the Global Arms Industry, 1996–2007.'

<sup>74</sup> Devers et al (2009).

In the final stage, the repulsion resulting from the master status illegitimizing image leads external audiences, and target stakeholders in particular, to change previously enacted relationships with the stigmatised target with adverse outcomes for it.<sup>75</sup> Empirical evidence at the individual level demonstrates that, due to its collectively-held nature, a stigma is harmful and in some cases leads to devastating adverse social and economic outcomes that can threaten survival.<sup>76</sup> For example, Tiger Woods' stigmatisation triggered by media revelations of his extra-marital affairs led several sponsors to revoke lucrative deals. As with individuals, a stigma can produce negative consequences for a target organisation or industry.

*Proposition 8: If a divestment campaign is successful in stigmatising a target organisation or industry, the target will experience negative social and economic outcomes.*

Figure 9: The process of organisational stigmatisation<sup>77</sup>



Footnotes:

<sup>75</sup> Sutton and Callahan (1987).

<sup>76</sup> Link and Phelan (2001)

<sup>77</sup> Devers, Dewett, and Belsito, 'Falling Out of Favor: Illegitimacy, Social Control, and the Process of Organisational Stigmatization,' 3-4.

## Methods

While the future is unknowable, uncertain outcomes of movements such as the fossil fuel divestment campaign can still be empirically investigated using the 'outside view' methods pioneered by the Nobel Prize-winning research of psychologists Daniel Kahneman and Amos Tversky.

### *The 'Outside View'*

To take an outside view on the outcome of an action (or event) is to compare it with the outcomes of comparable, already concluded, actions (or events). The outside view involves three steps:

- i) Identify a reference class.
- ii) Establish an empirical distribution for the selected reference class of the parameter that is being forecast.
- iii) Compare the specific case with the reference class distribution.

Following such a comparative method has two advantages: it is evidence-based and requires no restrictive assumptions; it allows prediction of the uncertain outcomes of a planned action by comparing it with the distributional information of the relevant reference class.

The methods we use in assessing the potential trajectories of the fossil-fuel divestment campaign are motivated by the 'outside view'. To this end we surveyed all available instances, to our knowledge, of previous divestment campaigns listed in Table 3.

*Table 3: Previous divestment campaigns*

	TIME SPAN OF THE DIVESTMENT CAMPAIGN	NUMBER OF INVESTABLE STOCKS IN THE INDUSTRY <sup>78</sup>	CURRENT TOTAL MARKET CAP OF TARGET FIRMS <sup>79</sup>	CUMULATIVE CAMPAIGN LIFETIME OUTFLOWS
Alcohol	1970s-present <sup>80</sup>	109 <sup>81</sup>	\$190 billion (top ten)	NA
Arms / munitions / land mines	1970s-present <sup>82</sup>	18 <sup>83</sup>	\$210 billion (top ten)	NA
Biotech (tissue engineering, GM, animal testing)	1980s-present <sup>84</sup>	15	\$60 billion-plus (complete data NA)	NA
Darfur, Sudan (oil exploration divestment)	Early 2000s-2011 <sup>85</sup>	4 <sup>86</sup>	\$300 billion	\$3.5 billion divested or frozen
Gambling/gaming	1970s-present <sup>87</sup>	94 <sup>88</sup>	\$125 billion <sup>89</sup>	NA
Nuclear power electric utilities	1980s-present	<10	\$120 billion-plus (top ten)	NA
Pornography/adult services	1970s-present <sup>90</sup>	13	NA	NA
Tobacco	1980s-present <sup>91</sup>	18	\$500 billion (top ten)	\$5.0 billion
South African apartheid	1978-1990 <sup>92</sup>	Country-level	NA	Net capital outflow from South Africa of 2.3 billion rand between 1985 and 1989 <sup>93</sup>
Fossil fuel (oil & gas)	2010-	200	\$4,000 billion	Five colleges and universities divested to date and 32 committed
Fossil fuel (coal extraction, diversified miners and trading houses)	Mid 2000s-	Approx 30 <sup>94</sup>	< \$60 billion (top ten) <sup>95</sup>	NA

**Footnotes:**

<sup>78</sup> Fabozzi et al. (2008: 87) define a stock as non-investable if it has as an average price less than a US\$ 5 equivalent during the first month after its initial public offering or if its average daily trading volume for the previous month was at least 30,000 shares or US\$ 150,000 in trading value.

<sup>79</sup> Approximate estimates as of 31 August, 2013 from Google Finance unless otherwise stated.

<sup>80</sup> Fabozzi et al. 2008

<sup>81</sup> Ibid. (pp. 87-88)

<sup>82</sup> Ibid.

<sup>83</sup> Ibid.

<sup>84</sup> Ibid.

<sup>85</sup> Parwada, 2012

<sup>86</sup> Ibid.

<sup>87</sup> Ibid.

<sup>88</sup> Fabozzi et al. 2008

<sup>89</sup> <http://finance.yahoo.com/news/analyzing-global-casinos-gambling-industry-201700889.html>

<sup>90</sup> Fabozzi et al. 2008

<sup>91</sup> Wander and Malone, 'Selling Off or Selling Out? Medical Schools and Ethical Leadership in Tobacco Stock Divestment.'

<sup>92</sup> Kaempfer et al. (1987)

<sup>93</sup> Knight.

<sup>94</sup> <http://etfdb.com/etf/KOL/holdings/>

<sup>95</sup> Authors' estimate.

Learning from the past has the advantage of drawing out the parallels and plausible trajectories the fossil-fuel campaign might take based on the evolution and outcomes observed in comparable previous campaigns. By observing the mechanisms and direct and indirect impacts of previous campaigns on target firms, we can form evidence-based judgements about the more likely paths and outcomes of the fossil fuel divestment campaign.

We enrich our outside view analysis by complementing it with widely-known research methods<sup>96</sup>: literature survey of peer-reviewed and published empirical studies on previous divestment outflows (Table 4, page 43); case study analysis of outcomes of previous divestment campaigns (Table 5 and the next two sections); survey techniques; and interviews with a wide variety of industry experts, asset-management professionals and fossil fuel industry executives.

There are two important limitations of our approach which should be kept in mind in interpreting our results. First, the sample size of previous divestment campaigns (n=9) is small and the data available for some of the campaigns limited, as seen in Table 3. The outside view is typically applied to larger sample sizes (Flyvbjerg<sup>97</sup>). The fossil fuel divestment campaign may have non-linear trajectories, not previously observed in the relatively small sample, that we cannot plausibly predict.

Second, there are several differences among divestment campaigns that can limit comparability. For example, a majority of the outflows related to the South African apartheid campaign are best characterised as *disinvestment* as opposed to divestment since they were linked to private corporate disinvestment of physical assets held in South African.<sup>98</sup> The fossil fuel campaign, in contrast, is unlikely to trigger voluntary corporate disinvestment. Further, whereas the market capitalisation of coal companies is, with one or two exceptions, on the lower end of the spectrum (Table 3), the number and market capitalisation of oil and gas companies affected by the divestment campaign are considerably higher than seen in all previous comparable campaigns.

While important, these limitations are not grave. First, despite the small size and limited data availability on some of the campaigns (e.g. alcohol and biotech/animal testing divestment), others such as tobacco are more widely documented. Moreover, several of the divestment categories of stock are collectively called 'sin stocks' (Table 3). Knowledge about outflows in one sin industry such as tobacco allows for more general inference of patterns about other sin stocks since investors who divest alcohol or defence stocks generally also divest tobacco and gaming. Second, the fact that previous divestment campaigns cover a wide range of industries and market capitalisation and have followed different evolutionary paths allows the observation of a broader distribution of case studies than is possible with the given small sample (n=9). To this end, we do not exclude any divestment campaign from the population in an attempt to incorporate all available information, even where limited, into our analysis.

#### Footnotes:

<sup>96</sup> Pryke, Rose et al.

<sup>97</sup> Flyvbjerg, 2006; Flyvbjerg, 2008.

<sup>98</sup> Kaempfer, Lehman, and Lowenberg, 'Divestment, Investment Sanctions, and Disinvestment.'

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## *Data Sources*

Data were collated and cross-checked from a number of sources.

With regards to previous divestment campaigns to enable the outside view, we conducted a review of previous peer-reviewed empirical studies with the results summarised in Table 4.

- We emphasise that valid, reliable and complete data on actual outflows for several of the divestment campaigns—such as alcohol, gaming, or even tobacco—are not readily available even among top journal publications. We interpret this paucity of data as an indication of their relatively meagre outflows.
- With regards to sizing of the fund market, we focused on the US, UK, Canada, Australia and the European Union—roughly in that order—because they represent the likely target areas of the fossil fuel divestment campaign. Data was obtained from the financial statements of university endowments, public pension funds and sovereign wealth management funds. Where available, reports from membership organisations such as the National Association of College and University Business Officers were also consulted. If discrepancies were found between two data sources then the authors were contacted for more information. For example, the UK Higher Education Statistics Agency (HESA) stated that its data on university endowments included college endowments, which upon further investigation turned out not to be the case. Therefore data on Oxford and Cambridge colleges were found separately and added to the HESA totals. Data on Oxford colleges were available from the central university administration. No such collated source could be found for Cambridge colleges so annual reports from individual college websites were used. Endowment information could only be found for 75% of colleges, resulting in an underestimation of Cambridge endowments.
- Data on market capitalisation of fossil fuel companies were collected from Capital IQ or Google Finance for the latest date available. Reputable media outlets such as Bloomberg, the Economist, and Thomson Reuters were also used.

All data sources are recorded in footnotes to relevant figures and tables. All reasonable data queries can be addressed to the authors.

## *Review of Previous Empirical Studies*

Table 4 summarises our review of previous empirical studies related to divestment campaigns. The review was conducted using a snowball sampling approach, expanding out from the keywords divestment, disinvestment and divestiture. We broadened the scope to include selected studies on sin stocks, socially responsible investing, corporate social responsibility, and organisational and industry level stigmatisation.

*Table 4: Summary of previous empirical studies*

AUTHOR(S)	CITATIONS	FOCUS OF STUDY	METHODOLOGY	SAMPLE	DIRECT EFFECT	INDIRECT EFFECT	MAIN FINDINGS - EXCERPTS FROM ABSTRACTS AND DISCUSSION SECTIONS
Armantier, Ghysels, Sarkar and Shrader (2010)	25	Stigma in banks borrowing from the US Fed Discount Window	Regression analysis	The sample consists of the 178 banks that participated in at least one of the 21 fully subscribed Term Auction Facility auctions for 28-day funds conducted between 17 December, 2007 and 22 September, 2008.	Not relevant (nr)	Yes	The authors 'provide empirical evidence for the existence... of stigma associated with banks borrowing from the Federal Reserve's discount window facility', specifically finding that 'during the... financial crisis, banks were willing to pay an average premium of at least 37 basis points... to borrow from the Term Auction Facility rather than from the discount window.' The authors also 'find that discount window stigma is economically relevant since it increased banks' borrowing costs during the crisis.'
Arnold and Hammond (1994)	96	South African apartheid corporate disinvestment and institutional investor divestment	Case method	1	nr	Yes	The authors find that 'While the Sullivan Principles no longer garner credibility, they have had a lasting influence' and 'Several codes have been developed following the Sullivan model'. They argue that 'social accounting and monitoring systems are not neutral technical tools' and that accounting can 'serve an ideological function by legitimating the actions of capital'.
Chen, Noronha and Singal (2004)	262	Addition or deletion from S&P (relevant to market norms)	Regression analysis	The final sample, free of any survivorship bias but with adequate return and volume data, consists of 279 additions and 145 deletions for October 1962 to August 1976, 263 additions and 28 deletions for September 1976 to September 1989 and 218 additions and 62 deletions for October 1989 to December 2000, making a total of 760 additions and 235 deletions.	No	nr	The authors find that 'There is a permanent increase in the price of added firms [to the S&P500 index] but no permanent decline for deleted firms.' These results 'support the thesis that changes in investor awareness contribute to the asymmetric price effects of S&P 500 index additions and deletions.'
Derwall, Koedijk and Ter Horst (2011)	45	Social Responsibility Investing (SRI)	Regression analysis	We follow earlier studies on the formation of the portfolios, using social responsibility information on publicly listed US companies from the annually updated KLD STATS database. The definition of shunned stocks is stocks of companies that KLD's lists mention as controversial businesses. These businesses mainly revolve around tobacco, alcohol, gaming, nuclear operations and firearms.	No	Some	The socially responsible investment movement can be divided into two segments: a values driven segment that applies negative screens and a profit-driven segment that applies positive screens. The authors find that 'although the profit-driven segment earns abnormal returns in the short run, these profit-generating opportunities do not persist in the long run for SRI stocks.'

AUTHOR(S)	CITATIONS	FOCUS OF STUDY	METHODOLOGY	SAMPLE	DIRECT EFFECT	INDIRECT EFFECT	MAIN FINDINGS - EXCERPTS FROM ABSTRACTS AND DISCUSSION SECTIONS
Doh, Howton, Howton and Siegel (2010)	51	Corporate Social Responsibility (CSR)	Event study, analysis of differences, and regression analysis	Used Lexis Nexis to identify all announcements of changes in the Calvert social index and the reasons for these changes over a six-year period: 1 January, 2000 to 31 December, 2005. Found announcements of 56 additions and 69 deletions over the sample period.	nr	Yes	The authors explain that 'many stakeholders rely on institutional assessments of a firm's social practices to inform their own judgements about that company's CSR reputation' and find these intermediaries 'influence market assessments of a firm's social responsibility'. This highlights 'the importance of the legitimacy-conferring function of expert bodies in understanding the relationship between social and financial performance.'
Durand, Koh and Limkriangkrai (2013)	2	Saints versus Sinners (tobacco, alcohol and gaming) stocks	Regression analysis	58,294 observations. Saints are the constituents of the MSCI KLD400 Social Index, which includes 400 US companies with high environmental, social and governance ratings relative to their sector peers. Stocks with SIC codes that fall under Fama and French (1997) industry classification group 4 (beer, alcohol) and group 5 (smoke, tobacco) and gaming stocks that bear NAICS codes: 7132, 71312, 713210, 71329, 731290, 72112 and 721120 are classified as Sinners.	Yes	Yes	Social norms constrain investors from investing in 'sin stocks', affecting the returns and corporate financial policies of such firms (Hong and Kacperczyk, 2009). This paper finds that 'Saints' are influenced by social norms. In almost all instances, where an effect on 'Sinners' is positive (negative), we find that the effect for 'Saints' is negative (positive). Hong and Kacperczyk provide evidence that social norms prevent 'evil' outcomes. This paper finds that social norms exert positive pressure on both investors and firms in the US equity market.
Fabozzi, Ma, and Oliphant (2008)	38	Adult Services, alcohol, weapons, gaming, biotech, tobacco	Statistical analysis—authors do not fit regression models to the data or control for confounding variables	267 investable sin stocks (out of 308 considered) across 21 countries for the period January 1970 to June 2007	No	Yes, cost to investors in divesting	The 'authors find that a sin portfolio produced an annual return of 19% over the study period, unambiguously outperforming common benchmarks in terms of both magnitude and frequency'.
Ghoul et al. (2011)	88	Tobacco and nuclear power	Regression analysis	Sample of 12,915 firm-year observations 1992-2007	Yes	Yes	The authors find that 'firms with better CSR scores exhibit cheaper equity financing. In particular, [their] findings suggest that investment in improving responsible employee relations, environmental policies, and product strategies contribute substantially to reducing firms' cost of equity. [Their] results also show that participation in two 'sin' industries, namely, tobacco and nuclear power, increases firms' cost of equity.'

AUTHOR(S)	CITATIONS	FOCUS OF STUDY	METHODOLOGY	SAMPLE	DIRECT EFFECT	INDIRECT EFFECT	MAIN FINDINGS - EXCERPTS FROM ABSTRACTS AND DISCUSSION SECTIONS
Goss and Roberts (2011)	62	Cost of debt for CSR	Regression analysis	3,996 loans to US firms	Yes, firms with SRI pay *more* for debt finance	nr	The authors find that 'firms with social responsibility concerns pay between 7 and 18 basis points more than firms that are more responsible. ... Low-quality borrowers that engage in discretionary CSR spending face higher loan spreads and shorter maturities, but lenders are indifferent to CSR investments by high-quality borrowers.'
Hong and Kacperczyk (2009)	262	Sin stocks comprising tobacco, alcohol, and gaming	Regression analysis	Panel of 193 stocks from 1926-2006	Yes	nr	The authors find that 'sin stocks are less held by norm-constrained institutions such as pension plans as compared to mutual or hedge funds that are natural arbitrageurs, and they receive less coverage from analysts than do stocks of otherwise comparable characteristics.' They also find that sin stocks 'have higher expected returns than otherwise comparable stocks, consistent with them being neglected by norm-constrained investors and facing greater litigation risk heightened by social norms.'
Hudson and Okhuysen (2009)	16	How organisations that suffer core stigma — disapproval for their core attributes — survive	Observational, archival, and interview data across different institutional environments	25 site visits; archival data; interviews; regulators	nr	Yes but companies effectively shield themselves	The authors 'examine how organisations that suffer core stigma-disapproval for their core attributes survive' by exploring how 'men's bathhouses avoid negative attention and minimise the transfer of stigma to their network partners, including customers, suppliers and regulators, through careful management of their business activities.' The paper finds that 'men's bathhouses use a variety of strategies to shield their partners depending, in part, on the level of hostility that they face in their environment.'
Kaempfer, Lehman and Lowenberg (1987)	27	South African apartheid disinvestment and divestment	Literature survey; secondary data analysis	nr	No	Yes 'unpredictable and perverse'	'Pressure for divestment and mandatory disinvestment sanctions directed against South Africa are an instance of domestic interest groups in one country seeking policy change in another. The link from shareholder divestment to disinvestment by firms is tenuous, however ... and legislated sanctions are likely to have unpredictable and sometimes perverse effects on the extent of apartheid practices.'

AUTHOR(S)	CITATIONS	FOCUS OF STUDY	METHODOLOGY	SAMPLE	DIRECT EFFECT	INDIRECT EFFECT	MAIN FINDINGS - EXCERPTS FROM ABSTRACTS AND DISCUSSION SECTIONS
Kobrin (1980)	190	Forced divestment	Data analysis; author did not fit regression models or attempt to control for confounding variables	Data on 511 acts of forced divestment involving over 1,500 firms in 76 less developed countries 1960-76 are analysed	Yes, but selective and function of industry and firm specific characteristics	Same	In a study of '511 acts of forced divestment involving over 1,500 firms' the authors find that 'divestment is selective' with the probability of divestment a 'function of three interrelated characteristics of foreign investment: industrial sector, ownership structure and level, and maturity of technology.'
Lansing and Kuruvilla (1988)	13	South African apartheid corporate disinvestment and institutional investor divestment	Qualitative	1	nr	Yes	The authors argue that 'the Sullivan Principles, although deemed to be ineffective in dismantling apartheid, did have some positive impact on the economic and social status of Blacks. Total withdrawal, on the other hand, has had a disastrous impact on the Blacks, in terms of reductions in Black employment, and social welfare programs in the areas of education, welfare, health and training.'
Menz (2010)	33	Cost of debt of CSR companies	Panel econometric methods/ regression analysis	Panel data consisting of 498 bonds with observed values over 38 months. After the elimination of outliers and the deduction of missing values, a total of 16,957 observations remained for the analysis.	Yes, risk of firms with CSR, ceteris paribus, *higher*	nr	The authors 'investigated the relationship between the valuation of Euro corporate bonds and the standards of CSR of mainly European companies' and found that 'CSR has apparently not yet been incorporated into the pricing of corporate bonds.'
Meznar, Nigh and Kwok (1994)	96	South Africa corporate disinvestment	Event study	39 out of 207 US corporations that ceased operating (either incidentally or due to disinvestment) in South Africa during from the early 1970s to January 1991	No but timing matters	nr	The authors find 'that a negative association existed between South African withdrawal announcements and the value of a firm's stock.' and that 'the stock of firms announcing withdrawal from South Africa early in the issue's life cycle suffered the greatest losses in value.'
Meznar, Nigh and Kwok (1998)	34	South Africa corporate disinvestment/ event studies	Event study re-deriving results from Meznar et al (1994)	Meznar et al (1994)	No but timing matters	nr	The authors found 'that the timing of withdrawal announcements is critical to understanding their impact'.
Michelson et al (2004)	94	Ethical investing	Literature survey	nr	nr	nr	'This paper highlights the key themes in the field and identifies some of the major theoretical and practical challenges facing both scholars and practitioners.' The author argues that 'there are benefits associated with examining ethical investment as a process.'

AUTHOR(S)	CITATIONS	FOCUS OF STUDY	METHODOLOGY	SAMPLE	DIRECT EFFECT	INDIRECT EFFECT	MAIN FINDINGS - EXCERPTS FROM ABSTRACTS AND DISCUSSION SECTIONS
McWilliams and Siegel (1997)	924	Review of event studies in CSR literature	Replication of Meznar, Nigh, and Kwok (1994) and Wright, Ferris, Hiller, and Kroll (1995) event studies	Same as studies replicated	Evidence does not support any association. Empirical results typically not robust	nr	The authors 'examined the use of event studies in management research and found that there was inadequate attention paid to theoretical and research design issues. This lack of attention may lead to false inferences regarding the significance of the events and the validity of the theories being tested....To guide authors and reviewers, [they] outline procedures for appropriate use of the event study method.'
Parwada (2012)	0	Sudan, Darfur oil exploration and production divestment	Regression analysis	4	Yes ownership structure changes but US investors (such as hedge funds) increase ownership in the aftermath of institutional investor divestment	nr	The author finds 'some evidence of a positive relationship between the intensity of the [Sudan divestment] campaign and shifts in the ownership breadth of the stocks. However, selling by institutional investors is far from universal. Overall, there is an increase (decrease) in shareholdings of US (non-US) investors.'
Statman (2000)	474	Socially responsible mutual funds	Data analysis	31 Distinct socially responsible mutual funds	Perhaps yes, but results not statistically significant	nr	The author attempts to 'separate facts from beliefs' in reference to socially responsible investment and finds that 'the Domini Social Index, an index of socially responsible stocks, did better than the S&P 500 Index and that socially responsible mutual funds did better than conventional mutual funds over the 1990-98 period but the differences between their risk-adjusted returns are not statistically significant.'
Teoh, Welch and Wazzan (1999)	196	South Africa corporate divestment and bank loans	Event-study	South African operations of 46 American firms. Data are also reported on loans by American banks in 1986, 1987 and 1989	No	Yes weak evidence	This paper finds that 'the announcement of legislative/ shareholder pressure on voluntary divestment from South Africa had little discernible effect either on the valuation of banks and corporations with South African operations or on the South African financial markets. There is weak evidence that institutional shareholdings increased when corporations divested.'
Vergne (2012)	0	Arms industry	Qualitative (field research interviews via snowball sampling) and quantitative methods (regression analysis)	Data about products, customers, contracts, performance and corporate activity from 1996 to 2007 for the 210 largest global weapon systems providers (experts estimate that more than 90 percent of all final weapon systems producers are included). 40	nr	No	The author finds that 'Association with a stigmatised category does not automatically result in disapproval, because straddling multiple categories dilutes stakeholder attention to the stigma' and that 'category straddling results in more neutral social evaluations for firms, making positive evaluations less positive, and negative ones less negative.'

AUTHOR(S)	CITATIONS	FOCUS OF STUDY	METHODOLOGY	SAMPLE	DIRECT EFFECT	INDIRECT EFFECT	MAIN FINDINGS - EXCERPTS FROM ABSTRACTS AND DISCUSSION SECTIONS
Wander and Malone (2006)	11	Tobacco and Philip Morris stigma management	Case method and analysis of archival data	1	No	Yes (but pros and cons)	The authors use 'tobacco industry documents to show how PM [Philip Morris] sought to frame both the rhetorical contents and the legal contexts of the divestment debate' and find that 'Divestment as a delegitimisation tool could have both advantages and disadvantages as a tobacco control strategy in other countries.'
Westermann-Behaylo (2010)	4	Sudan divestment and South Africa corporate disinvestment	Case method	2	nr	Yes increased engagement	This article discusses the role of divestment activist groups in changing institutional norms among MNCs operating in conflict situations. Institutional norms shift from firms conducting 'business as usual' without heed to conflict impact, to engagement policies promoting more responsible business practices, to divestment from conflict zones when circumstances are seen to preclude ethical business conduct. Engagement and divestment are explored as tools for discouraging unethical and promoting ethical business activity, considering conflict situations in South Africa and Sudan as case examples.
Wright and Ferris (1997)	279	South Africa	Event study	31 firms over the period 1 January, 1984 to 31 December, 1990, from a total of 116 corporate disinvestments. Firms identified through a search of the list compiled by the Investor Responsibility Research Center Institute for corporations departing from South Africa.	Yes	nr	The authors 'found a significant, negative association between withdrawal announcements and stock returns on the day of an announcement (day 0). They concluded that withdrawal announcements reduced the value of the firms in their sample.'

## Empirical Setting: Fossil Fuel Divestment Campaign

### *Waves of Divestment and the Fossil Fuel Divestment Campaign*

On 19 July, 2012 *Rolling Stone* magazine published an article by Bill McKibben titled ‘Global Warming’s Terrifying New Math’.<sup>99</sup> In this article McKibben explains that in order to have an 80% chance of keeping global warming below 2°C (the target agreed to by the 167 countries that signed the Copenhagen Accord in 2009) we can only emit 565 gigatons of carbon dioxide (GtCO<sub>2</sub>) between 2010 and 2050. By contrast, burning all the currently proven oil, gas and coal reserves of fossil fuel companies would release 2,795GtCO<sub>2</sub> into the atmosphere. This is almost five times the ‘carbon budget’ of 565GtCO<sub>2</sub>.

In order to help prevent this from happening McKibben called for a fossil fuel divestment campaign. The aims of the campaign can be described as threefold: (i) ‘Force the hand’ of the fossil fuel companies and pressure government—e.g. via legislation—to leave the fossil fuels (oil, gas, coal) ‘down there’<sup>100</sup>; (ii) pressure fossil fuel companies to undergo ‘transformative change’ that can cause a drastic reduction in carbon emissions—e.g. by switching to less carbon-intensive forms of energy supply; (iii) pressure governments to enact legislation such as a ban on further drilling or a carbon tax. Inspiration for the fossil fuel divestment idea leans heavily on the perceived success of the South Africa divestment campaign in the 1980s in putting pressure on the South African government to end apartheid.

In November 2012 Bill McKibben and 350.org started a road trip to build the fossil fuel divestment movement. Although the campaign is supportive of individuals divesting their own money, the focus is decidedly on public funds, and in particular university endowment funds and pension funds. While Bill McKibben’s article in *Rolling Stone* and 350.org’s road trip have dramatically raised awareness of the issue, the fossil fuel divestment campaign started two years earlier. In 2010 Swarthmore College in the US called on the college endowment fund to sell all shares in fossil fuel companies.<sup>101</sup>

Divestment campaigns evolve over three waves, as shown in Figure 10 with examples drawn from the tobacco and South African experiences. The first wave begins with a core group of investors that attach particular moral opprobrium to the target industry. All previous divestment campaigns have originated in the United States and in the first phase focus on US-based investors and international multilateral institutions. The amounts divested in the first phase tend to be very small but create wide public awareness about the issues. In the case of tobacco, public health and medical organisations—the American Public Health Association, American Cancer Society and World Health Organisation—were the first to divest, in the 1980s, since they saw the consequences of smoking to be contrary to their mission to promote public health. Similarly, religious groups and African-American investor groups led the divestment from South Africa related companies.<sup>102</sup>

Both in the case of tobacco and South Africa the campaign took some years to gather pace during the first wave until universities such as Harvard, Johns Hopkins and Columbia announced divestment in the second phase. Previous research credits divestment by these prominent American universities as heralding a tipping point (Teoh et al<sup>103</sup>) that paved the way for other universities, in the US and abroad, and select public institutions such as cities also to divest.

#### Footnotes:

<sup>99</sup> McKibben, ‘Global Warming’s Terrifying New Math.’

<sup>100</sup> *The Economist*, ‘Unburnable Fuel.’

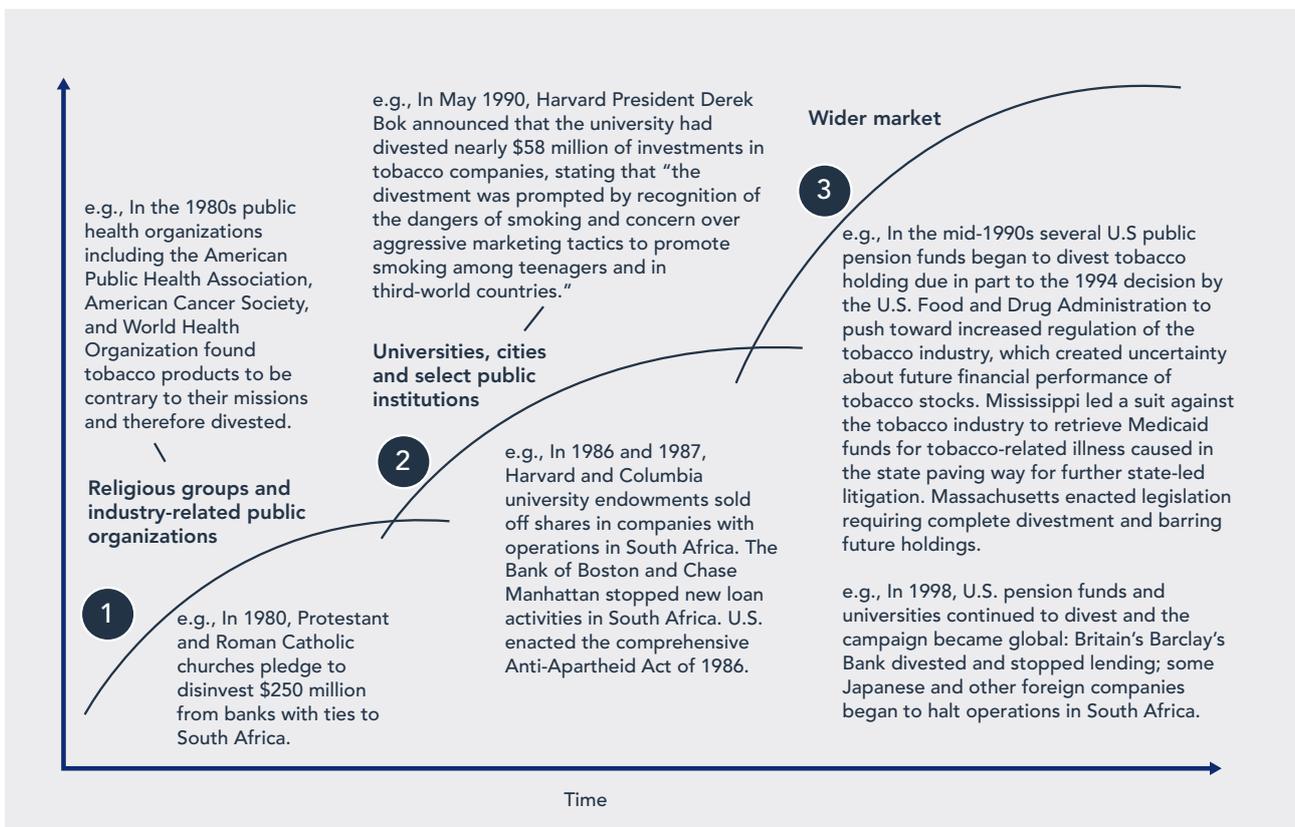
<sup>101</sup> Begos and Loviglio, ‘College Fossil-fuel Divestment Movement Builds.’

<sup>102</sup> See Arnold and Hammond (1998); Lansing and Kuruvilla (1998)

<sup>103</sup> Teoh, Welch, and Wazzan, ‘The Effect of Socially Activist Investment Policies on the Financial Markets: Evidence from the South African Boycott.’

In the third wave, the divestment campaign goes global and begins to target very large pension funds and market norms, such as the establishment of social responsibility investment funds. In the case of tobacco, in the third wave beginning in the mid-1990s, large US public pension funds such as the Kentucky Teachers and Massachusetts state pension funds divested their holdings. Similarly, in the case of South Africa, the initially US-centric campaign attracted global firms in Europe and Japan to enhance domestic pressure.

Figure 10: The three waves of a divestment campaign

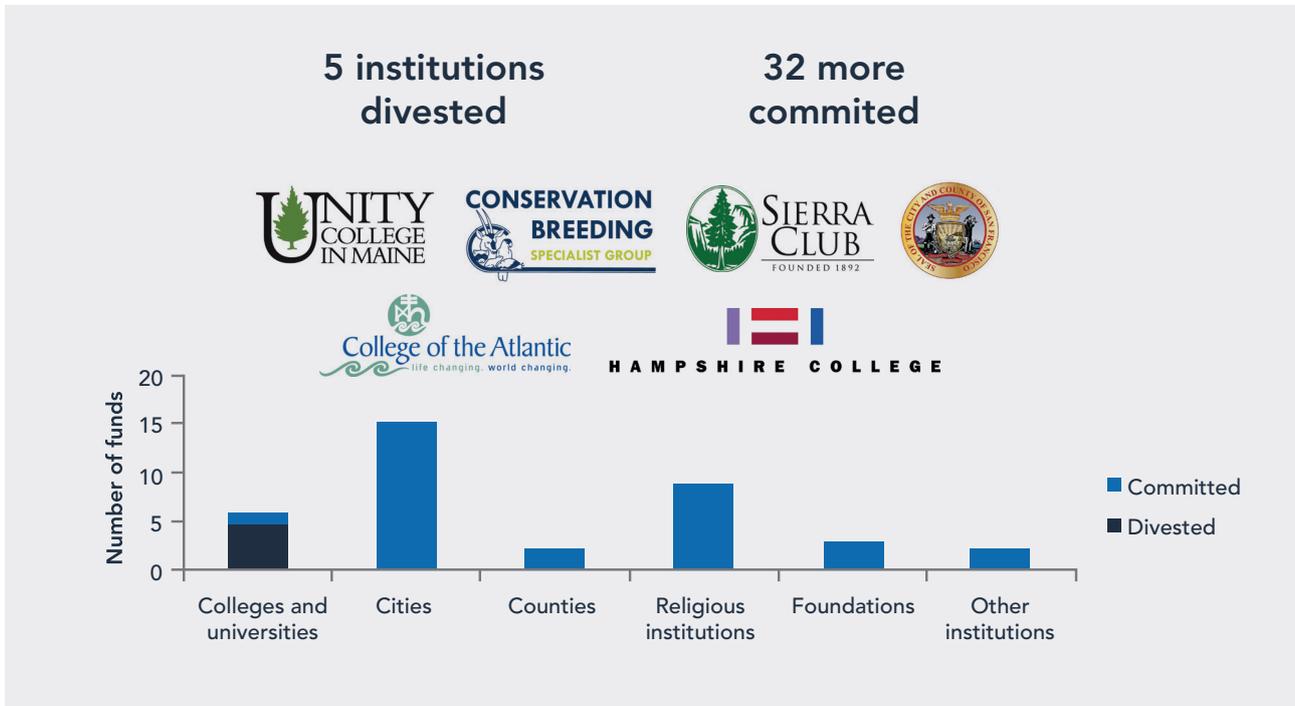


Like all previous divestment campaigns, the fossil fuel divestment campaign started in the US and in the short-term focused on US-based investors. From the perspective of the three waves of divestment the fossil fuel campaign has achieved a lot in the relatively short time since its inception in 2010: six colleges and universities have committed to divest, along with 17 cities, two counties, 11 religious institutions, three foundations and two other institutions<sup>104</sup>, as illustrated in Figure 11.

Footnotes:

<sup>104</sup> Fossil Free, 'Commitments - Fossil Free.'

Figure 11: Institutions already committed to divesting from fossil-fuel companies<sup>105</sup>



In recent months, the fossil fuel divestment campaign has attempted to build global momentum by targeting other universities with large endowments such as the Universities of Oxford and Cambridge in the United Kingdom. Despite its relatively short history, the fossil fuel campaign can be said to be entering the second wave of divestment.

Building on our theoretical framework, we now turn to how the accumulating momentum of the fossil fuel divestment campaign might carry direct and indirect impacts for fossil fuel companies.

Footnotes:

<sup>105</sup> Ibid.

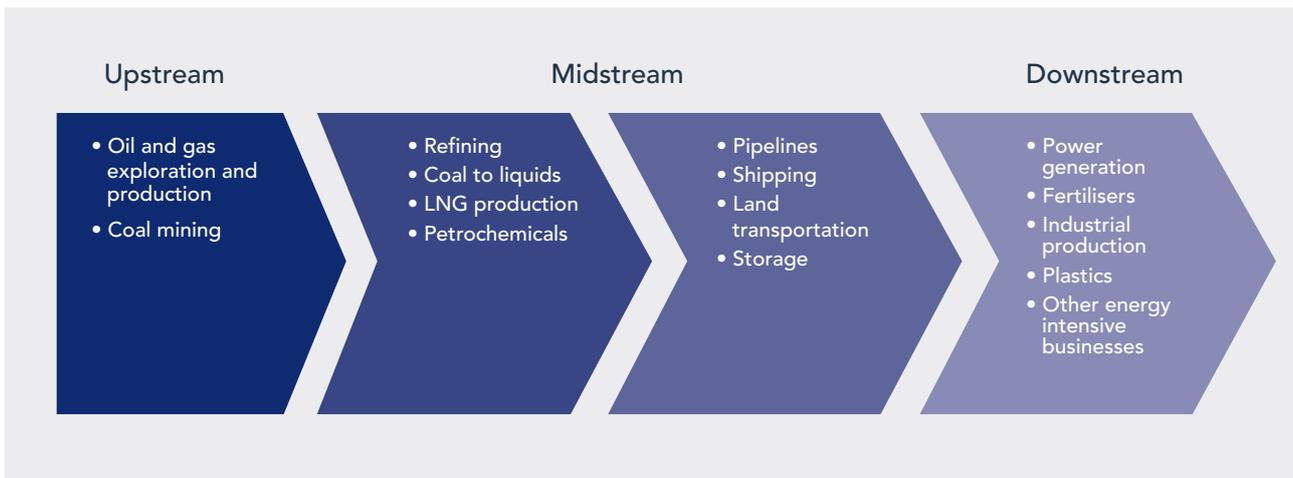
## Direct Impacts of the Fossil Fuel Divestment Campaign

### Fossil fuel companies' market capitalisation

Recall that Proposition 1 suggested that the direct impact of a divestment campaign depends on the size of the divestment outflows and the market capitalisation of the target firms. If the target firm's market cap is large, the effect of a divestment campaign's outflows, unless commensurately large, on the stock price of the target firm will be minimal.

Whether Proposition 1 applies can be tested for the fossil fuel industry. Figure 12 illustrates that the universe of fossil fuel companies covers a long value chain of processes and customers: upstream exploration and production; midstream refining, storage, and transportation; downstream petroleum and diesel distribution; power generation; and manufactured goods such as plastics. While the fossil fuel divestment campaign has not made its primary target firms within this diverse value-chain explicit, it is commonly assumed that they are upstream exploration and production oil & gas companies and coal mining companies. It is conceivable, however, that the campaign might expand its scope.

Figure 12: An illustration of the whole fossil fuel industry

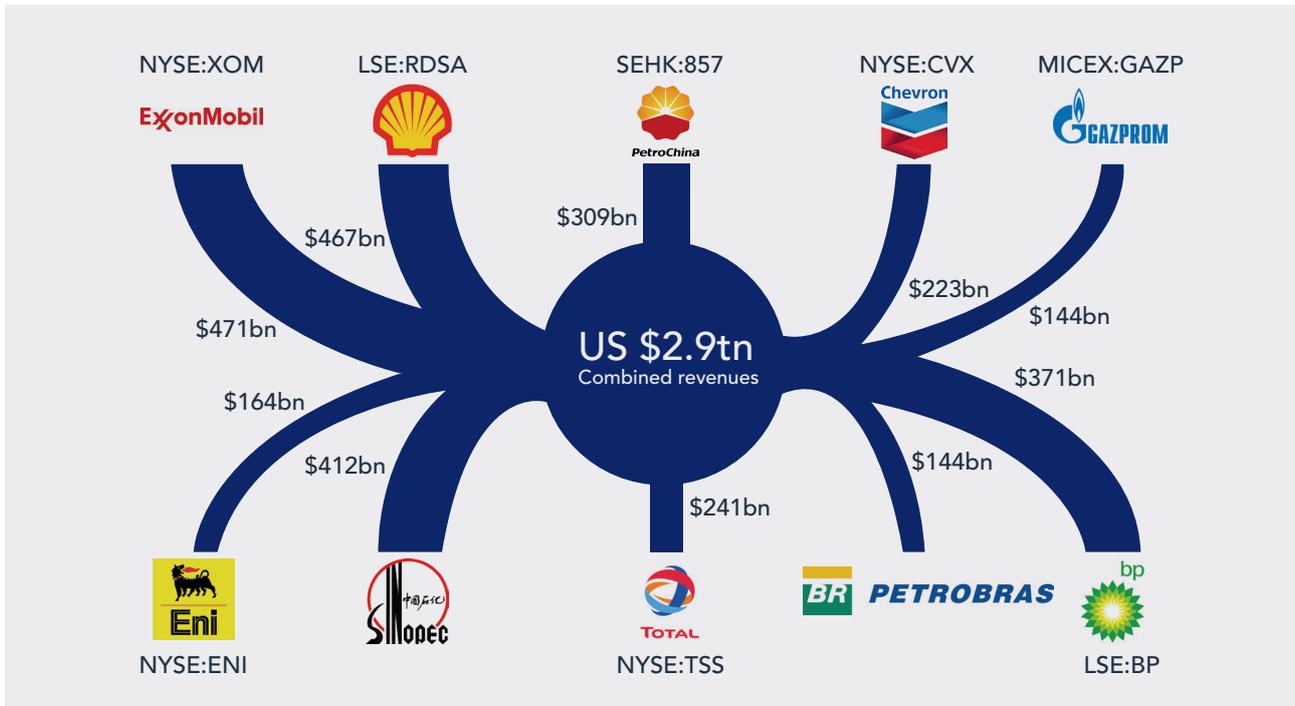


According to the *Economist*<sup>106</sup> the 200 largest oil & gas listed companies, primarily engaged in upstream and midstream activities, had a market capitalisation of \$4,000 billion at the end of 2012. ExxonMobil, Shell, Sinopec, and BP are among the ten largest listed fossil fuel companies with combined revenues of about \$2.9 trillion as shown in Figure 13. Even larger fossil fuel companies such as Saudi Aramco are not listed on global stock exchanges.

#### Footnotes:

<sup>106</sup> The *Economist*, 'Unburnable Fuel.'

Figure 13: Combined revenues of world's largest listed stock exchanges<sup>107</sup>

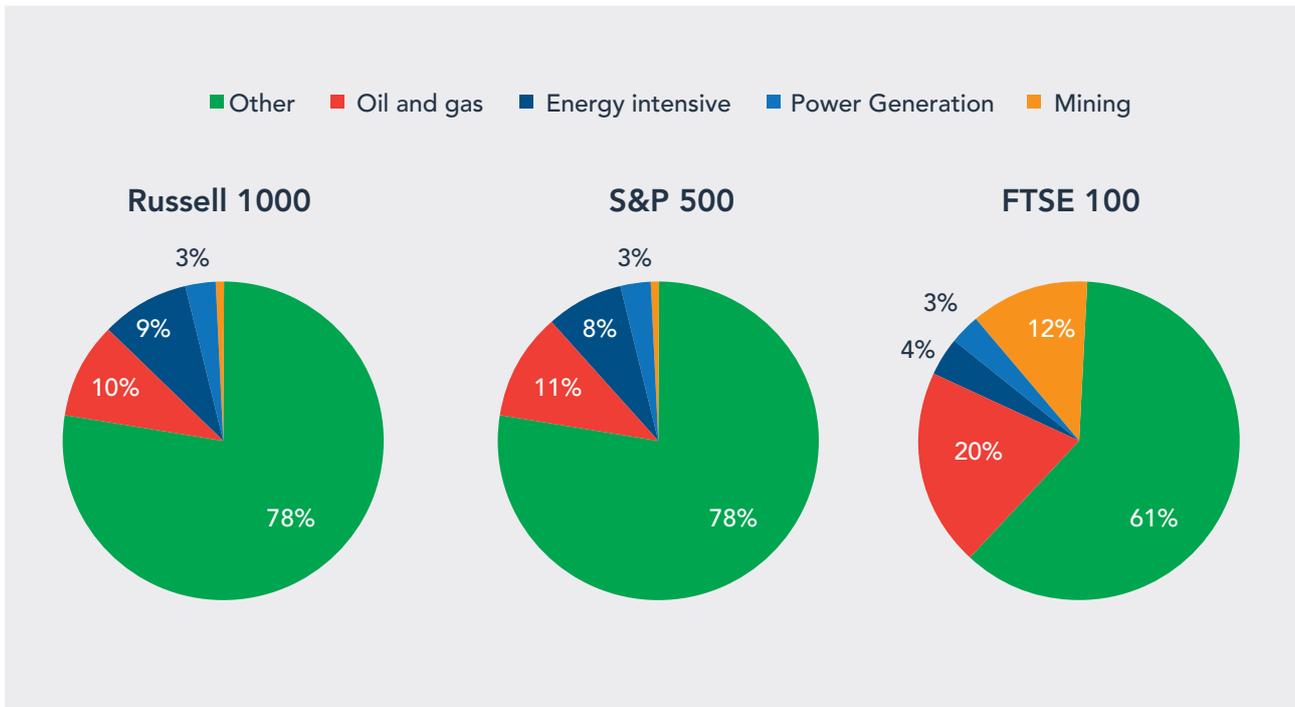


Owing to their size, oil & gas companies make up a large share of global equity markets. Figure 14 illustrates this presence. Thus, oil & gas companies account for about 11% of S&P 500—the broad index for US equities—but 20% of the FTSE 100, signalling London’s importance as a global financial centre across commodity markets. Companies connected to fossil fuels, such as power utilities or energy intensive mining and steel production, also account for large segments of global equity markets. Important features of publicly listed oil & gas public equities are their broad shareholding and very high liquidity.

Footnotes:

<sup>107</sup> Forbes, 'The World's Biggest Public Companies.'

Figure 14: Oil & gas majors' indelible presence on the global equity markets<sup>108</sup>



In contrast with oil and gas companies, coal mining is a much smaller and fragmented industry. The largest global player in upstream coal mining is Coal India with a 2010 production of 431 million tons according to the World Energy Outlook (2010)—double its closest unlisted rival, China’s Shenhua Group. Coal India’s market cap in August 2013 was approximately \$27 billion. Peabody Energy—the largest coal producer listed on a Western stock exchange—produced 198 million tons of coal in 2010 and has a market cap of \$4.9 billion—nearly 80 times smaller than ExxonMobil, the largest oil & gas firm listed on the New York Stock Exchange. Companies such as BHP Billiton and Anglo American, while very large diversified mining corporations, produced about 100 million tons of coal each in 2010. If their coal divisions were spun off as separate companies, the market cap of the new coal spin-offs would, in line with their production volume, be about half that of Peabody Energy.

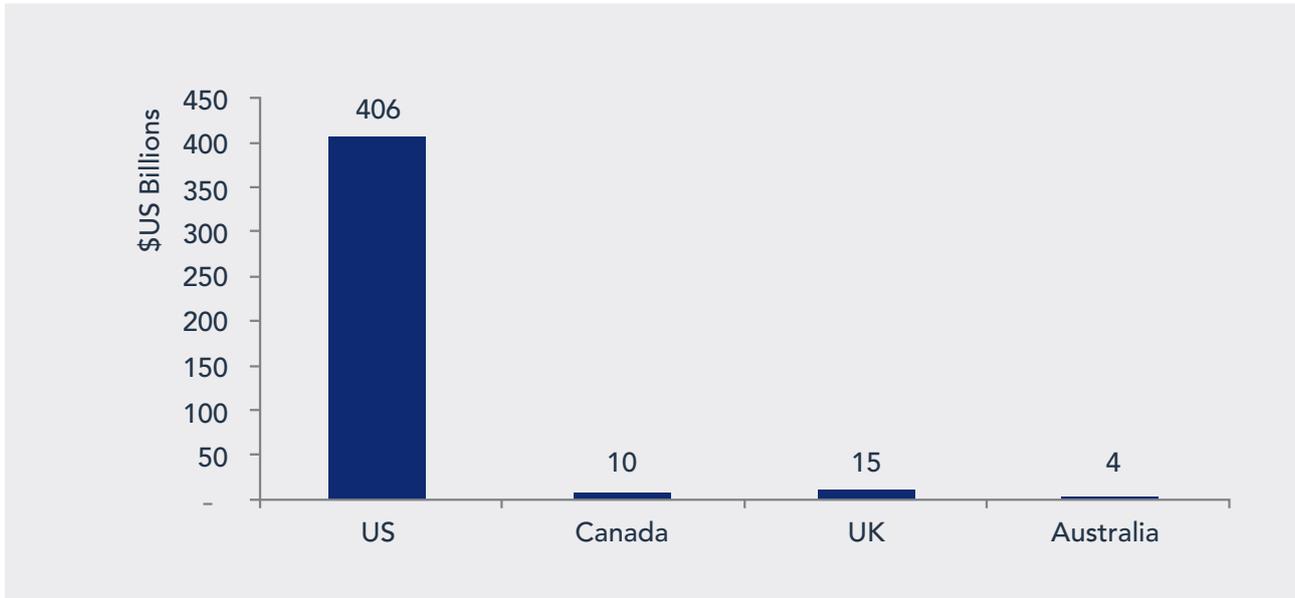
### Sizing the divestment market and direct impacts on equity

The global financial stock, comprising equity market capitalisation and outstanding bonds and loans, is a staggering \$212 trillion according to McKinsey Global Institute’s 2011 map of global capital markets. In contrast, Figure 15 shows that global university endowments represent just under \$450 billion of assets under management.

**Footnotes:**

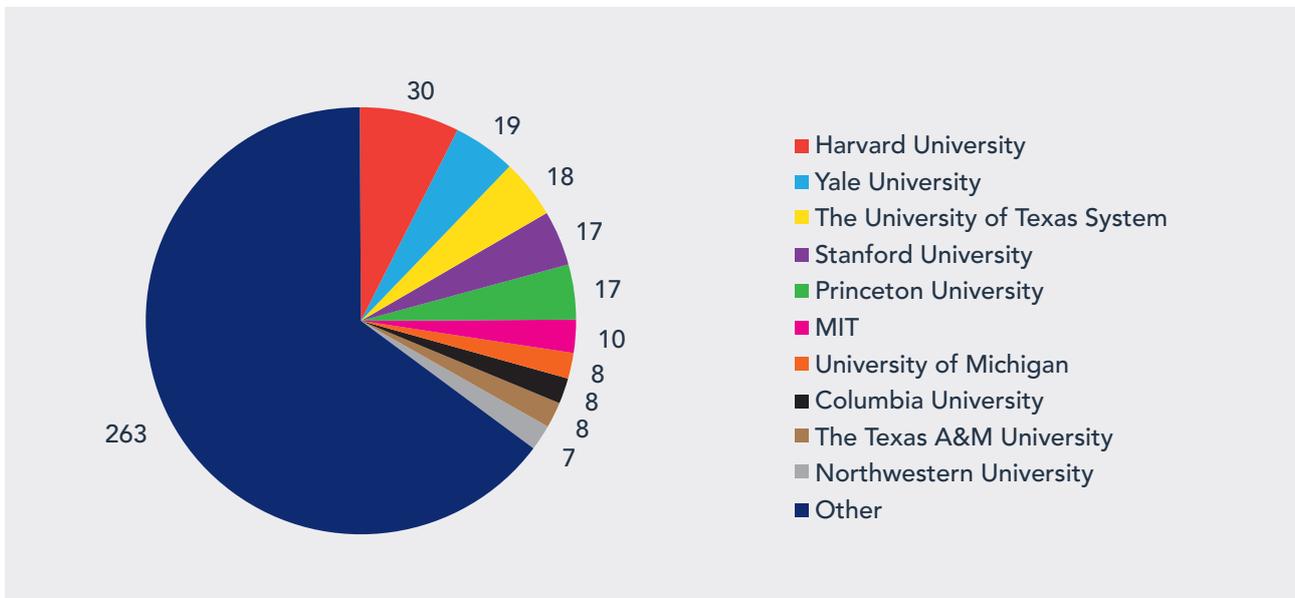
<sup>108</sup> Capital IQ, ‘S&P Capital IQ.’

Figure 15: University endowment sizes<sup>109</sup>



There are, however, several university endowment funds of significant size in the US as shown in Figure 16 and the UK as shown in Figure 17.

Figure 16: US university endowments (US\$billion)<sup>110</sup>

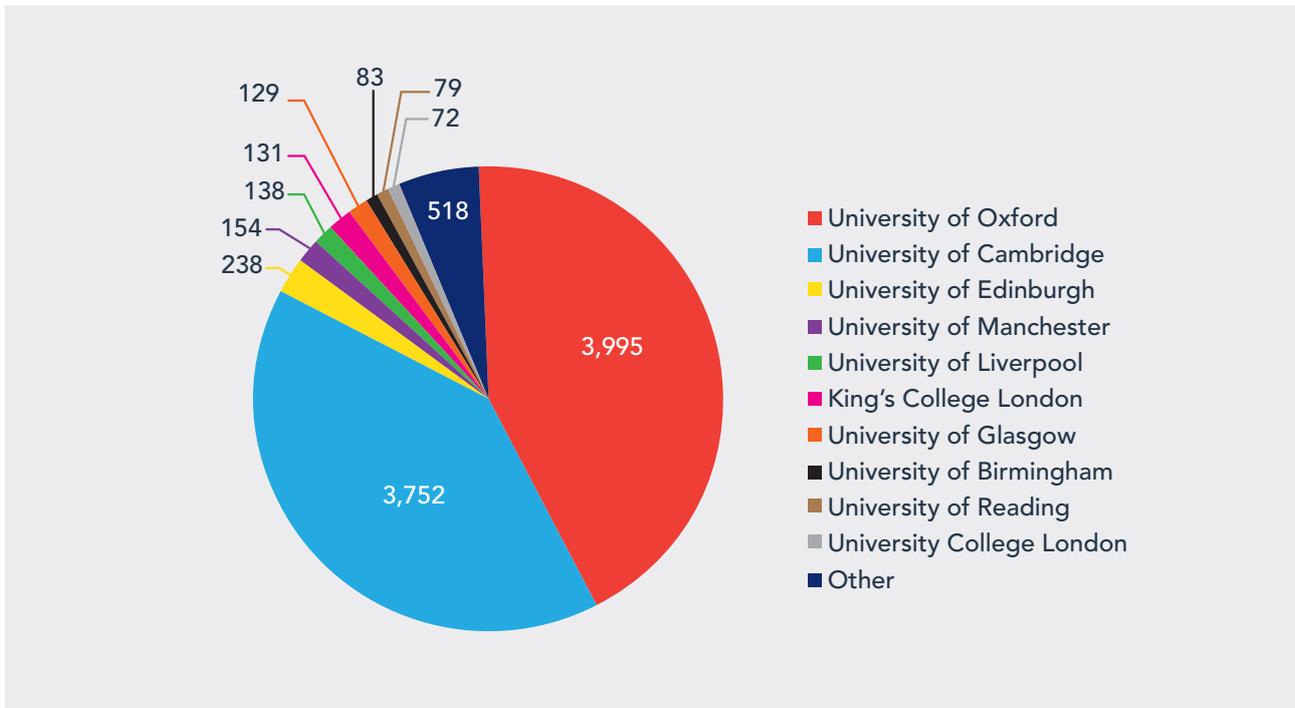


Footnotes:

<sup>109</sup> NACUBO, 'Public NCSE Tables'; CAUBO, 'Financial Information of Universities and Colleges'; HESA, 'Finances of Higher Education Institutions'; Australian Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education, 'Finance Reports'; University of Oxford, 'Financial Statements of the Oxford Colleges.'

<sup>110</sup> NACUBO, 'Public NCSE Tables.'

Figure 17: UK university endowments (£million)<sup>111</sup>



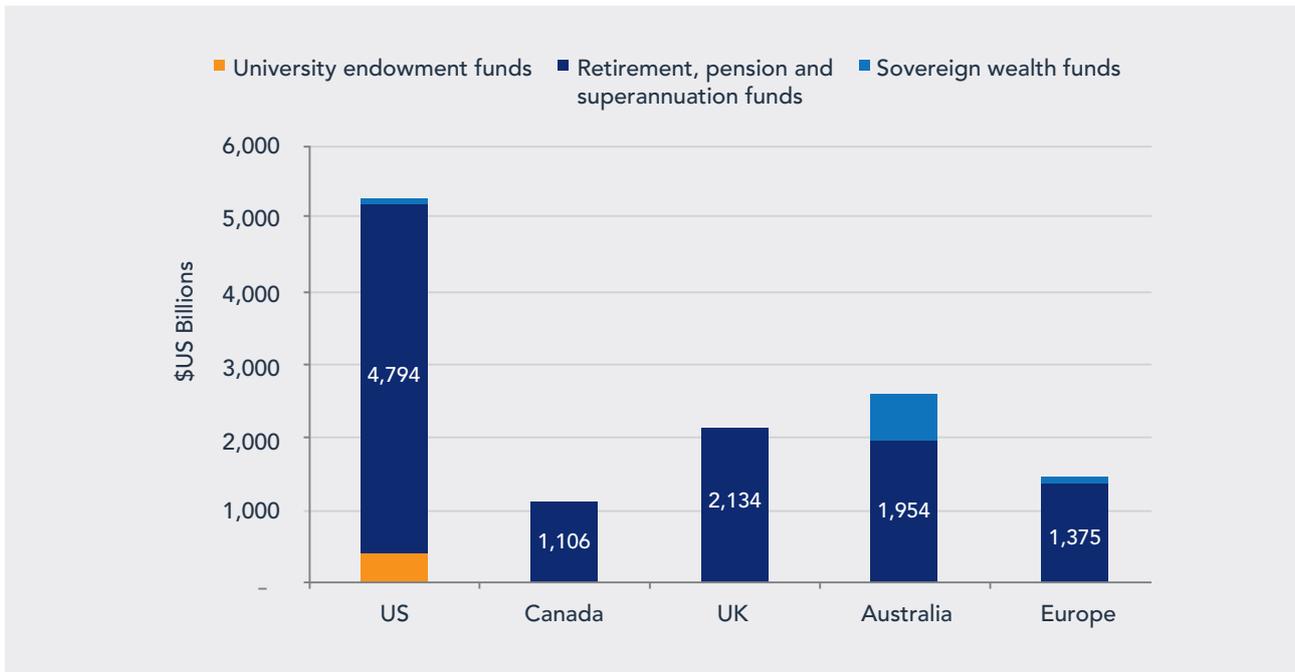
Note: The Cambridge total above does not include the following colleges because data were not available: Christ's, Corpus Christi, Gonville & Caius, Homerton, Hughes Hall, Peterhouse, St Catharine's and Wolfson.

The immediate observation about university endowments, including fabled names such as Harvard, Yale, Oxford and Cambridge, is that their combined size is a very small fraction of the global financial market stocks. Unsurprisingly, the fossil fuel divestment campaign has not restricted itself to university endowment funds, with retirement funds and sovereign wealth funds also being targeted as the second wave of divestment gathers pace. As can be seen in Figure 18, this presents a much larger pool of funds totalling nearly \$11.4 trillion in assets under management.

**Footnotes:**

<sup>111</sup> HESA, 'Finances of Higher Education Institutions'; Acharya, *Endowment Asset Management: Investment Strategies in Oxford and Cambridge*; University of Oxford, 'Financial Statements'; Cambridge University, 'Cambridge University Endowment Fund – Investment Performance'; University of Edinburgh, *Reports and Financial Statements for the Year to 31 July 2012*; University of Manchester, *Financial Statements for the Year Ended 31 July 2012*; University of Liverpool, *Financial Statements 2011-12*; King's College London, *Financial Statements for the Year to 31 July 2012*; UCL, *Annual Report and Financial Statements for the Year Ended 31 July 2012*; University of Reading, *Financial Statements For the Year Ended 31 July 2012*; University of Birmingham, *Annual Report and Accounts*; University of Surrey, *Financial Statements 2011/12*.

Figure 18: Public fund sizes in select countries<sup>112</sup>

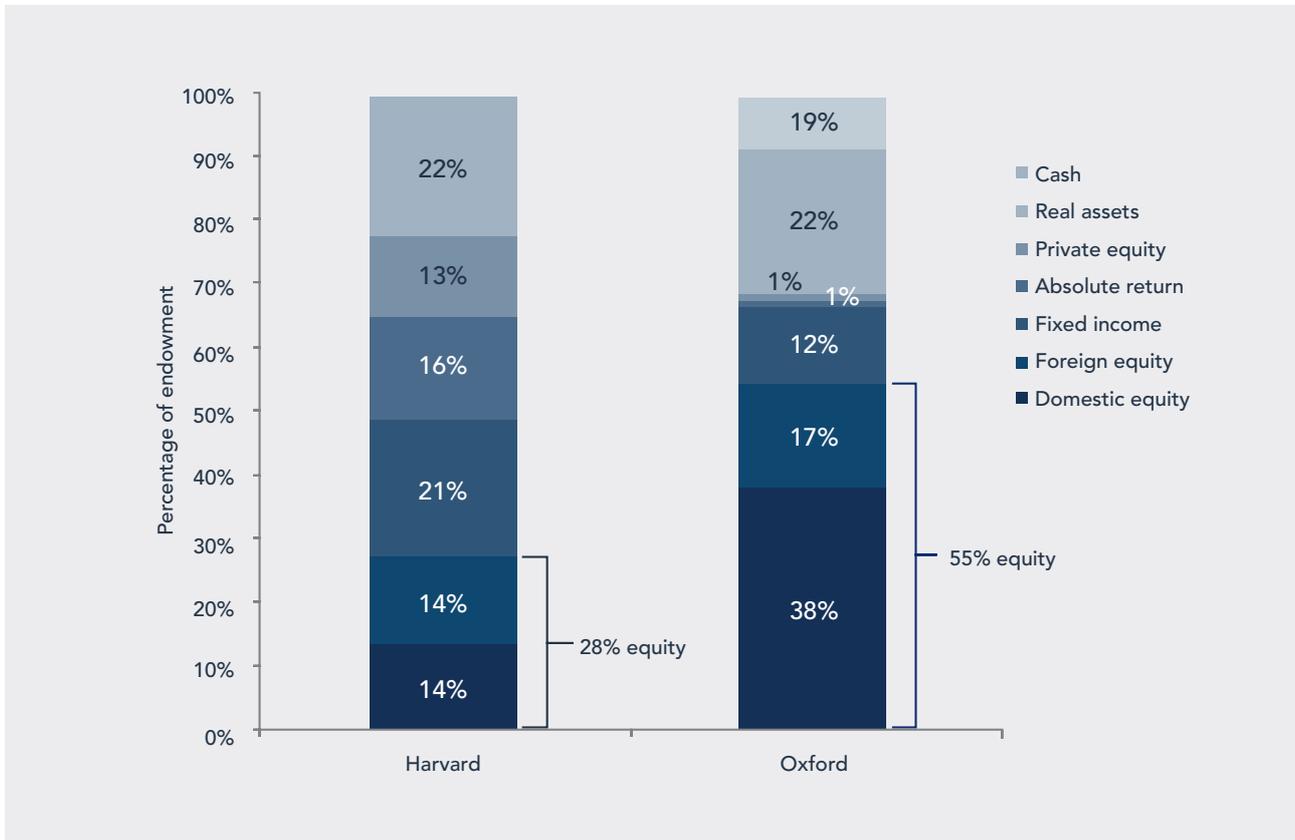


The combined—university endowments and public funds—target divestment pool of about \$12 trillion presents a far more sizeable chunk of global financial market stocks than the university endowments alone. From a fossil fuel divestment perspective, these \$12 trillion assets are invested in very diversified portfolios that span a variety of asset classes and industries. Figure 19, for example, shows the asset-class mix for two university endowment funds. Whereas Harvard, with much longer experience in alternative asset classes, has a relatively low exposure of 28% to equity markets, over half of Oxford’s endowment is invested in equities.

**Footnotes:**

<sup>112</sup> NACUBO, ‘Public NCSE Tables’; CAUBO, ‘Financial Information of Universities and Colleges’; HESA, ‘Finances of Higher Education Institutions’; Australian Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education, ‘Finance Reports’; University of Oxford, ‘Financial Statements of the Oxford Colleges’; Investment Company Institute, ‘Quarterly Retirement Market Data’; OECD, ‘Global Pension Statistics’; ABS, ‘Managed Funds, Australia’; Sovereign Wealth Fund Institute, ‘Asset Allocation Report’.

Figure 19: Proportion of funds invested across asset classes<sup>113</sup>

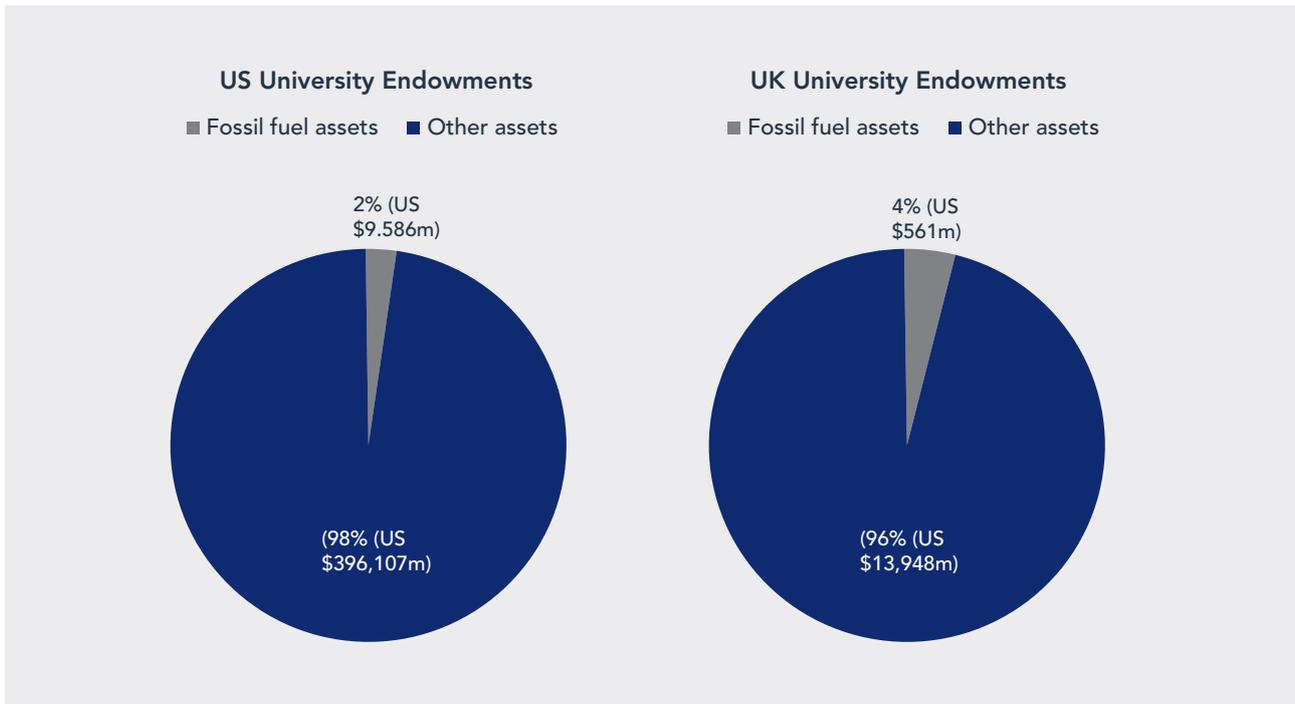


Fossil fuel equity exposure is a ratio of the broader equity market exposure for each fund. Thus, on average, university endowments in the US have 2-3% of their assets committed to investable fossil fuel public equities. The proportion in the UK is higher with an average of 5% largely because the FTSE has a greater proportion of fossil fuel companies.

**Footnotes:**

<sup>113</sup> Acharya, *Endowment Asset Management: Investment Strategies in Oxford and Cambridge*.

Figure 20: Equity exposure to fossil fuel stocks is relatively limited<sup>114</sup>



Public pension funds, likewise, have 2-5% of their assets invested in fossil fuel related public equities. For example, according to its 2012 annual report, the California Public Employees' Retirement System (CalPERS) invests about 48.4% of its assets under management (\$237 billion as of 30 June, 2012) in domestic and international publicly traded equities. Of that, CalPERS invests about 10.7%—i.e. equivalent to 5.2% (48.4% \* 10.7%) of its total portfolio—in fossil fuel companies.

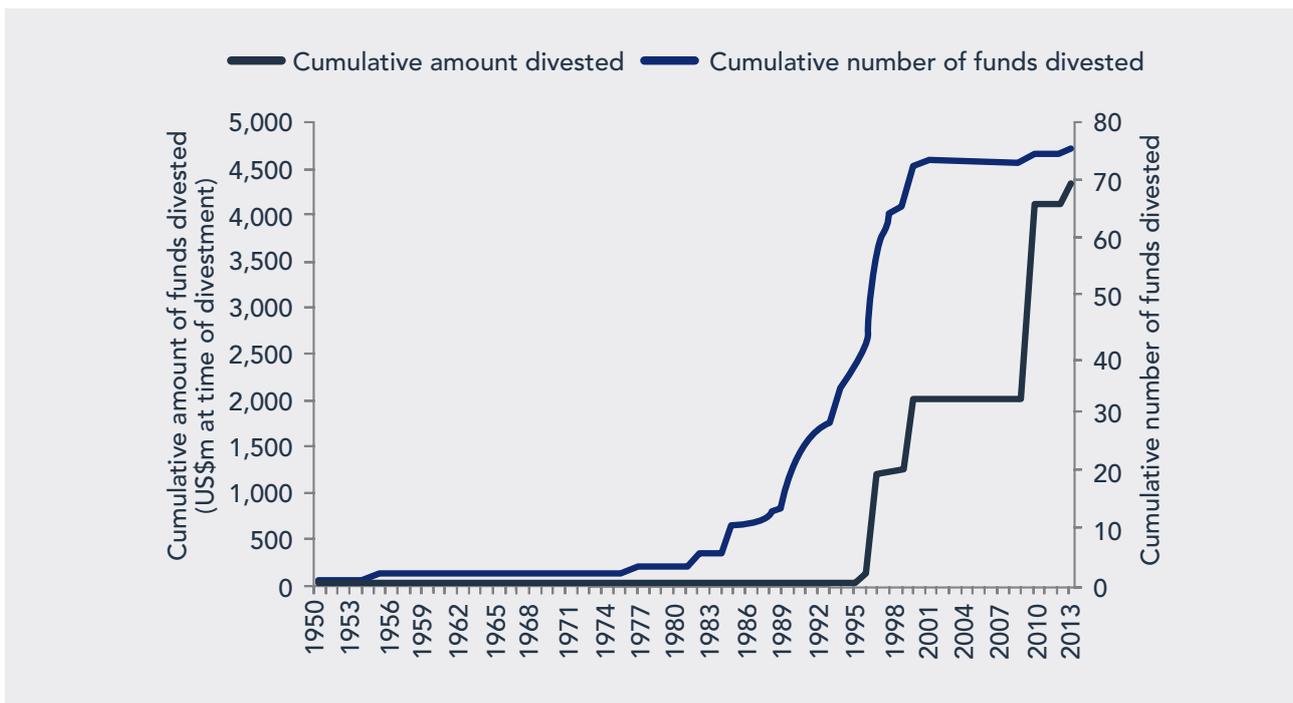
We ought to add a caveat here, however. University endowments and public pension funds also invest in bonds. For example, CalPERS' exposure to domestic and international bonds is about 21.4% of its assets under management. Like its equity investments, CalPERS invests about 10% of the funds committed to bonds in energy-related fixed income. Hence in addition to its 5.2% fossil fuel equity exposure, CalPERS has an additional 2.1% exposure to fossil fuel bonds totalling 7.3% (equity plus debt) exposure to fossil fuel companies. In summary, of the \$12 trillion assets under management among university endowments and public pension funds—the likely universe of divestment candidates—the plausible upper limit of possible equity divestment for oil and gas companies is in the range of \$240-600 billion (2-5%) plus about half that amount for debt.

**Footnotes:**

<sup>114</sup> NACUBO-Commonfund, *Study of Endowments*; *The Economist*, 'Unburnable Fuel'; World Federation of Exchanges, 'Statistics'; Acharya, *Endowment Asset Management: Investment Strategies in Oxford and Cambridge*.

Past divestment campaigns suggest, however, that only a very small proportion of the total divestable funds are actually withdrawn. For example, despite the huge interest in the media and a three-decade evolution only about 80 organisations and funds—including religious organisations, public health organisations, universities, and public pension funds—from a universe approaching 1,000 such global funds, university endowments and organisations have ever substantially divested from tobacco equity and even fewer from tobacco debt. According to Social Funds the tobacco divestment outflows total only about \$5 billion as shown in Figure 21. Contrast this with the \$500 billion market capitalisation of big tobacco companies in 2013, which has been growing at a compound annual growth rate of nearly 15% since 1995. This is despite the 1994 watershed when Mississippi, eventually joined by 40 states, led three years of litigation against tobacco companies in the US resulting in an out-of-court settlement. Tobacco companies agreed to pay damages totalling \$365 billion<sup>115</sup>—then roughly quadruple the market capitalisation of the ‘big three’ tobacco corporations in the US: Philip Morris (Altria), Reynolds American (RJR) and Lorillard.

Figure 21: Overview of the tobacco divestment movement<sup>116</sup>



Moreover, the tobacco divestment campaign also largely failed to directly stymie the future net cash flows of cigarettes companies—of which Ebitda (Earnings before interest, taxes, depreciation and amortisation) is a suitable gauge—as shown in Figure 22. While cigarette consumption in terms of number of sticks has been declining in mature markets, expansion into new product markets such as smokeless electric cigarettes; geographical markets such as emerging markets; and increasing prices—even after adjusting for taxes<sup>117</sup>—has kept the net cash flows of tobacco companies booming.

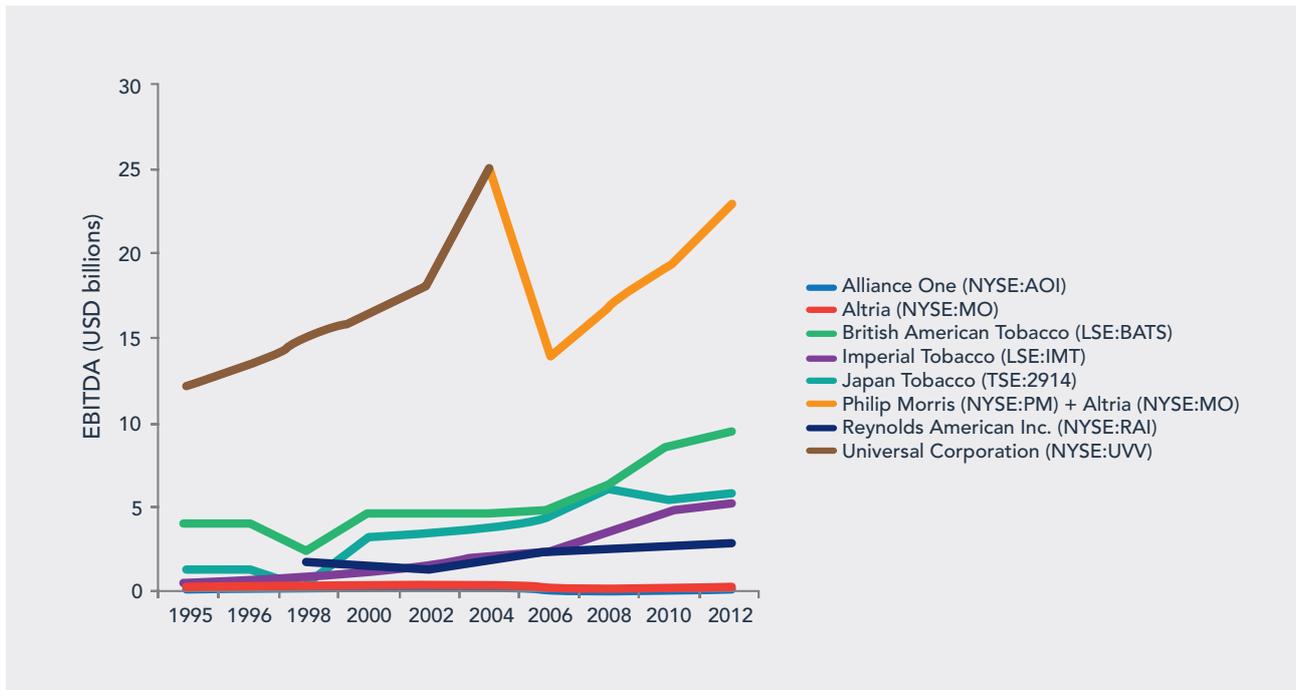
Footnotes:

<sup>115</sup> Sucher and McGee (2013).

<sup>116</sup> Social Funds, ‘Tobacco Divestment.’

<sup>117</sup> Robinson, ‘Cigarette Price Rises in UK Due to Companies as Much as Tax.’

Figure 22: Booming tobacco cash flows<sup>118</sup>



Unsurprisingly, in light of this evidence, previous literature also suggests very limited direct impacts on equity of divestment campaigns, as summarised in Table 5 (Page 64). Based on the outside view we suggest that the divestment outflows will have a negligible direct impact on the equity valuations of fossil fuel companies. However, we discuss potential direct impacts on the enterprise value of fossil fuel companies that may emerge from change in market norms and impact on debt financing.

### Direct impacts from change in market norms

Deliberate closure of financing channels due to socially motivated divestment is a long-term process and previous attempts to understand the phenomenon are grounded in literature on 'sin stocks' (Table 4, page 43). Proposition 3 suggested that even when divestment outflows are small or short term and do not directly affect future cash flows, if they trigger a change in market norms that close off channels of previously available money, then a downward pressure on the stock price of a targeted firm may be large and permanent.

#### Footnotes:

<sup>118</sup> We use Ebitda (Earnings before interest, taxes, depreciation and amortisation) as a proxy for net cash flows. Note that Philip Morris (NYSE:PM) and Altria (NYSE:MO) are two of the largest players by market capitalisation in the US tobacco industry. Altria spun-off Philip Morris, which is reflected in the Ebitda of two combined companies in Figure 22.

From the perspective of equity valuation, an important channel through which money flows into equity markets today is exchange traded funds (ETFs). These have steadily grown in popularity reaching roughly 12-15% of the total equity markets in most mature markets such as the US and the UK.<sup>119</sup> If due to even small outflows from a set of 'lead divesting investors' indexed ETFs were to become unavailable to fossil fuel firms, the effect on stock price could be substantial.

The outside view suggests that market norms do change as a consequence of divestment campaigns. Even when investing passively, many institutional investors have adopted negative screens that exclude sin stocks. Similarly, positive screens that prefer saint stocks have also become more prevalent. In the maturing third wave of divestment, institutional investors may not even make major media announcements in applying such negative screens.

Evidence in the existing literature is inconclusive on whether or not such negative screens directly cause any permanent damage to target firm valuations (Table 4, page 43). Chen, Noronha and Singal<sup>120</sup> provide perhaps one of the more empirically convincing accounts. They find that while there is a permanent increase in the price of a firm added to a passive index, the firm's subsequent deletion does not create a permanent decline. Their finding—that there is an asymmetric price response to additions and deletions—is at odds with the expectation that addition or deletion ought to have a uniform effect. They argue that the explanation for asymmetric price effects results from changes in investor awareness. Thus, once investors in the broader market have become aware of the cash flow profile of a company, deletion from an index does not scare away familiar investors. Neutral investors substitute institutional investors applying a negative screen. As far as equity is concerned, change in market norms is unlikely to yield a substantial direct effect. The situation with debt is, however, more nuanced.

### *Direct impacts on debt financing*

Propositions 4-6 suggested that the withdrawal of debt finance from fossil fuel companies by some banks or an increase in discount rate is unlikely to pose serious debt financing problems (either in terms of short-term liquidity or Capex) for fossil fuel companies. Our framework, however, suggests two caveats. First, change in market norms is more relevant in relatively poorly functioning markets. In particular borrowers in countries with low financial depth will experience a restricted pool of debt financing if any banks pre-eminent in the local financial network withdraw. Second, while an increase in discount rate is unlikely to have an effect on the overall corporate finance of major fossil fuel companies, their ability to undertake large Capex projects in difficult technical or political environments will be diminished due to a higher hurdle rate and reduced availability of debt financing.

#### **Footnotes:**

<sup>119</sup> IMA, 'Summary of Tracker and Ethical Fund Statistics, Multiple Years.'

<sup>120</sup> Chen, Noronha, & Singal (2004)

This carries considerable implications when the entire value range of fossil fuel companies is considered as in Figure 12, page 52. While markets for crude oil and many of the oil products are very liquid, markets for coal are fragmented and illiquid and markets for natural gas straddle in-between. Realising revenue from production of crude oil and to a lesser extent gas is much easier than from the production of coal, which is often a localised market restricted to the country of origin or its regional vicinity due to transportation costs and limited versatility in final use. A diminishing pool of debt finance and a higher hurdle rate will thus have the greatest effect on companies and marginal projects related to coal and the least effect on those related to crude oil.

*A diminishing pool of debt finance and a higher hurdle rate will thus have the greatest effect on companies and marginal projects related to coal and the least effect on those related to crude oil.*

The outside view suggests that debt markets may indeed undergo changes in terms of market norms and their direct impacts on debt financing in markets with low financial depth. Unlike equity markets, the South African disinvestment campaign presents noteworthy, although inconclusive, evidence with regards to debt.

Richard Knight argues<sup>121</sup> (in an edited volume not published in a blind peer-review journal and hence not reviewed in Table 4, page 43) that South Africa's foreign debt extended by US banks reached \$4.7 billion or approximately 20% of South Africa's foreign debt by 1984 before the divestment campaign intensified. With increasing pressure from campaigners, 'an increasing number of US banks modified their lending policies, some prohibiting loans to the South African government, others stopping all loans to South Africa'.<sup>122</sup> By the end of 1985, according to Knight, US bank lending in South Africa had already fallen to \$3.2 billion. Knight's data is challenged by Teoh et al. (Table 4) who write: 'Loans to South Africa by the US banks in our sample were approximately \$1.3 billion in 1985. This represented about 5.7% of South Africa's \$23 billion external debt.' Despite the controversy about the numbers, it is accepted that US banks—either due to social pressure or worries about uncertainty in the South African economy due to the apartheid regime's stigmatisation—began denying loans. As a result the structure of South African debt suffered: 'Debt with a maturity of less than one year jumped from 56% in 1982 to 68% in 1985 to 82% in 1986.'<sup>123</sup>

Given South Africa's lack of financial depth at the time, it was unable to substitute US bank loans with alternative sources of debt finance. The apartheid government was forced to introduce measures such as exchange controls, debt negotiations with over 300 international banks and draconian restrictions on capital movement. The 1980s were also a time of sovereign debt crises including Angola, Brazil, Nigeria, Mexico, Panama, Turkey and Uruguay.<sup>124</sup> The evidence remains inconclusive as to whether the South African debt crisis was part of a broader global phenomenon or unique to the apartheid regime due to the ongoing campaign. Irrespective, the prediction that debt may become scarce and put marginal projects at risk in less liquid fossil fuel industries such as coal or peripheral geographies remains plausible.

*Given South Africa's lack of financial depth at the time, it was unable to substitute US bank loans with alternative sources of debt finance.*

#### Footnotes:

<sup>121</sup> Knight (1990).

<sup>122</sup> Ibid. Knight continues: 'In December 1984, Seafirst adopted a policy of no new loans to South Africa, followed by the Bank of Boston in March 1985 and First Bank System, also in 1985. Even more significantly, in July 1985, North Carolina National Bank Corp., the regional bank with the largest lending to South Africa and the only regional bank to have an office in South Africa, ended all new loans. It appears that many other banks, while not acting publicly, limited their loans in this period...The rapid rise in US bank loans to South Africa came to an abrupt halt in mid-1985. Between March and September 1985, US bank loans to South Africa declined by \$757 million. In August 1985, Chase Manhattan quietly told its customers in South Africa it would not roll over loans. Most US banks which had not already ended new loans to South Africa quickly followed Chase's action.'

<sup>123</sup> Ibid.

<sup>124</sup> Reinhart and Rogoff (2009)

Table 5: Outcomes of previous divestment campaigns

CAMPAIGN	CAMPAIGN OUTCOMES	
	DIRECT IMPACT	INDIRECT IMPACT
1. Alcohol	There is controversy on whether divestment depresses stock prices (Table 4). On balance evidence suggests little to no effect.	Stigmatisation (i.e. alcohol companies are categorised as sin stocks). High taxes to depress demand.
2. Arms/munitions /land mines	Limited <sup>125</sup>	Uneven by firm but most firms escape disapproval
3. Biotech (tissue engineering; GM; animal testing)	NA	NA
4. Darfur, Sudan (oil exploration divestment)	<p>‘Campaign leads to variability in institutional trading that results in lower expected returns... This is contrary to the...hypothesis that the campaign leads to neglect of the targeted stocks by an important enough segment of investors...and that this is followed by diminished stock prices’</p> <p>‘Thanks to China and a trio of Asian national oil companies, oil still flows in Sudan. The [divestment] campaign’s activities have failed to reconcile Sudan’s wider international political and economic relations into its strategy.’<sup>126</sup></p>	<p>Sudan Accountability and Divestment Act passed in the US on 31 December, 2007</p> <p>‘...businesses were encouraged to drop the separation thesis that suggests that “business is business” and that there is no appropriate role for firms to engage in resolving humanitarian crises or conflicts. In both of these cases [Sudan and South Africa], the predominate norm for non-involvement was de-institutionalised over time, and in many cases was replaced by business practices designed to improve human rights, to build communities, to engage in conflict resolution, and generally to develop a more ethical and responsible business model’<sup>127</sup></p>
5. Gambling/ gaming	See above re: alcohol.	NA
6. Nuclear power electric utilities	NA	NA
7. Pornography/ adult services	See above re: alcohol.	NA
8. Tobacco	See above re: alcohol.	See above re: alcohol.
9. South African apartheid	<p>‘... corporate involvement with South Africa was so small that the announcement of legislative/shareholder pressure or voluntary corporate divestment from South Africa had little discernible effect either on the valuation of banks and corporations with South African operations or on the South African financial markets. There is weak evidence that institutional shareholdings increased when corporations divested. In sum, despite the publicity of the boycott and the multitude of divesting companies, political pressure had little visible effect on the financial markets.’<sup>128</sup></p> <p>‘...the imposition of economic sanctions and disinvestment has, if anything, only strengthened the economic power of the Whites, and perhaps increased their determination to keep apartheid. In view of this, it would seem that any change in apartheid must come from within South Africa itself.’<sup>129</sup></p>	<p>Sullivan principles—aimed at fostering racially neutral policies for corporations operating in South Africa.</p> <p>Major anti-South Africa legislation in the US: the Comprehensive Anti-Apartheid Act of 1986 restricted exports and loans to South Africa.</p> <p>‘cultural and sporting boycotts, and the anti-apartheid movement received direct infusions of capital from foreign sources’<sup>130</sup></p> <p>Global public awareness; deeply undermined the diplomatic standing of the apartheid regime.</p>

**Footnotes:**

<sup>125</sup> Vergne, ‘Stigmatized Categories and Public Disapproval of Organisations: A Mixed-Methods Study of the Global Arms Industry, 1996–2007.’

<sup>126</sup> Patey, ‘Against the Asian Tide: The Sudan Divestment Campaign,’ 551.

<sup>127</sup> Westermann-Behaylo, ‘Institutionalizing Peace through Commerce: Engagement or Divestment in South African and Sudan,’ 431.

<sup>128</sup> Teoh, Welch, and Wazzan, ‘The Effect of Socially Activist Investment Policies on the Financial Markets: Evidence from the South African Boycott,’ 35.

<sup>129</sup> Lansing and Kuruvilla, ‘Business Divestment in South Africa: In Who’s Best Interest?’

<sup>130</sup> Teoh, Welch, and Wazzan, ‘The Effect of Socially Activist Investment Policies on the Financial Markets: Evidence from the South African Boycott,’ 39.

## *Indirect Impacts of the Fossil Fuel Divestment Campaign: Change in Probabilities of Future Outcomes via Stigmatisation*

In the aftermath of the widely followed tobacco litigation in the 1990s, and corporate scandals (e.g. Enron, Arthur Andersen) and bankruptcies (e.g. WorldCom) in the early 2000s the concept of organisational stigma began to be more widely studied.<sup>131</sup>

Proposition 7 suggests that even if the direct impacts of divestment outflows are meagre in the short term, a campaign can impact on the enterprise value of a target firm in the long term if the divestment campaign causes neutral equity and/or debt investors to lower their expectations of the target firm's net cash flows. We developed this further in Proposition 8 by submitting that stigmatisation adds to the uncertainty surrounding the future of a target company or industry. The outcome of the stigmatisation process, which the fossil fuel divestment campaign has triggered, poses the most far-reaching threat to fossil fuel companies and the vast energy value chain. Any direct impacts pale in comparison.

*The outcome of the stigmatisation process, which the fossil fuel divestment campaign has triggered, poses the most far-reaching threat to fossil fuel companies and the vast energy value chain. Any direct impacts pale in comparison.*

We first review the more general negative social and economic outcomes that may emerge from the stigmatisation process for fossil fuel companies. We briefly highlight two critical mechanisms—legislative uncertainty and multiples' compression—that are likely to affect fossil fuel companies particularly those in the coal industry. Finally, we analyse 'stigma dilution' strategies fossil fuel companies are likely to deploy in response to the threats posed by the stigmatisation process.

### Stigmatisation outcomes

As with individuals, a stigma can produce undesirable consequences for an organisation. Firms that are heavily criticised in the media suffer from a bad image that scares away suppliers, subcontractors, potential employees and customers.<sup>132</sup> Governments and politicians prefer to engage with 'clean' firms<sup>133</sup> to prevent adverse spillovers that could taint their reputation or jeopardise their re-election. Shareholders can demand changes in management or the composition of the board of directors of stigmatised companies. In the aftermath of the Valdez oil spill in May 1989, shareholders forced the Exxon management to appoint an environmentalist to its board.<sup>134</sup> This paved the way for far-reaching changes in Exxon's corporate social responsibility policy which the management had previously resisted.<sup>135</sup> Stigmatised firms may be barred from competing for public tenders, acquiring licences or property rights for business expansion, or be weakened in negotiations with suppliers. The consequences of stigma also include cancellation of multibillion-dollar contracts or mergers/acquisitions.<sup>136</sup> Stigma attached to merely one small area of a large company may threaten sales across the board. For example, Motorola—the phone maker—felt compelled to disinvest from its defence business owing to the bad press it received in authoritative media outlets.<sup>137</sup> Similarly, Revlon's decision to disinvest its South African operation was due to credible threats by customer groups to boycott Revlon products.<sup>138</sup>

#### Footnotes:

<sup>131</sup> Semadeni et al; Wiesenfeld et al.

<sup>132</sup> Vergne, 'Stigmatized Categories and Public Disapproval of Organisations: A Mixed-Methods Study of the Global Arms Industry, 1996–2007.'

<sup>133</sup> Javers and Kopecki.

<sup>134</sup> Teoh, Welch, and Wazzan, 'The Effect of Socially Activist Investment Policies on the Financial Markets: Evidence from the South African Boycott.'

<sup>135</sup> Skjærseth, ExxonMobil: *Tiger or Turtle on Social Responsibility?*

<sup>136</sup> Ibid.

<sup>137</sup> Vergne, 'Stigmatized Categories and Public Disapproval of Organisations: A Mixed-Methods Study of the Global Arms Industry, 1996–2007.'

<sup>138</sup> Meznar, Nigh, and Kwok, 'Effect of Announcements of Withdrawal from South Africa on Stockholder Wealth.'

## Restrictive legislation

One of the most important ways in which stigmatisation will affect fossil fuel companies is through new legislation. In almost every divestment campaign we reviewed from adult services to Darfur, from tobacco to South Africa, divestment campaigns were successful in lobbying for restrictive legislation. For example, increasing awareness about the health risks of smoking and the stigmatisation of the tobacco industry led to several rounds of restrictive legislation beginning with the 1969 Public Health Cigarette Smoking Act<sup>139</sup> and progressing to state-led litigation.

In fact, the political lobbying aspect of the stigmatisation process is often thought to be the most effective way of achieving results. Meir Statman<sup>140</sup> and Kinder and Domini<sup>141</sup> (1997), prominent voices in the socially responsible investing movement concur. Kinder and Domini<sup>142</sup> write: 'No one involved in SRI would argue that it has as its objective increasing a company's cost of capital. Even if this objective were attainable, few social investors would consider it as effective as the political action or lobbying that screening entails. Social screening and SRI generally reach an audience far beyond capital markets.' Statman writes: 'Consider again the tobacco industry. Calls for divestment of tobacco stocks have served as prominent banners... Such banners have rallied the faithful to successful political actions. The political actions of tobacco foes resulted in taxes and settlements in the many billions.'<sup>143</sup>

The fossil fuel divestment campaign's emphasis has been to encourage governments to ban drilling altogether, to leave the fossil fuels (oil, gas, coal) 'down there'.<sup>144</sup> This approach is likely to fail for two reasons. First, a ban on drilling is akin to forcing governments to outlaw the smoking of cigarettes or drinking of alcohol. Despite a near-consensus that tobacco contributes to premature death, no government has seriously considered such a ban. When the manufacture and sale of alcohol was made illegal during Prohibition in 1920s America a vast illicit trade quickly emerged. Second, those fossil fuel companies which the divestment campaign can hope to influence via government lobbying are minor players compared to the national oil companies, such as Saudi Aramco or Iran's NIOC, as shown in Figure 23.

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### Footnotes:

<sup>139</sup> Diermeter (2006).

<sup>140</sup> Statman (2000)

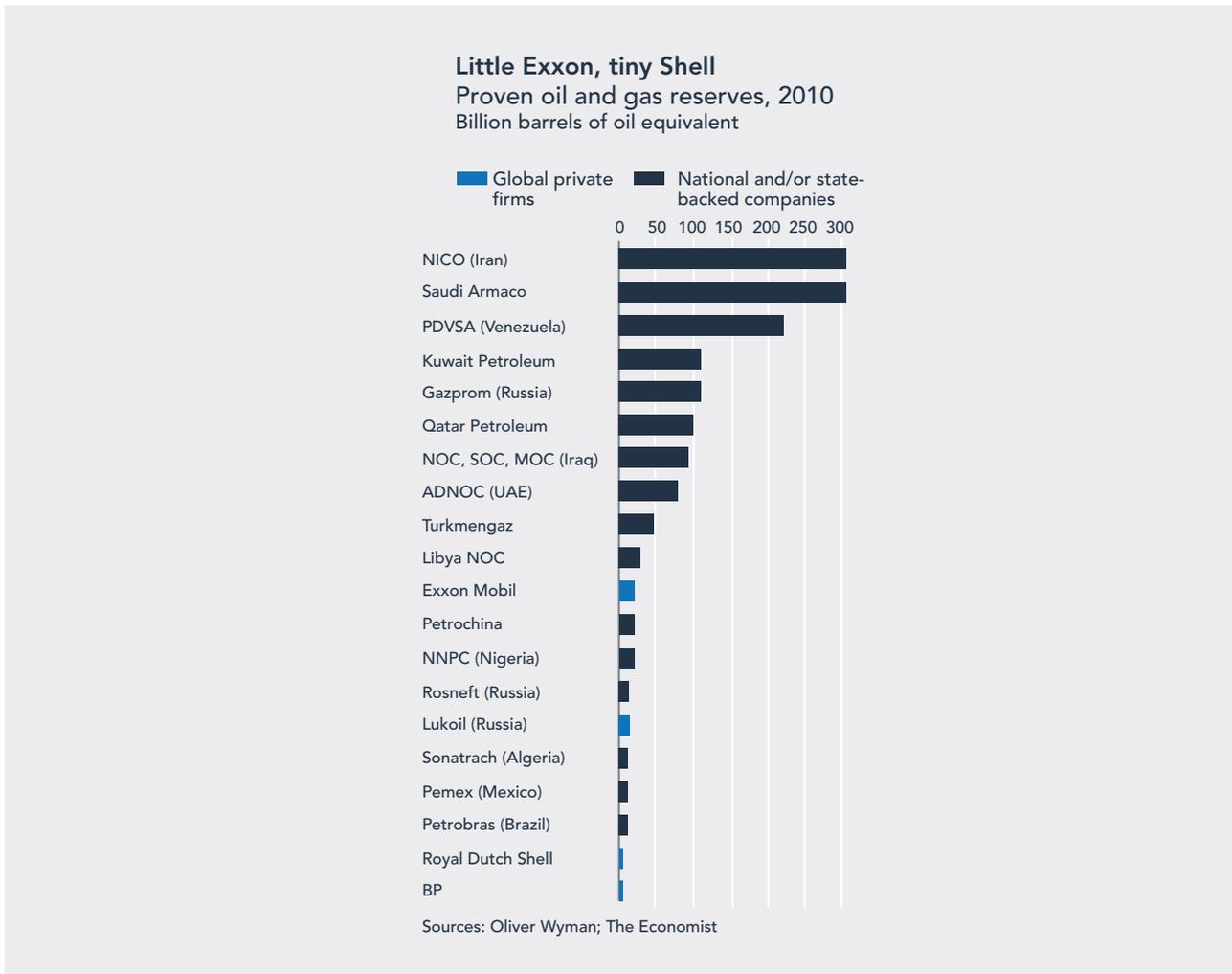
<sup>141</sup> Kinder and Domini (1997)

<sup>142</sup> Ibid. p. 14.

<sup>143</sup> Statman (2000: 37).

<sup>144</sup> The Economist (4 May 2013)

Figure 23: Little Exxon, tiny Shell<sup>145</sup>



Fossil fuel consumption, however, is very high in developed countries such as North America, the EU and Japan where the campaign is likely to be most influential—with the notable exception of China. A carbon tax, which levies on the point of consumption like tobacco and alcohol excise duties, is likely to be the most effective tool. McKibben<sup>146</sup> makes the sound argument: ‘Alone among businesses, the fossil-fuel industry is allowed to dump its main waste, carbon dioxide, for free. Nobody else gets that break if you own a restaurant, you have to pay someone to cart away your trash, since piling it in the street would breed rats...Until a quarter-century ago, almost no one knew that CO<sub>2</sub> was dangerous. But now that we understand that carbon is heating the planet and acidifying the oceans, its price becomes the central issue.’

If during the stigmatisation process, campaigners are able to create the expectation that government might legislate to levy a carbon tax, which will have the effect of depressing demand, then the campaigners will increase the uncertainty surrounding the future cash flows of fossil fuel companies. This, as previously laid out in our framework, will indirectly influence all investors—those considering divestment due to moral outrage and those neutral—to go underweight in fossil fuel stocks and debt in their portfolios.

**Footnotes:**

<sup>145</sup> Proven oil and gas reserves as of 29/10/11, *The Economist*

<sup>146</sup> McKibben, ‘Global Warming’s Terrifying New Math.’

## Multiples' compression

Stigmatisation can lead to a permanent compression in the trading multiples, e.g. the share price to earnings (P/E) ratio, of a target company. For example, Rosneft (RNFTF) produces 2.3 million barrels of oil a day, slightly more than ExxonMobil (XOM). Rosneft was, however, valued at \$88 billion versus \$407 billion for ExxonMobil as of June 2013. With proven and probable (2P) hydrocarbon reserves of 35 billion barrels of oil equivalent, Rosneft has an enterprise value per 2P reserves (EV/2P) of \$2.5 (i.e. \$87.8/35 billion). ExxonMobil, in contrast, enjoys an EV/2P ratio of \$6. Rosneft suffers from the stigma of weak corporate governance. Investors thus place a lower probability on whether its reserves will be converted into positive cash flows and exhibit far greater confidence in ExxonMobil. If ExxonMobil (and similar publicly traded fossil fuel firms) was to become stigmatised due to the divestment campaign its enterprise value per 2P reserves ratio may also slide towards that of Rosneft, permanently lowering the value of the stock.

*in stigmatised industries, such as arms or tobacco, some players are able to avoid disapproval, while others face intense public vilification...*

## Stigma dilution

While these negative consequences are economically relevant, stigma does not necessarily drive whole industries out of business such that a particular activity stops altogether. A simple linear relationship between a target firm's association with a stigmatised category and disapproval of the firm suffers from limitations. Target firms, particularly when a whole industry is being stigmatised, take steps to counteract it. For example, in stigmatised industries, such as arms or tobacco, some players are able to avoid disapproval, while others face intense public vilification. Philip Morris, for instance, once received most of the disapproval aimed at cigarette producers. Yet Hudson<sup>147</sup> suggests that, after the tobacco firm diversified into the food industry, its disapproval level decreased, owing to 'stigma dilution' in its corporate portfolio. At the same time, the company went through rebranding—by creating Altria and then splitting the company again to maximise shareholder value—and diversifying into new product markets such as smokeless electronic cigarettes, hand-rolled cigars and beverages, and into new geographical areas such as emerging markets. Interestingly, disapproval of Philip Morris decreased despite the firm reinforcing its position as the world's leading cigarette producer.

Similar attempts will be made by fossil fuel companies to dilute the stigma. The fossil fuel divestment campaign is in effect a culmination of a near three-decade movement that started with pressure from environmental groups for fossil fuel companies to clean up. In response BP rebranded its image to Beyond Petroleum symbolised by a green and yellow sunflower. BP was also the first to withdraw from the Global Climate Coalition, a powerful lobby that opposed any climate change related policymaking. Unlike its competitors then, BP went on to support the Kyoto Protocol and acknowledged climate change as a pressing global problem as early as 2000.<sup>148</sup> All these efforts paid off for BP and in 2001 it was recognised in *Businessweek's* debut report on 'The 100 Top Brands' as the most valuable brand among fossil fuel companies ahead of Shell, ExxonMobil, and other competitors. BP's CEO John Browne was credited with making the 'once-stodgy BP into a top oil brand'.

*Similar attempts will be made by fossil fuel companies to dilute the stigma.*

### Footnotes:

<sup>147</sup> Hudson, 'Against All Odds: A Consideration of Core-stigmatized Organisations.'

<sup>148</sup> Sæverud and Skjærseth, 'Oil Companies and Climate Change: Inconsistencies Between Strategy Formulation and Implementation?'

BP, likewise, has been proactive in diluting stigma from its recent Macondo oil spill in the Gulf of Mexico. While it has slipped out of the 100 Top Brands rankings for the last two years, it has been running a 'slick ad campaign in which the company trumpets its success in producing lower carbon fuels from "energy grasses"'.<sup>149</sup> Similarly, despite strongly-worded language from government officials in the immediate aftermath of the oil spill, the company was granted approval in October 2011 to begin a new 2,000m drilling operation in the Gulf of Mexico.<sup>150</sup>

In summary, while stigmatisation will slow fossil fuel companies down, its outcomes are unlikely to threaten survival. They will be more severe on companies seen to be engaged in willful negligence and 'insincere' rhetoric<sup>151</sup> saying one thing and doing another.<sup>152</sup> Moreover, one or a handful of fossil fuel companies are likely to become industry's scapegoats. From this perspective, coal companies appear more vulnerable than oil and gas. Coal not only contributes to climate change but also releases harmful pollutants with short-term, and visible, health and environmental consequences. Even the Beijing authorities felt compelled to shut coal-burning power plants and boilers to clear the air before the 2008 Olympics. Due to the staged nature of the process of stigmatisation, investors seeking to reduce their fossil fuel exposure in general are thus likely to begin by liquidating coal stocks. Storebrand—a Scandinavian asset manager with \$74 billion under management—has taken precisely such a step according to Bloomberg BRIEF (August 2013).

*one or a handful of fossil fuel companies are likely to become industry's scapegoats. From this perspective, coal companies appear more vulnerable than oil & gas...*

#### Footnotes:

<sup>149</sup> Ritson (2011).

<sup>150</sup> Ibid.

<sup>151</sup> Yoon, Gürhan-Canli, and Schwarz, 'The Effect of Corporate Social Responsibility (CSR) Activities on Companies With Bad Reputations.'

<sup>152</sup> Sæverud and Skjærseth, 'Oil Companies and Climate Change: Inconsistencies Between Strategy Formulation and Implementation?'

## Conclusions and recommendations

In this report we have sought to accomplish two objectives. First, we developed a framework to forecast the potential trajectories of a fossil fuel divestment campaign. We stressed the importance of indirect effects on fossil fuel companies arising from increased uncertainty and the process of stigmatisation. In contrast, we suggested that direct impacts are likely to be more limited. Second, we applied this framework to the fossil fuel divestment campaign using the outside view method grounded in evidence from previous divestment and disinvestment campaigns, such as those of tobacco or South Africa.

Our salient findings and conclusions are as follows:

1. Direct impacts on equity or debt are likely to be limited. The maximum possible capital that might be divested from the fossil fuel companies represents a relatively small pool of funds. In contrast, the market capitalisation of fossil fuel companies, particularly integrated oil and gas players, is several times higher. Even if the maximum possible capital was divested from fossil fuel companies, their shares prices are unlikely to suffer precipitous declines over any length of time. Financial markets are volatile. Daily swings as high as  $\pm 5\%$  are not uncommon even for large stocks such as ExxonMobil. Sizeable withdrawals are likely to escape the attention of fossil fuel management since oil and gas stocks are some of the world's most liquid public equities.
 

*Divestment announcements are thus more likely to impact coal stock prices.*
2. Moreover, we noted that the global financial stock is tremendously large. Unlike economically motivated investors, socially motivated divesting investors do not take into account future cash flows. Any divested holdings are thus likely to find their way quickly to neutral investors. Larger fossil fuel funded sovereign wealth funds such as Norway or Abu Dhabi may even welcome the opportunity to increase their holding of fossil fuel companies—businesses they understand very well—particularly if the stocks entail a short-term discount.
3. We acknowledge that direct effects on coal valuations are likely to be more substantial. Coal companies represent a small fraction of market capitalisation of fossil fuel companies and coal stocks are also less liquid. Divestment announcements are thus more likely to impact coal stock prices since alternative investors cannot be as easily found as in the oil and gas sector.
4. The divestment campaign is likely to lead to a change in market norms. For example, negative screens or passive funds that exclude fossil fuel companies will quickly emerge. Some banks, particularly multilateral institutions such as the World Bank, may stop lending to fossil fuel companies, particularly coal.
 

*The divestment campaign is likely to lead to a change in market norms.*
5. Changes in market norms and debt financing are likely to have rather limited direct impact on the enterprise value of fossil fuel companies. Debt like equity is ultimately a claim on the future cash flows of a company. Since a divestment campaign has little hope of directly impacting the future cash flows of fossil fuel companies, neutral debt or equity investors have little cause to shun to fossil fuel companies.

6. Divestment campaigns will probably be at their most effective in triggering a process of stigmatisation of fossil fuel companies. We find that even if the direct impacts of divestment outflows are limited in the short term, the campaigns will cause neutral equity and/or debt investors to lower their expectations of fossil fuel companies' net cash flows in the long term. The process by which uncertainty surrounding the future of fossil fuel industry will increase is through stigmatisation. In particular, the fossil fuel divestment campaign will increase legislative uncertainty and potentially also lead to multiples' compression causing more permanent damage to the companies' enterprise values.

*the fossil fuel divestment campaign will increase legislative uncertainty and potentially also lead to multiples' compression causing more permanent damage to the companies' enterprise values.*

7. Finally, we find that stigmatisation, while likely to cost fossil fuel companies billions, is unlikely to threaten their survival. Coal companies will probably be the hardest hit segment of the market.

Flux in the global energy markets and the fossil fuel divestment campaign carries important implications for various market participants. We now make some key recommendations for investors, campaigners and fossil fuel firms.

### *Recommendations for investors, companies and campaigners*

#### Investors

As fiduciaries, managing long-term savings on behalf of their beneficiaries, endowments, pension funds and similar institutional investors have a duty to understand and respond to challenges posed by the fossil fuel divestment campaign—whether considering fossil fuel divestment or not. To this end our recommendations can be divided into the following:

*stigmatisation, while likely to cost fossil fuel companies billions, is unlikely to threaten their survival...*

1. Closely monitor fossil fuel exposure. Fossil fuel and related industries comprise a surprisingly large variety of sectors from coal mining to shipping to the manufacture of premium steel. Conduct an audit of the carbon intensity (and pollution in the case of coal) of portfolio constituents. There are a wide range of current and emerging environmental risks that could result in stranded assets. These risks are poorly understood and are regularly mispriced, which may result in a significant over-exposure to environmentally unsustainable assets throughout portfolios.
2. Stress test portfolios for potential environment-related risks that could impact fossil fuel companies. Companies unable to withstand the internalisation of environmental costs or competition from more efficient rivals should be more closely monitored.
3. Be explicit about strategy on fossil fuel investment and consult with beneficiaries. Holding a passive view is also a strategy.

4. For institutions considering divestment, engage with the management of target firms. Are they paying lip-service to concerns or are they serious about tackling them? Divestment is perhaps the final, and most drastic, instrument in an investor's corporate engagement toolkit. Considerable communication with management of the target firm can be undertaken to influence behaviour before using up the trump card of divestment.
5. Understand the costs of divestment. Liquidating holdings entails transaction costs.
6. For institutions considering divestment, engage with peers and market participants. Large investors can shape market norms. Use banks and consultants that can advise altering practices.
7. Those that commit to divestment should engage with the media. Divestment, our research shows, creates far more indirect impact by raising public awareness, stigmatising target companies and influencing government officials.
8. Those that commit to divestment should consider re-directing investment to renewable energy alternatives that can trigger 'disruptive innovation' and substitute fossil fuels as a primary source of energy supply.

*Divestment, our research shows, creates far more indirect impact by raising public awareness, stigmatising target companies and influencing government officials.*

### Fossil Fuel Companies

The divestment campaign could pose considerable reputational risk to fossil fuel companies even if its immediate direct effects are likely to be limited. Previous instances of divestment campaigns suggest that investors sympathetic to the campaign's cause are likely to table strongly worded resolutions during annual meetings, and even if voted down stir debate with which management needs to be prepared to engage. Investors, more than ever, are also keenly aware of whether managers do what they say when it comes to addressing the social responsibilities of a company.

Indirectly, by triggering a process of stigmatisation, the divestment campaign is likely to make the operating and legislative environment more challenging. Greater uncertainty over future cash flows can permanently depress the valuation of fossil fuel companies, e.g. by compressing the price/earnings multiples.

How could fossil fuel companies tackle these challenges? Our recommendations are as follows:

1. Fossil fuel companies have to decide whether to play 'hardball' or to engage with the campaigners. Evidence suggests that hardball strategies intensify stigmatisation, focusing attention on companies that are unrepentant about violating social norms. When an entire industry is in the process of being stigmatised the effect on constituent companies is uneven.
2. While some firms successfully manage to escape disapproval by diluting association with stigmatised categories, a handful in the industry are used as scapegoats. The scapegoats are often not the largest companies,<sup>153</sup> but the ones that fail to reinvent.
3. Fossil fuel companies, particularly in the coal industry, should view their near-term cash flows as an opportunity to transition or diversify away from the assets and activities most at risk. They should develop strategies to do so.

#### Footnotes:

<sup>153</sup> Vergne, 'Stigmatized Categories and Public Disapproval of Organisations: A Mixed-Methods Study of the Global Arms Industry, 1996–2007.'

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## Campaigners

At the heart of the fossil fuel divestment campaign is concern for the climate change that burning fossil fuel reserves is likely to hasten. From this perspective, the divestment campaign is merely an intermediate objective to achieve far-reaching changes in the energy sector. For the campaigners, our recommendations are:

1. With respect to the divestment campaign, understand that the direct impacts are likely to be minimal. Instead the campaign might be most effective in stigmatising the fossil fuel industry, with the coal industry being most vulnerable, and particular companies within the industry.
2. With regards to maximising the direct impacts, the potential target area where campaigners can hope to achieve some measure of success is fossil fuel debt. The analogy we present here is that money flows like mercury—i.e. money has a tendency to form pools that move together through common channels driven by market norms. From this perspective, debt markets—market for banks loans—are ‘clumpier’ than the more decentralised equity markets. Our research suggests that it might be easier to block off channels of debt finance than equity. Campaigners can thus target large lending banks and pressure them to commit to a set of principles—equivalent to the anti-apartheid Sullivan Principles—that create obstacles for the debt financing of marginal fossil fuel projects. Closing off debt channels will not threaten survival, but it will make marginal projects harder to undertaking reducing fossil fuel Capex.
3. Divestment is the most drastic instrument in an investor’s corporate engagement toolkit. Communication with management of the target firm might be more effective in influencing corporate behaviour than divestment. Encourage investors to engage with fossil fuel companies to change corporate decision-making.
4. Divested holdings are likely to find their way quickly to neutral investors. These investors might have less developed corporate engagement toolkits and might be less willing to pressure fossil fuel companies on issues of environmental sustainability. This could have unintended consequences and should be considered when developing advocacy strategies.

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# STRANDED ASSETS

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PROGRAMME

Smith School of Enterprise and the Environment  
University of Oxford  
Hayes House, 75 George Street  
Oxford, OX1 2BQ  
United Kingdom

**E** [enquiries@smithschool.ox.ac.uk](mailto:enquiries@smithschool.ox.ac.uk)  
**T** +44 (0)1865 614942  
**F** +44 (0)1865 614960  
[www.smithschool.ox.ac.uk/research/stranded-assets/](http://www.smithschool.ox.ac.uk/research/stranded-assets/)

