Sustainability Framework

Lazard Quantitative Equity (LQE)

LAZARD
ASSET MANAGEMENT

In Focus

The net zero transition, reminiscent of the Industrial Revolution in scale and advancing with the rapidity of the Digital Revolution, is upon us. However, traditional ESG methodologies fall short in navigating this swiftly evolving environment. The vast majority emphasise the presence (or absence) of policies, coupled with mostly subjective, backward-looking assessments. Solely using them can handicap investors trying to navigate rapid change.

In our view, despite the numerous opportunities presented by the net zero transition, significant risks remain, particularly in the form of greenwashing. Companies making misleading claims about their environmental impact expose themselves to potential litigation and reputational damage. Our research reveals that, on average, companies with low greenwashing risk are decarbonising five times faster than those with high greenwashing risk. This implies that this latter cohort faces the additional risk of lower profitability from elevated, increasingly global, carbon prices.

- The net zero shift, monumental and rapid, outpaces traditional ESG methods, which are anchored in the past and emphasise policies.
- Greenwashing risks litigation and damages reputations; companies prone to it decarbonise slower and face risks to their profitability from rising carbon prices.
- The LQE Sustainability Framework offers a forward-looking solution, assessing operational risks and net zero pledges while addressing greenwashing by tracking environmental promise-performance gaps.

Exhibit 1.

The LQE Sustainability Framework

Operational Risk & Impact	Forward-Looking		Greenwash Risk
E/S/G + P	**Climate Alignment Assessment**	**Text Analysis**	**Promises – Action**
How well is a company managing material risks? How green are its revenues?	How ambitious/ credible are decarbonisation plans?	What is a company's strategy/attitude towards the transition?	Is there a large gap between what's promised vs. what's done?
MSCI, Sustainalytics, Bloomberg, WIND, LAM	CDP, SBTi, Net Zero Tracker, Trucost	Regulatory filings, LAM	Regulatory filings, LAM

For illustrative purposes only.

The Lazard Quantitative Equity (LQE) Sustainability Framework offers a systematic, forward-looking solution that addresses these shortcomings and tackles greenwashing (Exhibit 1). Our E/S/G+P model assesses risks material to a firm's operations, in addition to how 'green' its revenues are. Our Climate Alignment Assessment model disentangles the myriad net zero pledges, gauging their ambition and credibility. We use advanced natural language processing techniques to illuminate a company's planned strategy for the transition. Finally, we compare promises to actions to address the risk of greenwashing.

This holistic approach allows us to make informed, transparent decisions that are grounded in data. In doing so, it helps us deliver climate-aware investing in form and substance.

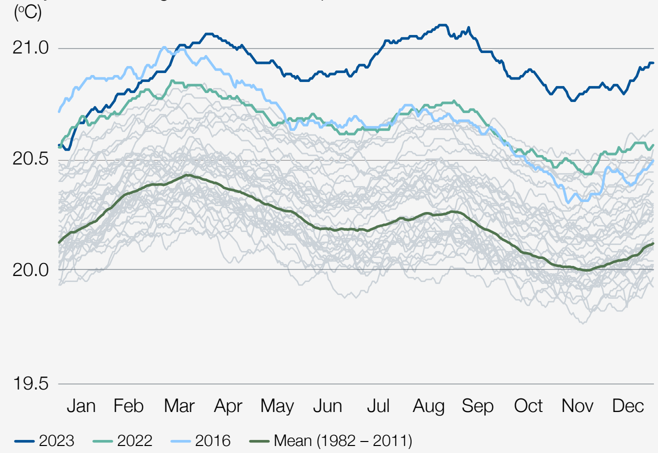
The Era of Global Boiling

> "The era of global warming has ended; the era of global boiling has arrived.
>
> António Guterres
>
> *United Nations Secretary-General, July 2023*[1]

Exhibit 2.

The Era of Global Boiling

Daily Global Average Sea Surface Temperatures – 1982–2023 (°C)



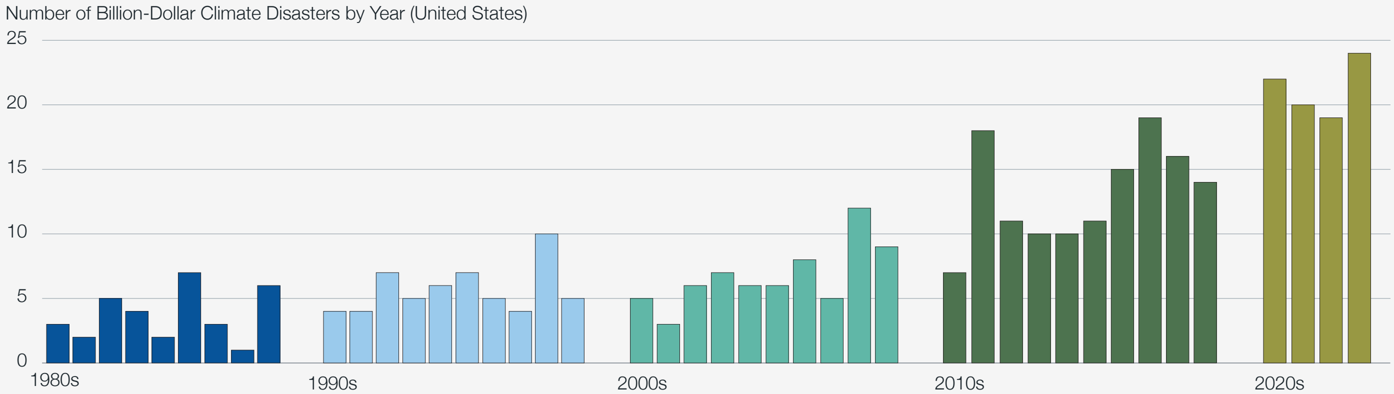
As at 30 December 2023. Source: Copernicus Climate Change Service.

The above declaration from UN chief Guterres last year followed back-to-back monthly global temperatures that were hotter than any in recorded history (Exhibit 2).[2] The comeuppance has been swift. We are now regularly confronted with the impacts of climate change—droughts, heatwaves, wildfires, floods—seemingly everywhere and all at once (Exhibit 3). But the most adaptive species on the planet, humanity, is responding to this potentially existential challenge.

The response may come with a colossal price tag: an estimated $3.6 trillion a year may be required to 2050 to finance the net zero transition, around 70% of which would go into renewable or low-carbon electricity generation, distribution, and storage.[3] Russia's invasion of Ukraine has turbo-charged this rollout: realizing the

Exhibit 3.

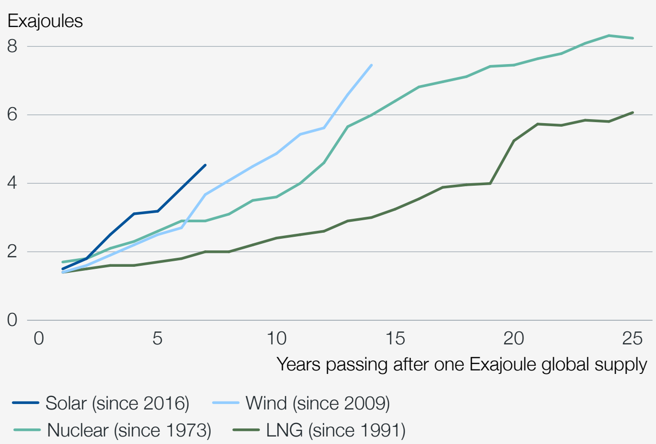
A $1bn Environmental Disaster Now Happens Every Three Weeks, Compared to Once Every Four Months in the 1980s



As of 30 December 2023. Source: NOAA National Centers for Environmental Information (NCEI).

Exhibit 4.

The Unprecedented Pace of the Solar and Wind Power Rollout



As at 30 December 2023. Source: Ember, IEA, Shell.

importance of self-sufficient power, countries are turning to harnessing the sun and wind (Exhibit 4).

The International Energy Agency (IEA) now expects nearly 2,400 GW of renewables (equivalent to China's entire installed power capacity) to be added to global electricity grids in just five years (2022–2027).[4] This is the largest ever upgrade to its forecasts: +30% on 2022's, and an 85% increase from the previous half-decade. China, the European Union, the United States, and India have led the net zero charge, adapting policies and regulations at a surprising pace in response to the Russia-Ukraine conflict and associated disruption to the global energy market.[5]

Similarly, several corporations—motivated either by the need to address potential risks to their business models arising from the net zero transition, or by the desire to capitalise on emerging opportunities—are taking decisive action by committing to decarbonisation efforts.

What's an Investor to Do?

In our view, the challenge for investors is how to navigate a transformative epoch as vast as the Industrial Revolution but which is advancing at the pace of the Digital Revolution. Topping a long list of challenges is the vast array of approaches to assessing sustainability.

With as many methodologies as there are rating agencies, "aggregate confusion" is a common gripe amongst investors.[7] Neudata, a research platform specialising in data vendor evaluation, has identified over 400 ESG-relevant datasets.[8] The industry is highly competitive and continues to undergo significant shifts and consolidation. ESG raters differ in size, philosophy, goals, targeted customers, and data sources. Of the leading vendors (Exhibit 5), only a handful request information directly from companies—in the form of a questionnaire or survey (marked 'Active')—and can thus offer a forward-looking opinion. The vast majority place emphasis on the presence (or lack thereof) of policy documents, coupled with a mixture of subjective and objective backward-looking assessments. This handicaps investors trying to navigate rapid change and is akin to driving at high-speed with your eyes fixed in the rear-view mirror.

> We have to change a system that was successful over the last 120 years within the next 10 years to a completely new system … we have to do it to save the planet. This is so massive that you can't do it alone.
>
> Martin Daum
>
> *Head of Daimler Truck, June 20236*

Exhibit 5.

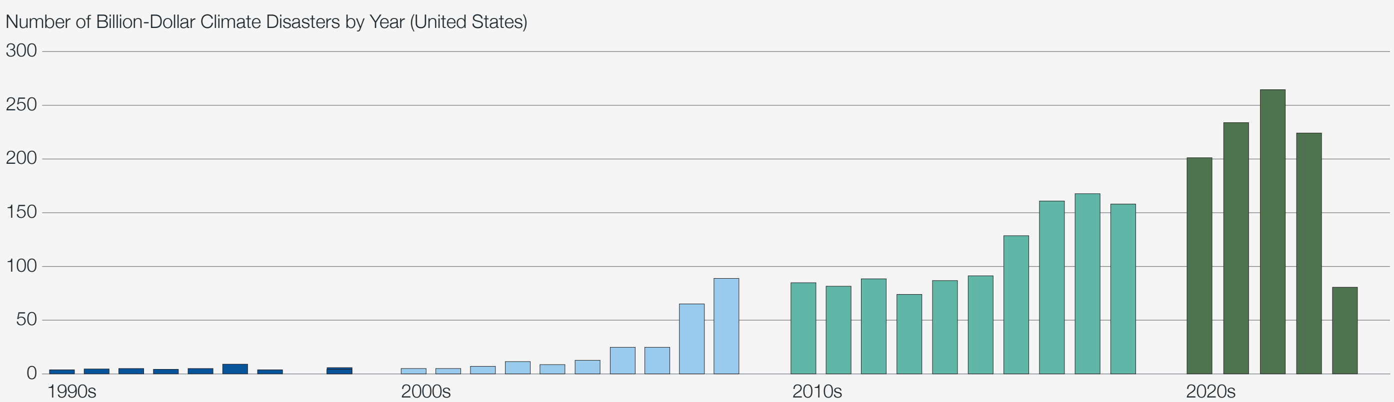
Leading ESG Data Vendors Are Mostly Passive

Vendor	Main Customer Base	Scope of Analysis	Source Category
Bloomberg	Institutional investors	Generalised	Passive
CDP	Institutional investors; Supply chain partners	Specialised	Active
EcoVadis	Supply chain partners	Specialised	Active
FTSE4Good	Institutional investors	Generalised	Passive
ISS-ESG	Institutional investors	Generalised	Passive
JUST Capital	Stakeholders and the public	Specialised	Passive
Moody's ESG	Institutional investors	Generalised	Passive
MSCI	Institutional investors	Generalised	Passive
Refinitiv	Institutional investors	Generalised	Passive
RepRisk	Other ESG raters;3rd-party due diligence for M&A	Specialised	Passive
S&P Global ESG	Institutional investors	Generalised	Active
Sustainable Fitch	Institutional investors	Generalised	Passive
Sustainalytics	Institutional investors	Generalised	Passive

As at 30 December 2023. Source: Lazard.

Exhibit 6.

A Surge in Cases Challenging Green Claims[11]



As at 31 May 2023. Source: ESRC Centre for Climate Change Economics and Policy (CCCEP).

As large as they may be, opportunities offered up by the energy transition also come with a fat asterisk: greenwashing. Misleading claims expose companies to legal action: approximately two-thirds of total climate-related cases (1,157) have been filed since the Paris Agreement in 2015 (Exhibit 6). Although recent 'anti-woke' sentiment slowed the tide of lawsuits in 2023, some, such as the State of California's against several of the world's biggest oil companies, are significant and could be copied elsewhere.[9] It has also not slowed down regulations: Europe's Green Claims Directive, the UK Advertising Standards Authority's guidance on misleading environmental and social responsibility, and the US Securities and Exchange Commission's new proposal for climate reporting and disclosure requirements were all issued in 2023.[10] And yet, the most severe repercussions may arise from the court of public opinion. Negative publicity generated by litigation can lead to swift and steep declines in market share.

Faced with a rapidly evolving array of data, abundant opportunities, and corresponding risks (especially greenwashing), how can an investor exercise financial prudence to seize the opportunities and sidestep excesses effectively?

Exhibit 7.

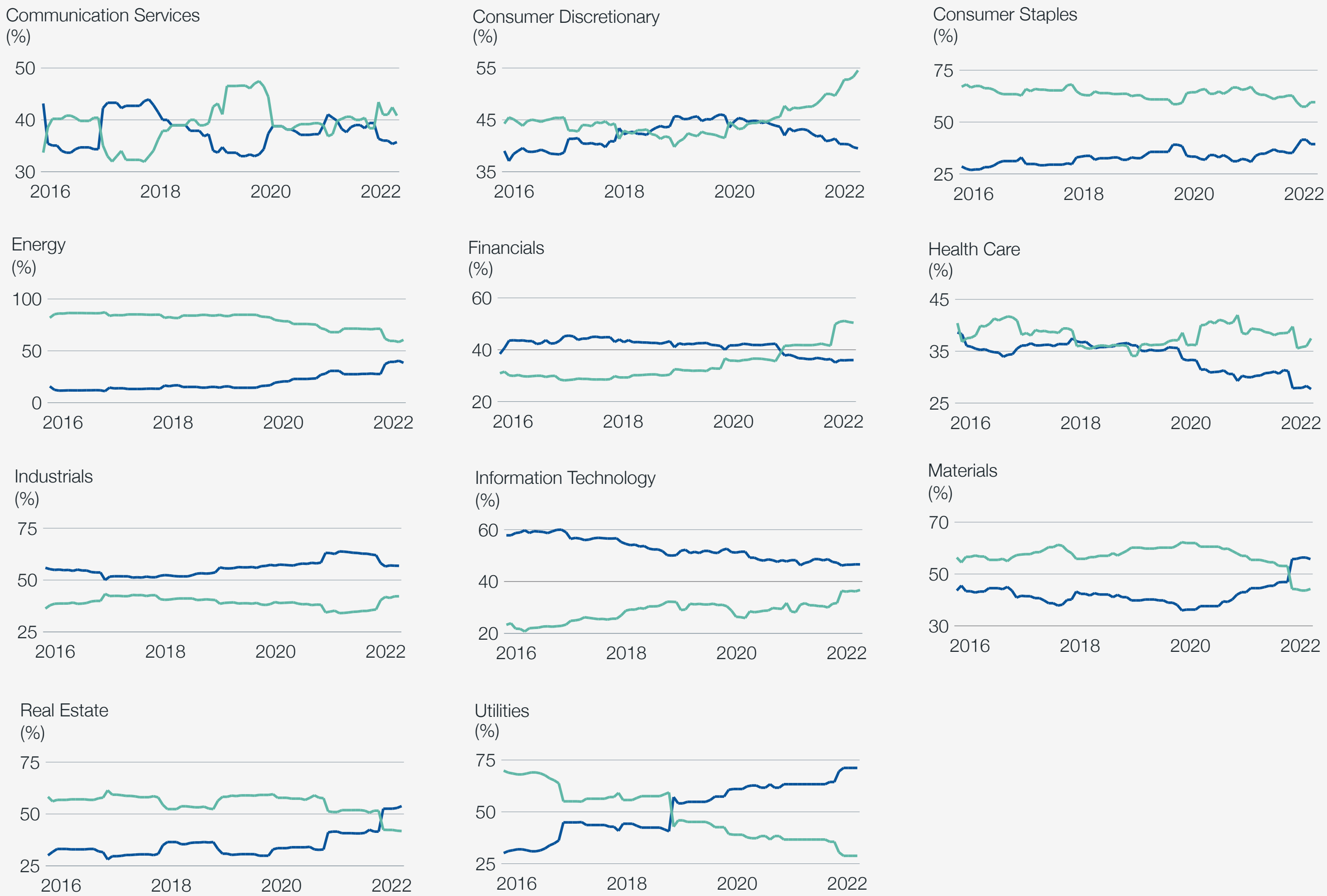
The LQE Sustainability Framework

Operational Risk & Impact	Forward-Looking		Greenwash Risk
E/S/G + P	Climate Alignment Assessment	Text Analysis	Promises – Action
How well is a company managing material risks? How green are its revenues?	How ambitious/ credible are decarbonisation plans?	What is a company's strategy/attitude towards the transition?	Is there a large gap between what's promised vs. what's done?
MSCI, Sustainalytics, Bloomberg, WIND, LAM	CDP, SBTi, Net Zero Tracker, Trucost	Regulatory filings, LAM	Regulatory filings, LAM

For illustrative purposes only.

Exhibit 8.

The Inflation Reduction Act's $350bn+ of Incentives Have Led to a Surge in Companies That View the Transition as an Opportunity



As at 30 June 2022. Source: Lazard, 10-K filings.

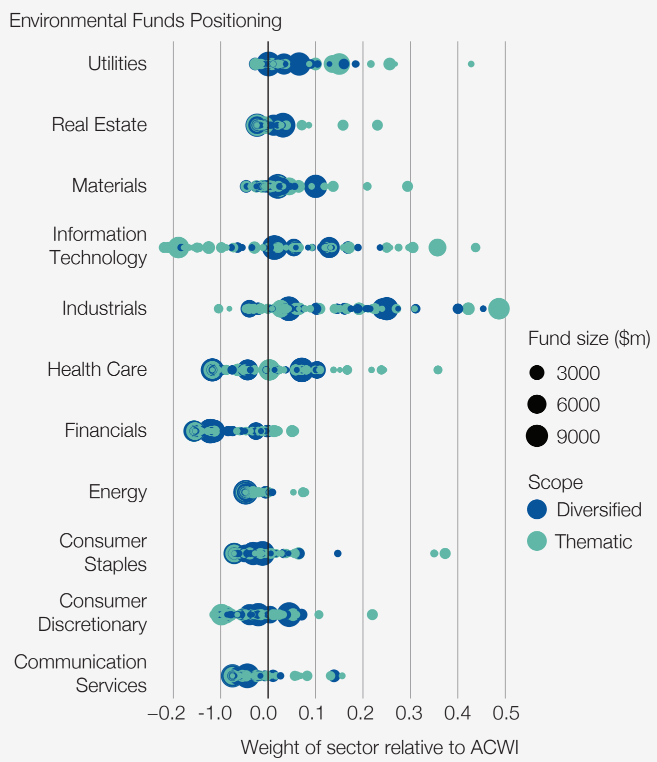
The LQE Sustainability Framework

Exhibit 7 (overleaf) summarises our approach to evaluating sustainability. Our E/S/G + P model assesses a given company's sustainability profile using four pillars. Three of these—Natural Capital, Human Capital, and Governance—assess risks that are material to a company's operations. The fourth—Product—reviews the impact of a company's goods and/or services on society and the planet (i.e. how 'green' its revenues are). Our Climate Alignment Assessment (CAA) model untangles the complex assortment of net zero (decarbonisation) pledges, evaluating their levels of ambition and credibility, while advanced natural language processing (NLP) techniques are used to extract a company's planned strategy for the transition. Finally, a company's promises are compared to its actions to gauge the risk of greenwashing. By using high-quality data from a diverse set of providers, combined with advanced data science techniques and fundamental analyst insights, our framework allows us to craft a comprehensive, forward-looking perspective to incorporate in our investment process.

This report aims to demonstrate our approach as it relates to capturing investment opportunities presented by the net zero transition and managing the associated risks.

Exhibit 9.

Crowded One-Way Sector Bets Miss Emerging Trends



As at 30 September 2023. Source: Morningstar.

Conventional Approaches Are Insufficient

Metamorphosis is a fascinating spectacle. To a caterpillar, the human life cycle is a dull monotone: birth, growth, maturity, all in the same form, simply amplified over time. Unlike humans, caterpillars undergo constant reinvention. Hatching from an egg, shedding skin, and sprouting new heads, they transform within a pupa, dissolving and reassembling into something entirely new.

In our view, the transformation required for most firms is, like that undergone by a human, thankfully familiar. Once zero-carbon power (which underpins decarbonisation in almost every sector) is secured, most face well-known risks: the immediate (physical) impact of climate change on their operations; stronger rules from governments; and shifts in customers' demands. Others—like energy, utilities, car manufacturers, and so on—need to completely reinvent themselves, much like a caterpillar, to keep pace. Irrespective of industry, all face a wave of technological innovations that can create opportunities as well as costs—opportunities that their competitors may be first to exploit. With this in mind, we apply NLP techniques to companies' annual reports to extract an objective measure of their attitudes towards the transition. Exhibit 8 (overleaf) shows the results for US corporates.

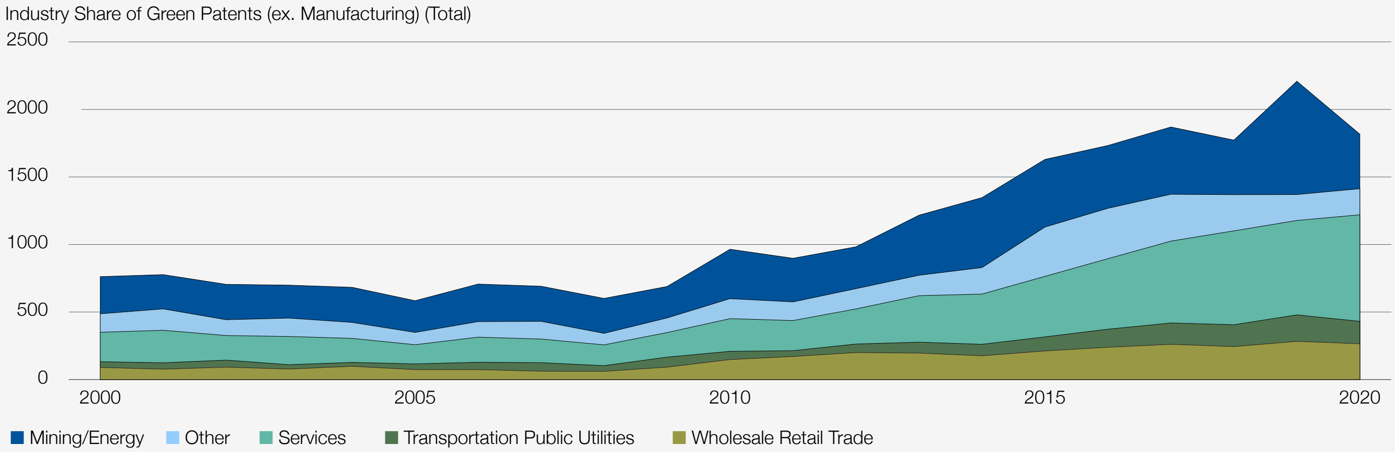
From our perspective, most utilities companies see the net zero transition as an opportunity particularly after 2019—a watershed year in which many US states (the most in a single year) and dozens of firms in the sector made ambitious clean energy commitments.[12] The Inflation Reduction Act's powerful incentives are also visible, characterised by distinct surges in companies that have considered it an opportunity across several sectors (most noticeably in energy, materials, and real estate). This stance translates into capital spending: a year after it was signed into law, the US private sector has announced more than $110 billion in new clean energy manufacturing investments.[13]

Contrasting these trends with environmental fund holdings (Exhibit 9, overleaf) reveals some blind spots, partly driven by a reliance on backward-looking conventional approaches. Almost all funds with a broad mandate are overweight technology and utilities, and underweight energy. Despite the ubiquity of tech stocks in ESG funds, a bottom-up view tells us that an increasing number of technology firms are concerned, not jubilant, by the demands of meeting net zero. Hugging Face, a French-American AI start-up, undertook the sector's first attempt at estimating the carbon footprint of a large language model (LLM).[14] It estimated it takes 25 tonnes of carbon to train an LLM, and double that figure when the manufacturing of the computer equipment, broader computing infrastructure, and the energy required to actually run the model once trained are included—equivalent to flying from London to New York 60 times. And this was achieved with a French (nuclear-powered) electricity grid. Model training in countries with predominantly fossil fuel-based energy grids emits multiples more carbon.

Meanwhile, being rigidly underweight energy overlooks the fact that some innovative energy companies are first-movers in many green technology fields. A recent study of green patent activity in the US found that the energy sector's share is large and growing (Exhibit 10, overleaf). The authors also found that energy firms are over twice as likely to produce green patents than other firms, including top-rated ESG ones. Additionally, their green patents are of higher quality, earning more citations.[15]

Exhibit 10.

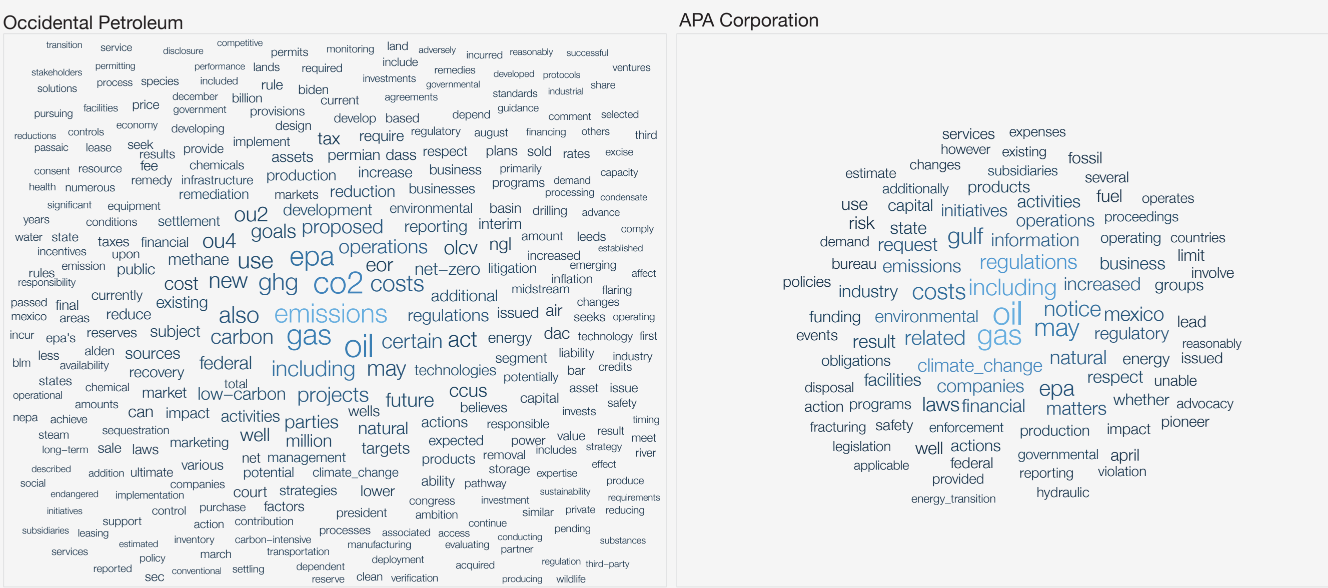
The Energy Sector's Significant Share of Green Patents



As at 17 July 2023. Source: European Corporate Governance Institute (ECGI).

Exhibit 11.

Occidental Petroleum: Seizing the Day; APA Corp: Net Zero Not a Priority



As at 27 February 2023. Source: Lazard, company filings.

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LQE's Systematic Forward-Looking View

Text analysis offers a powerful and high-quality source of forward-looking information. Powerful because we can conduct it across thousands of companies and multiple languages. High quality because of both our emphasis on regulatory filings rather than sustainability reports, which often resemble marketing materials, and its objective nature, which minimises the influence of human bias.

Our assessment goes beyond the commonly used word count and sentiment analyses, focusing instead on the context of what companies are saying. In this way, we can gauge whether a company is intent on innovating to 'seize the day' or if it is preoccupied with the risks accompanying the transition. To illustrate, consider energy companies Occidental Petroleum and APA Corporation, both of which are rated positively by MSCI ('A' rating) and poorly by Sustainalytics ('Severe' rating).

Exhibit 11 contrasts their discussion of the transition. Occidental devotes more than four times as many words to the subject, likely signalling its importance to the company. Furthermore, APA's discussion is limited in scope to mostly regulatory obligations and associated costs, while Occidental's is more diverse and includes future projects in carbon management technologies: direct air capture (DAC) and carbon capture, usage, and storage (CCUS). This analysis thus leads us to prefer Occidental, which sees the transition as an opportunity. Indeed, the company announced last August its intention to acquire Carbon Engineering, a DAC start-up backed by Bill Gates, for $1.1bn in cash.[16] It plans to have 70 DAC facilities, each with the potential to capture a mega-tonne of carbon per year, by 2035. This level of commitment to a nascent technology is very telling of the company's ambitions, which dwarf those of APA: to reduce the intensity (not absolute) level of its direct (i.e., excluding Scope 2 and 3) emissions by 10%–15% by 2030.[17]

Climate Alignment Assessment Model

To date, 196 nations have pledged to reach net zero by 2050, complemented by close to 300 regional governments, over 10,000 cities, and 15,000 companies.[18] For an investor, this vast array of commitments presents a challenge. There are differences in the type of targets (absolute versus intensity-based), the scope of emissions covered (direct or indirect), the base year from which progress is measured, and so on.

To help us gauge their credibility and level of ambition, we follow definitions laid out in the IIGCC Net Zero Investment Framework. It was launched in 2021 by four investor networks representing 27 countries with $65tn in assets. The framework provides a common set of recommended actions, metrics, and methods through which investors can maximise their contribution to net zero. We score companies on six pillars—ranging from how well they disclose data and if their targets are science-based, through to planned capital expenditure—using data from a broad set of providers (Exhibit 12, overleaf).

Exhibit 12.

The Energy Sector's Significant Share of Green Patents

40% Ambition
- Long-term net zero target
- Forty percent of ACWI constituents have set a long-term target and a quarter of these aim to be carbon neutral by 2040

45% Targets
- Short- or medium-term emissions targets
- Nearly half have interim targets, with absolute emissions targets outnumbering intensity targets by a factor of 2.5x

30% Decarbonisation Strategy
- Quantifiable business plan for decarbonisation
- Thirty percent of targets are externally validated

30% Capital Allocation Alignment
- Demonstration of capex alignment to decarbonisation
- Thirty percent have credible capital expenditure plans

20% Emissions Performance
- Current emissions vs. targets
- One in five companies is in line or ahead of their targets

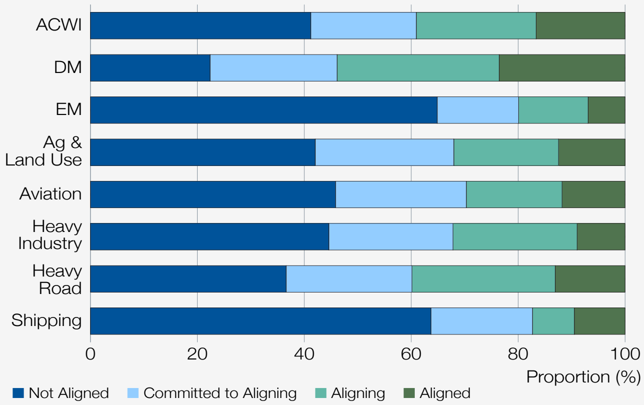
15% Disclosure
- Disclosure of Scope 1, 2, and 3 emissions
- Only fifteen percent have disclosed Scope 3 emissions

As at 17 July 2023. Source: European Corporate Governance Institute (ECGI).

The result—a score from which companies' commitments are categorised from 'Not Aligned' to 'Aligned'—reveals that most listed companies globally have some form of commitment (Exhibit 13). Among emerging markets, however, only one-third do. Moreover, a considerable number in carbon-intensive industries, such as shipping and agriculture, continue to operate in a business-as-usual fashion, with weak pledges that are misaligned. Carbon prices now cover 23% of global emissions, up from 5% in 2010. As pricing expands worldwide, the profitability of these firms is at risk from rising costs. Take food producers, whose industry is responsible for a staggering one-third of global emissions.[19]

Exhibit 13.

CAA Scorecard



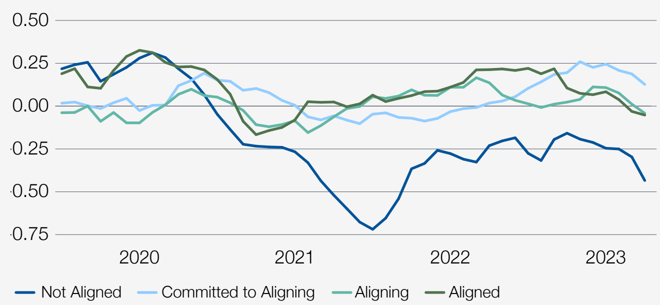
As at 30 March 2023. Source: Lazard, MSCI.

Exhibit 14.

Global Carbon Prices Remain Elevated … Dampening the Outlook for Misaligned Companies

(a) IHS Markit Global Carbon Index (Level)

(b) Net Earnings Revisions for Food Product Companies (Std Dev from Mean)



As at 31 October 2023. Source: Lazard, Blomberg, I/B/E/S.

Exhibit 14 traces their forecast earnings outlook and reveals a striking trend: those with misaligned net zero commitments suffered severe earnings downgrades in 2021–2022, as carbon prices nearly tripled.

As prices remain elevated, and weight-loss drugs dim the sector's earnings outlook, they continue to suffer more than peers who align or commit to aligning.

Not All That Glitters Is Gold

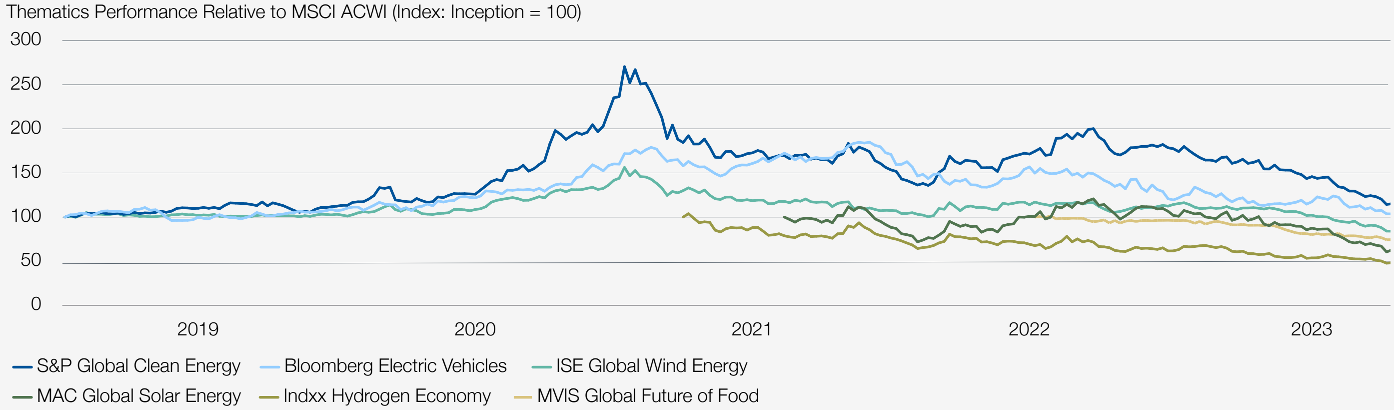
There may be gold in them thar transition hills, but not all that glitters is gold. History is replete with examples of investors getting swept up in the excitement of the theme du jour, only to suffer large losses. The climate transition is no different, and the last five years have been painful for investors that relied on passive thematic exposures to the trend (Exhibit 15).

> “There's gold in them thar hills!
>
> Attributed to M.F. Stephenson (1802–1882), a noted geologist, referring to the California Gold Rush, popularised by Mark Twain's 1892 novel 'The American Claimant'.

Exhibit 15

ESG Thematic Investors Have Suffered

Thematics Performance Relative to MSCI ACWI (Index: Inception = 100)



As at 13 October 2023. Source: Bloomberg.

The S&P Global Clean Energy index, composed of green energy and utility companies in roughly equal measure, underperformed global equities by one-third in 2023. Those tracking the more nascent hydrogen economy have underperformed by more than half since inception. The prospect of sustained higher interest rates weighs heavily on growth-oriented companies, especially affecting bond-proxy sectors like utilities—the worst-performing sector in the S&P 500 Index in 2023. This experience emphasises the importance and necessity of tempering exuberant expectations with a practical assessment of reality.

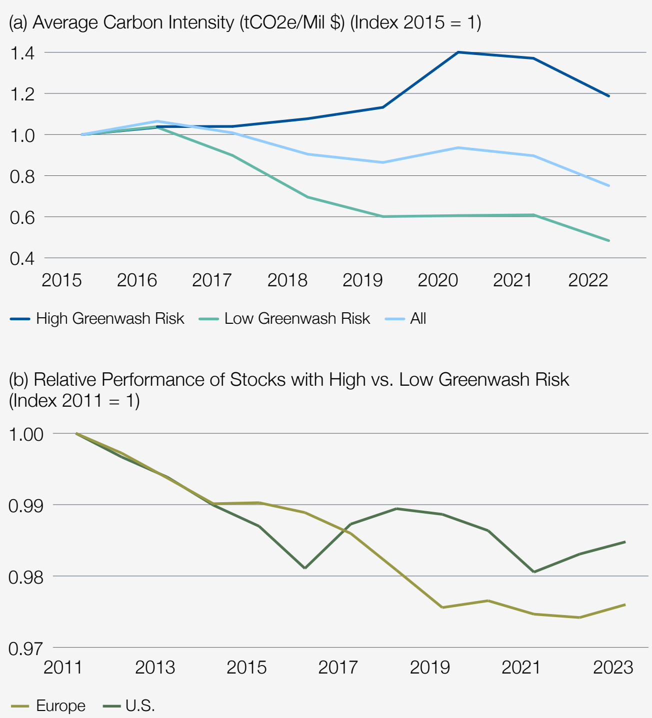
Mind the Gap

We refine our forward-looking sustainability assessment with an objective measure of greenwashing risk. This is calculated by comparing companies' promises in regulatory filings to real actions concerning their carbon footprint. Companies with a large gap between what they say versus what they do are deemed to be at high risk of greenwashing.

Our research reveals that, on average, companies with low greenwashing risk are reducing the intensity of their emissions five times faster than those with high greenwashing risk (Exhibit 16a). This implies this latter cohort is doubly exposed to the two major risks covered earlier in this report: lower profitability from elevated, increasingly global carbon prices; and reputational damage from potential litigation. We also find that US companies with high greenwashing risk have underperformed those with low greenwashing risk by 200 basis points (bps) per year since 2011. In Europe, it is slightly more at 250 bps per year (Exhibit 16b).

Exhibit 16

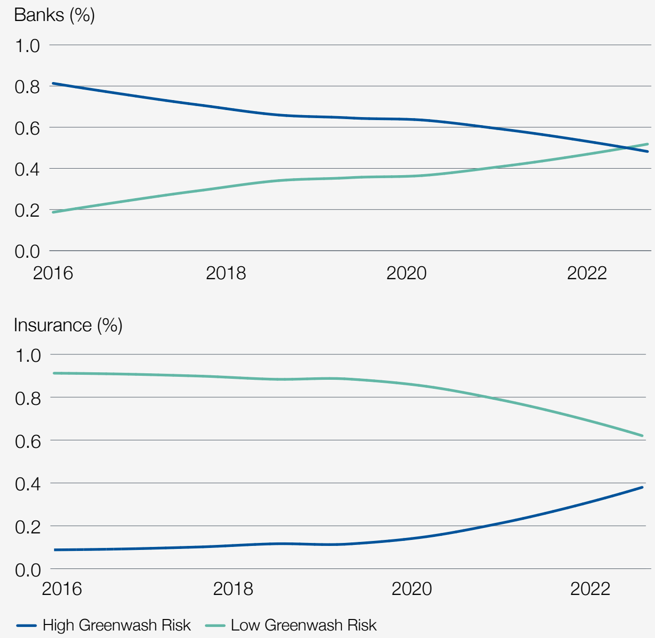
Low Greenwashing Stocks Are Decarbonising Faster; High Greenwashing Stocks Underperform



As at 30 November 2023. Source: Lazard

Exhibit 17

Greenwashing Risk Is Growing amongst Insurers



As at 27 February 2023. Source: Lazard, company filings.

But the risks do not stop here. The latest incident data on misleading communications from data vendor RepRisk reveals that greenwashers are also more likely to social wash, suggesting a deeper malaise in corporate culture.[20] This risk is particularly acute for smaller companies: across both Sustainalytics and MSCI's rating categories, they tend to have higher greenwashing risk.

More nuanced trends arise within sectors. Amongst US financials, for example, greenwashing risk is falling within banks following some prominent fines and acute activist pressure not to fund fossil fuel expansion (Exhibit 17). However, the insurance industry is experiencing an opposite trend, and it appears that advocacy groups are shifting their focus towards these firms. A new report reveals that global insurance giants continue to underwrite US coal production significantly, despite public commitments to restrict coal coverage.[21] Sixteen insurance companies underwrite the top 25 coal-producing mines in the US, accounting for over 60% of the nation's coal production. Several are found to be violating their own policies or exploiting loopholes. And it also highlights a double standard in the industry: they are stopping the sale of policies to homeowners vulnerable to climate disasters while continuing to support coal mines.

In Summary

A decade ago, the world was on track for a four-degree rise in temperatures by 2100. Today, swift expansions in renewable energy have altered this path. The IEA's first global stocktake of the Paris Agreement shows that China installed as many solar photovoltaics last year as the whole world in 2022, enhancing worldwide capacity by half. Europe, the US, and Brazil also saw record renewable capacity boosts.22 All of this is a powerful reminder that the climate transition is not a distant prospect but a present, fast-changing reality.

In this report, we have argued that traditional approaches to sustainability assessments are not adequate for navigating change. Often widely different, anchored in the past, and policy-focused, these assessments limit investors in a fast-evolving landscape. And with the net zero's transition's promise come risks, especially greenwashing. Companies overstating their eco-friendliness court legal and reputational dangers.

The LQE Sustainability Framework offers a systematic, forward-looking solution to these shortcomings. Our E/S/G+P model assesses risks material to a firm's operations, in addition to how 'green' its revenues are. The Climate Alignment Assessment model disentangles the myriad net zero pledges, gauging their ambition and credibility. Advanced natural language processing is employed to decode a company's transition strategy. And by minding the gap between promises and actions, we tackle the risk of greenwashing.

This holistic approach allows us to make informed, transparent decisions that are grounded in data. In doing so, our framework helps us deliver climate-aware investing in form and substance.

Important Information

Notes

1 UN News, "Hottest July Ever Signals 'Era of Global Boiling Has Arrived' Says UN Chief." (27/07/2023).

2 "Preliminary Data Shows Hottest Week on Record. Unprecedented Sea Surface Temperatures and Antarctic Sea Ice Loss." (10/07/2023).

3 Energy Transitions Commission, "Financing the Transition: How to Make the Money Flow for a Net Zero Economy." Technical Report, 2023.

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7 Florian Berg, et al. "Aggregate Confusion: The Divergence of ESG Ratings." Review of Finance 26 (6), 2022, pp. 1315–44.

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9 California Governor, "People of the State of California v. Big Oil" (16/09/2023).

10 European Commission, "Directive of the EU Parliament and Council on Substantiation and Communication of Explicit Environmental Claims (Green Claims Directive)."

Technical Report, 2023. Financial Times, "EU to Ban Unproven Claims in Greenwashing Crackdown" (21/09/2023).

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12 World Resources Institute, "2019 Was a Watershed Year for Clean Energy Commitments from U.S. States and Utilities" (20/12/2019).

13 The White House, "One Year in, President Biden's Inflation Reduction Act Is Driving Historic Climate Action and Investing in America to Create Good Paying Jobs and Reduce Costs" (16/08/2023).

14 Alexandra Sacha Luccioni, et al., "Estimating the Carbon Footprint of BLOOM, a 176B Parameter Language Model." Journal of Machine Learning Research 24 (253), 2023, pp. 1–15.

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17 Occidental Petroleum Corp, "APA Corporation Announces 2023 ESG Goals" (01/03/2023).

18 Global Climate Action, "Actor Tracking" (01/10/2023).

19 M. Crippa, et al., "Food Systems Are Responsible for a Third of Global Anthropogenic GHG Emissions." Nature Food, (2), 2021, pp. 198–209.

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