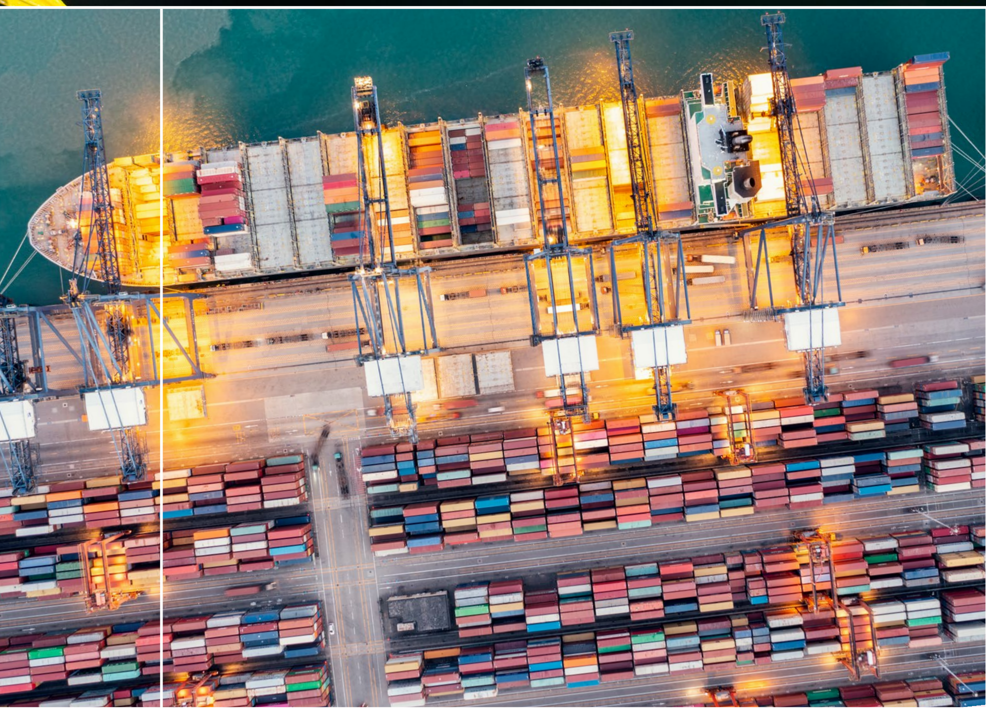
T. Rowe Price®

2022

ESG

INVESTING ANNUAL REPORT

How ESG impacts our investment decisions



Environmental, Social, and Governance (ESG) Investing Annual Report. Issued September 2023.

> Our goal is to help clients achieve their investing goals—whether financial, sustainable, or both.

Rob Sharps,
CEO and President,
T. Rowe Price

OUR ESG JOURNEY

As of December 31, 2022.
Not all vehicles are available in all jurisdictions.

2022

NZAM
Signatory of the Net Zero Asset Managers (NZAM) initiative

ESG Enablement
Hired head of ESG Enablement to optimize ESG initiatives and oversee a centralized team 100% dedicated to ESG operations

Launch of TRPIM[1]
T. Rowe Price launched separate investment adviser with its own specialist ESG team

2021

TRPIM[1] RIIM[2] Corporates
Rollout of proprietary ESG research tool that builds an ESG profile for companies within TRPIM's U.S. investment universe

RIIM Municipal Bonds and RIIM Securitized Bonds
Rollout of proprietary ESG rating system for municipal bonds and securitized bonds[4]

Launch of First Impact Strategies[4]

ESG Reporting
Implementation of portfolio-level ESG reporting

UN Global Compact
Commenced as a signatory

Launch of ESG Enhanced Products
Launch of first suite of strategies that promote ESG characteristics in Europe

2020

Corporate ESG
First director of corporate ESG hired

TCFD Supporter
Commenced as supporter of the Task Force on Climate-Related Financial Disclosures (TCFD)

2019

RIIM Sovereigns
Rollout of proprietary ESG rating system for sovereigns[4]

SASB Alliance
Commenced as a member of the Sustainability Accounting Standards Board (SASB) Alliance

2018

RIIM Corporates
Rollout of proprietary ESG rating system for equity and credit[4]

2017

Responsible Investing
Hired director of research to establish in-house responsible investing expertise (environmental and social)[4]

2014

Sustainalytics
Sustainalytics ESG ratings are embedded in company note templates

2013

"E" and "S" Research
Sustainalytics appointed as specialized ESG research provider

2012

CSR Report
First Corporate Social Responsibility (CSR) Report issued

2010

PRI[3]
Signatory to the Principles for Responsible Investment (PRI)

2008

Corporate Responsibility
Investment policy on corporate responsibility established

2007

Governance
Hired head of corporate governance[4]

2006

Diversity and Inclusion
Established Diversity and Inclusion function and team in Human Resources

[1] T. Rowe Price Investment Management, Inc. (TRPIM).
[2] RIIM = Responsible Investing Indicator Model.
[3] The PRI is an independent investor initiative supported by, but not part of, the United Nations.
[4] T. Rowe Price Associates, Inc. (TRPA)

Welcome

Eric Veiel
Head of Global Equity and CIO, TRPA

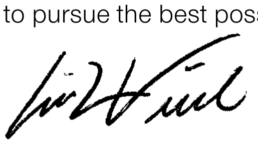
Over the past decade, ESG has experienced a meteoric rise in financial markets, but the events of 2022 certainly dampened its public perception and called into question the methods that some market participants are using. ESG's year of reckoning had different responses in different parts of the world, but I would argue that each geography is grappling with the same two issues—intentionality and measurement.

We have long emphasized that the umbrella term of ESG sits above two distinctly different activities: (1) investment strategies that consider ESG as part of their analysis for the purpose of maximizing financial performance and (2) providing investment products with dual mandates that include sustainable objectives alongside financial returns. At T. Rowe Price, the vast majority of our assets under management do the first, which is known as "ESG integration". We also have select investment products and separately managed client accounts with sustainable investment objectives or ESG characteristics, alongside financial performance, as desired outcomes. In 2022, these assets accounted for 5% of our assets-under-management, or $65bn.[1]

We believe many in the industry have muddled these two distinct mandates. In Europe and Asia, where many regulators have started focusing more intensely on product labeling, we are seeing a cleanup across the industry. In the United States, the discourse has been more politically driven, but the heart of the issue is ensuring that asset managers are performing their fiduciary duty. T. Rowe Price received formal inquiries from two U.S. state governments seeking assurance that we do not engage in blanket boycotts of specific industries. In both cases, the states agreed with our assertion that our ESG research activities do not constitute boycotts.

The second big issue is measurement, given the relative nascency of environmental and social data sets. While every year we see more issuers reporting data, we are still in the initial stages of coalescing around global standards and ensuring every issuer is reporting comparable data. T. Rowe Price has long advocated use of the Sustainability Accounting Standards Board (SASB) and Task Force on Climate-Related Financial Disclosures (TCFD) standards—both have been incorporated in the new International Sustainability Standards Board (ISSB) standard. We will encourage our investee companies to utilize ISSB as it comes into effect and would find it helpful for regulators and market participants to align around these metrics.

Despite the very noisy and negative headlines of 2022, we believe products with ESG mandates have a place within a broader asset allocation framework. Over the long term, we feel they should be able to deliver comparable or possibly even better relative performance compared with single mandate products, while also meeting the needs of clients who are seeking a dual mandate. Industry data show that despite the headline controversies around ESG investing, inflows to these strategies outpaced single-mandate strategies globally in 2022. With more clients expressing interest in dual mandates, we plan to grow our product offerings in this space. Further, we will continue to strengthen our analytical capabilities, including ESG, to pursue the best possible results for our clients.



[1] Source: T. Rowe Price as of December 31, 2022. AUM includes assets managed by T. Rowe Price Associates, Inc., and its investment advisory affiliates excluding Oak Hill Advisors, L.P.

This document reflects the ESG investment activity of T. Rowe Price Associates, Inc. (TRPA), and its investment advisory affiliates. It does not include Oak Hill Advisors, L.P. (OHA), an alternative credit manager that T. Rowe Price Group, Inc., acquired on December 29, 2021, unless otherwise noted.

OUR ESG INVESTING APPROACH

ESG Integration Lays the Foundation

ESG considerations are incorporated across our investment platforms. We believe ESG issues influence investment risk and return, and so we integrate them into our fundamental investment analysis. ESG considerations form part of our overall investment process alongside other factors to identify investment opportunities and manage investment risk. At T. Rowe Price, this is known as ESG integration. As part of our wide range of investment products, we also offer products with specific ESG objectives and/or that promote ESG characteristics. For example, as many of our clients' goals are not purely financial, we manage portfolios that invest in ways that seek to align with their values (ESG Enhanced) or have the potential to drive positive environmental or social change (Impact).

Overview of ESG Investment Approaches

ESG INTEGRATION

Seeks to deliver competitive financial returns. Analyzes ESG factors for the **purpose of maximizing investment performance**.

ESG ENHANCED

Seeks to promote specific ESG characteristics alongside financial returns by incorporating binding environmental and/or social commitments that will vary by product type, such as:

- Values- and conduct-based exclusions
- Greenhouse gas (GHG) reduction targets
- Alignment to sustainable investments
- Positive ESG tilt, including those using RIIM[2]

IMPACT[1]

Seeks to deliver positive societal and/or environmental impact alongside financial returns. Investments are classified according to three proprietary impact pillars:

- Climate and resource impact
- Social equity and quality of life
- Sustainable innovation and productivity

ESG Integration Process

We view ESG integration as foundational—it is a core investment capability embedded in our investment research platforms across asset classes. ESG integration takes place on two levels:

- first, our research analysts incorporate ESG factors into security valuations and ratings;
- second, portfolio managers balance ESG factor exposure at the portfolio level as appropriate to their strategy.

Analysts and portfolio managers are able to leverage dedicated, in-house resources to assist them in analyzing ESG criteria. Our specialist ESG teams provide investment research on ESG issues at the security level and on thematic topics. They have built tools to help proactively and systematically analyze the ESG factors that could impact our investments. This includes our proprietary Responsible Investing Indicator Model (RIIM),[3] which underpins our ESG integration processes.

[1] TRPIM does not currently have any Impact products.
[2] The Responsible Investing Indicator Model (RIIM) rates companies using a traffic light system, measuring their environmental, social, and governance profile and flagging companies with elevated risks.
[3] TRPA and TRPIM have separate ESG teams and RIIM products. Decisions for TRPA and TRPIM ESG teams are made completely independently, but they use a similar approach, framework, and philosophy. The implementation and oversight of RIIM for TRPA and TRPIM differ.

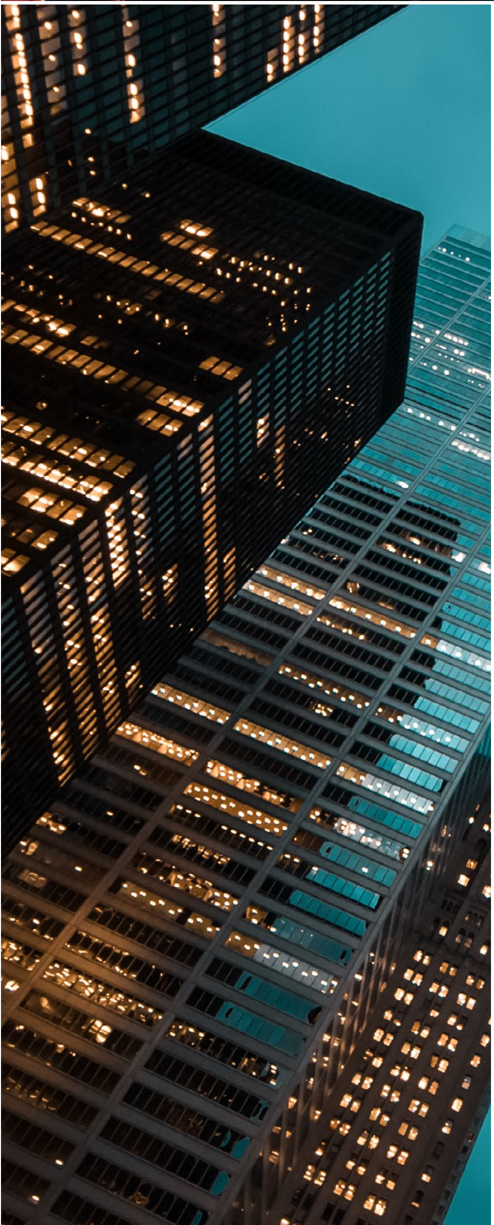
RIIM provides a uniform standard of due diligence on ESG factors across our investment platforms. It also establishes a common language for our analysts, portfolio managers, and ESG specialists to discuss how an investment is performing on ESG criteria and to compare securities within the investment universe.

RIIM frameworks are tailored across asset classes covering equities and corporate bonds, sovereign bonds, municipal bonds, and securitized bonds.[4,5]

	1 Identification	2 Analysis	3 Integration
EQUITIES AND CORPORATE BONDS	TRPA and TRPIM RIIM create an ESG profile for companies using third-party ESG data sets, company-reported data, and data sets created internally.	A subset of securities undergo an additional fundamental review to fine-tune our RIIM analysis. The process includes incorporating additional information and insights not provided by the quantitative data set. Securities identified for further review can be chosen for a variety of reasons, such as ownership levels, presence of orange or red flags, stewardship targeting, and/or as part of industry reviews.	**Analysts and portfolio managers incorporate ESG factors (as appropriate to their strategy) into:** ▪ Investment theses ▪ Company ratings ▪ Price targets ▪ Credit ratings ▪ Engagements ▪ Position sizing ▪ Proxy voting decisions
SOVEREIGN BONDS	TRPA RIIM creates an ESG profile for approximately 200 sovereign issuers, leveraging data sets created by nongovernmental organizations and third parties as well as data sets created internally.		
MUNICIPAL BONDS	Our TRPA municipal bond analysts create an ESG rating for issuers by evaluating specific criteria for individual issuers. To establish RIIM ratings, the analysts conduct research in-house. Environmental and social analysis leverages geospatial research tools.		
SECURITIZED BONDS	Our TRPA securitized bond analysts create an ESG rating for issuers by evaluating specific criteria for individual issuers. To establish RIIM ratings, the analysts conduct research in-house leveraging external data sources, as well as their own direct research. Where there is overlap on issuers, the analysts can leverage RIIM scores from other asset classes.		

[4] Note: The implementation and oversight of RIIM for TRPA and TRPIM differ. TRPIM RIIM covers equities and corporate bonds only. TRPA has RIIM coverage of approximately 15,000 corporate issuers, 200 sovereign issuers, 1,400 municipal issuers, and 1,200 securitized issuers. TRPIM has RIIM coverage of approximately 6,500 corporate issuers.

[5] For certain types of investments, including, but not limited to, cash, currency positions, and particular types of derivatives, an ESG analysis may not be relevant or possible due to a lack of data. Where ESG considerations are integrated into the investment research process, we may conclude that other attributes of an investment outweigh ESG considerations when making investment decisions. On our proprietary RIIM frameworks, green indicates no/few concerns, orange indicates medium concerns, and red indicates high concerns.



We view ESG integration as foundational—it is a core investment capability embedded in our investment research platforms across asset classes.

Aligning to Global Frameworks

United Nations Sustainable Development Goals

The United Nations Sustainable Development Goals (SDGs) are a blueprint for a more sustainable world. Signatory countries are expected to establish a national framework for achieving each of the 17 SDGs.

While the SDGs are a tool to allow countries to implement sustainability regulations, they are also commonly adopted as a framework for identifying ESG-related pressure points that can impact corporate and other securities. Indeed, the goals are represented across the range of factors that we analyze within RIIM.

Companies are likely to face greater scrutiny in relation to the sustainability objectives of the SDGs over time.
This could include greater regulatory burdens, taxation, litigation, and/or consumer dissatisfaction. Conversely, companies that provide solutions are likely to have much more sustainable business models. It makes sense, therefore, that our RIIM analysis is aligned with the SDGs.

Source: United Nations.
The trademark shown is the property of its owner.

United Nations Global Compact

T. Rowe Price is a signatory to the United Nations Global Compact (UNGC). Established in 1999, the UNGC has 10 principles built around human rights, labor standards, the environment, and anticorruption. In addition to capturing whether companies are signatories to the UNGC, RIIM measures UNGC values on multiple levels.

Sustainability Accounting Standards Board (SASB)

T. Rowe Price is a member of the SASB Alliance. We advocate for our investee companies to utilize the reporting framework.

Task Force on Climate-Related Financial Disclosures (TCFD)

T. Rowe Price is a supporter of the TCFD. We advocate for our investee companies to utilize the reporting framework.

International Sustainability Standards Board (ISSB)

T. Rowe Price is supportive of the ISSB and its development of standards that seek a high-quality, comprehensive global baseline of sustainability disclosures focused on the needs of investors and the financial markets.

International Capital Market Association (ICMA)

We adhere to ICMA's Green Bond Principles, Social Bond Principles, Sustainability Bond Guidelines, and Sustainability-Linked Bond Principles frameworks for the evaluation of sustainable bonds.

ESG Accountability

Provide updates to the Nominating & Corporate Governance Committee

T. Rowe Price Group Board of Directors

- Audit Committee
- Executive Compensation and Management Development Committee
- Nominating and Corporate Governance Committee

T. Rowe Price Funds/ Trusts Board of Directors, Management Companies, and Investment Advisers

Provide updates on proxy voting, exclusion policies, and other ESG investment processes

T. Rowe Price Management Committee

Oversees corporate strategy and implementation

Eric Veiel, head of Global Equity and CIO, TRPA, has responsibility for ESG, including investment, operations, and corporate activities.

Investment Management Steering Committee

Enterprise Risk Management Committee

Investing Steering Committees

ESG Oversight Committee

Oversees ESG operational activities including development and implementation of ESG strategy initiatives, and corporate ESG activities.

ESG Investing Committees

Assist in the oversight of ESG investing activities including ESG policies, engagement program, proxy voting, exclusion lists, and ESG investment frameworks (such as RIIM, impact, Net Zero, etc.).

IMPLEMENTATION TEAMS

ESG Enablement

Responsible for developing and implementing the firm's ESG strategy. This includes ESG activities outside those related to the investment process, such as:

- T. Rowe Price's ESG strategy
- Execution of ESG initiatives
- Product, marketing, and corporate ESG
- Fostering ESG collaboration across the organization

Risk

Monitors the firm's risks from an investment and operational perspective. This includes climate risk and other ESG risks.

Investment Platforms (TRPA & TRPIM)

Portfolio managers are accountable for integrating and monitoring ESG factors across portfolio holdings, engagement, and proxy voting as appropriate to their mandate.

ESG specialists support analysts and portfolio managers by providing ESG analytics, issuer and thematic research, portfolio analysis, and assisting with stewardship activities.

Investment analysts are accountable for integrating ESG factors into their research process and investment analysis.

T. Rowe Price Investment Management, Inc. (TRPIM) was established as a separately registered U.S. investment adviser, with a separate ESG team from T. Rowe Price Associates, Inc (TRPA). Decisions for TRPA and TRPIM ESG teams are made completely independently but use a similar approach, framework, and philosophy.

T. Rowe Price Group Board of Directors

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Eileen P. Rominger
Former Senior Advisor, CamberView Partners

Robert W. Sharps
Chief Executive Officer and President, T. Rowe Price Group, Inc.

Mark S. Bartlett
Retired Managing Partner, Ernst & Young

Dina Dublon
Retired Executive Vice President and Chief Financial Officer, JPMorgan Chase & Co.

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Robert F. MacLellan
Non-executive Chairman, Northleaf Capital Partners

> “Last year was a particularly challenging one for financial markets, yet throughout the year we maintained the pace of our investment into our core capabilities around ESG. We expanded our ESG-focused teams and created additional ways to report our progress to our stakeholders. The Nominating and Corporate Governance Committee hold ourselves and T. Rowe Price Group management accountable for the commitments we have made, those within our investment processes and those governing the sustainability of the corporation itself.
>
> **Dr. Freeman Hrabowski III**
> Chair, Nominating and Corporate Governance Committee

* Note: photograph represents the Board as of December 31, 2022. Mary K. Bush retired from the Board on May 9, 2023, after 11 years of service. Richard R. Verma resigned from the Board effective March 3, 2023, after he was nominated in December by President Joe Biden to be his deputy Secretary of State for Management and Resources.

ESG INTEGRATION IN ACTION

Q&A - An ESG Lens on the Value Space

How do you think of ESG factors within your investment process?

ESG factors are important for two reasons. First, ESG considerations are of growing importance to the market, and whatever is important to the market needs to be systematically considered. Second, ESG factors can impact a company's long-term fundamentals, as well as the valuations investors are willing to pay. So, I think of ESG factors as qualitative inputs that need to be integrated into my investment process because they can help evaluate critical risks and highlight long-term opportunities.

John Linehan
TRPA Portfolio Manager, U.S. Value

Given the relative prominence of the energy, materials, and industrials segments of the value universe, value investors need to take a thoughtful approach to environmental concerns. Such concerns speak to the longer-dated risks to a company's fundamentals and can shed light on operational concerns. Prior to becoming a portfolio manager, I was an investment analyst covering energy and paper and forest product companies. One thing that became very clear to me was that companies that prioritized ESG considerations were more likely to experience fewer operational mishaps over time than those that did not.

> ...companies that prioritized ESG considerations were more likely to experience fewer operational mishaps over time than those that did not.

We also focus our efforts on highlighting potential social risks for each company we analyze and evaluating whether those risks are manageable in the intermediate to longer term. Since my investment process is focused on identifying valuation dislocations, it is sometimes a social misstep that has caused a stock to look attractive. In those instances, we may seek to engage with the company to better understand the risk and the steps being taken to remediate the risk. Markets can be slow to fully appreciate the remedial action being taken by a company, and this is where our bottom-up investment research platform can create value. We believe a company that has improved management of social issues can make a good investment as they are better able to mitigate these risks.

Governance inputs are another key feature of our integrated approach. Without strong corporate governance, feedback from the market and other stakeholders tends to be ignored, making it more likely that a company fails to address key issues that can lead to it becoming a poor investment. One of the key roles of a corporate board is capital allocation. It has been my experience that bad capital allocators have tended to underperform, and bad capital allocation has often been a function of important stakeholder feedback being ignored or not being properly communicated to the board.

How important are ESG factors in the U.S. value equity space?

The importance of integrating ESG factors into the investment process is no different for value investors than any other equity investors. That said, as mentioned earlier, the U.S. value universe, by its very construct, will typically have greater exposure to sectors with inherently greater ESG risk, such as energy, materials, and industrials. Regardless of how progressive a company is, or how diligent an ESG steward, if its business is ultimately damaging to the environment, then it will not score highly on ESG criteria. However, in the near term, traditional fossil fuels like oil and gas, for example, are still much-needed sources of energy and thus remain essential components within the global economy. If fossil fuels were suddenly eliminated as energy sources, then it would be impossible to generate sufficient electricity to power towns and cities, to provide necessary heat during wintertime, and to move goods and products from the supply source to the end market. Our global economy would come to a screeching halt.

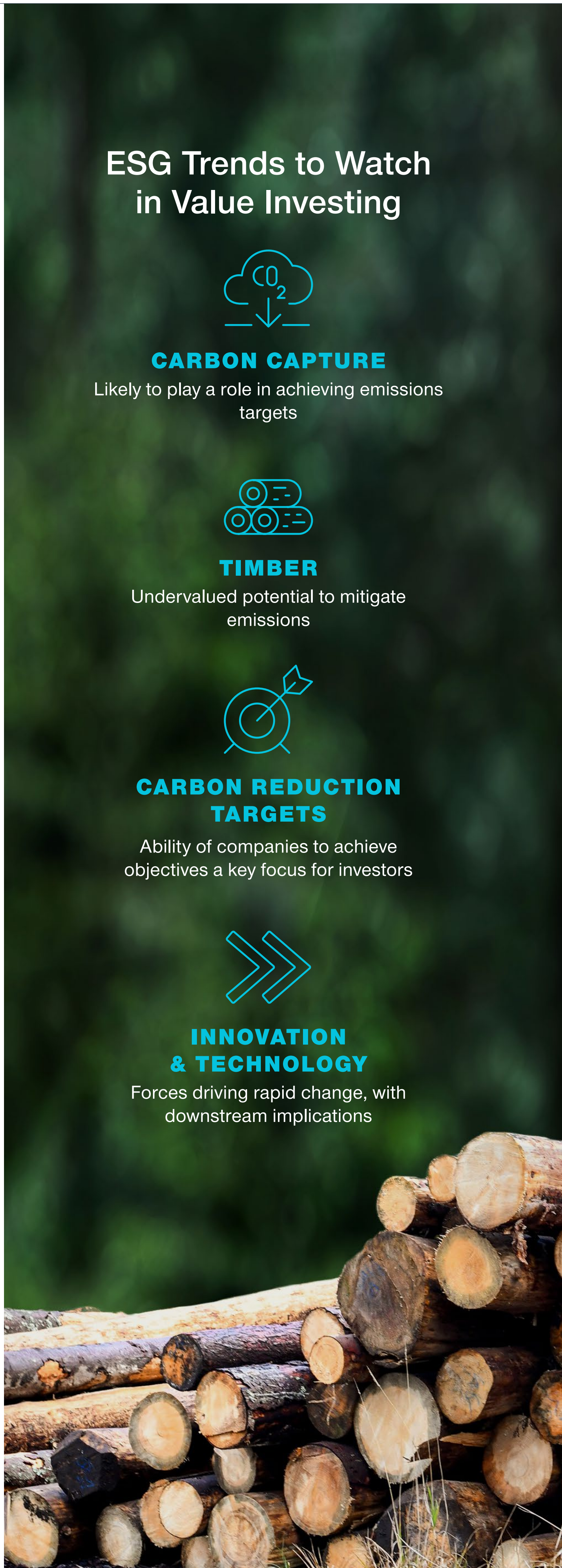
For value-oriented investors, in particular, it is not simply a case of avoiding companies with negative ESG implications. Often, there is a case for working closely with companies to better understand the existing ESG risks that they are facing and their plans for addressing these risks. Having a fuller appreciation of what the path to improvement will look like, and determining the likely success of any improvement plan, will influence our decision to invest. Ultimately, in my view, companies that are able to manage and address ESG risks are more likely to have higher terminal values than companies that cannot.

What are the ESG trends to watch within U.S. equities?

One trend we are monitoring closely is the growing number of companies announcing carbon reduction targets. With considerable regulatory and public pressure on companies to reduce their carbon footprints, some of the targets look ambitious, and a failure to meet these announced targets could have significant negative investment implications. We have spent a great deal of effort on better understanding the plans being laid out, and one of our main conclusions is that sequestration (capturing and storing carbon) will play a significant role in achieving net zero. Planting trees can be a cheap and effective way of removing carbon from the atmosphere. As such, timber looks like an underappreciated and undervalued asset, in my view, and a potentially interesting long-term investment opportunity.

Another trend we will continue to monitor is new technologies and how they may impact companies. With the amount of investment, policy initiatives, and social forces behind crucial global issues like carbon reduction, we expect to see significant innovation and advancement in these areas. Understanding the downstream effects of new technologies is important for value investors, so we will need to be diligent in evaluating these effects and incorporating them into our views.

This is an illustrative example of how ESG factors could be incorporated into the investment process. The views expressed may differ from those of other investment professionals at T. Rowe Price.



Q&A - ESG in Emerging Markets Corporate Bonds

How do you think of ESG factors within your investment process?

Incorporating ESG is an important part of our investment process and framework. Our philosophy consists of three core tenets: integration, collaboration, and materiality. First, **integration** is key as we embed ESG throughout the investment process—from our research right through to our investment decisions and then ongoing monitoring. Second, **collaboration** means that we work closely with our in-house responsible investing and governance teams. The third tenet is **materiality** as we focus on ESG factors that we consider the most likely to have a material impact on investment performance, either positively or negatively.

Siby Thomas
TRPA Co-portfolio Manager, Emerging Market Corporates

In emerging markets (EM), we believe that it is important to look at potential investments through a range of lenses. We emphasize the need for cognitive diversity in our approach and believe that ESG offers us another angle to do this. During our research process, our dedicated EM credit analysts assess a variety of fundamental factors, including traditional balance sheet metrics, alongside corporate governance and other ESG factors. This helps us to gain a holistic credit assessment of the company, which is essential given the potential higher risks inherent in emerging markets lending. The incorporation of ESG analysis is supported by inputs from our responsible investing and governance teams and our proprietary Responsible Investing Indicator Model. This approach can help uncover considerations that more traditional financial analysis may overlook, which we believe gives us a potential competitive edge.

How important are ESG factors in the emerging market corporate bond space?

ESG factors have become critical in the EM credit space. We are seeing more regulation of environmental and social issuers. Many emerging market economies will face elevated adverse impacts from climate change without the necessary financial resources to devote to climate adaptation. Additionally, companies are now much more mindful around the risks of being a so-called bad actor in ESG and how that could be detrimental to their ability to access funding in the future.

“...company engagements are vital to our investment process as they enable us to advocate for positive change around an issuer’s ESG practices.

Generally, ESG trends among EM companies have been improving, although there is still a long way to go. We believe it is important to focus on where EM companies are going to be in five or 10 years from now, but ESG data are often backward looking. That is why company engagements are vital to our investment process as they enable us to advocate for positive change around an issuer’s ESG practices. For example, last year, a Brazilian media company approached us for guidance around sustainability. This led to us helping the company develop a sustainability framework, and it then went on to issue its first sustainability-linked bond.

What are the ESG trends to watch within EM credit?

First is the shift away from fossil fuels toward renewables, which we expect to gather pace. It is likely to hit individual emerging markets differently with some, such as Latin America, potentially better positioned to transition because they have hydro and other sources of energy available. It may be harder for companies located in South Africa and India as there are fewer sources of natural transition—so they will need to be more strategic in their transition approach.

Second is demand for customization. Clients and prospects have their own ESG values, which they want their portfolio aligned with. This might take the form of more stringency around corporate governance or a particular focus on the environment or social factors.

Third is the market for sustainable bonds. We expect the market share will keep on growing, but caution is warranted as this fast-growing, yet still nascent, category has proven vulnerable to greenwashing—where some issuers provide misleading information about the environmental credentials of an organization's products, services, and investments. For example, there are signs of companies selling ESG-labeled bonds for environmental/social projects that lack credibility or, in the case of sustainability-linked bonds, setting targets that are either easy or have already been achieved. Therefore, fundamental research is critical. We utilize our proprietary ESG bond framework, which helps us to evaluate the quality and credentials of a sustainable bond and to ascertain whether we should pay the "greenium"[1] often associated with these types of bonds.

[1] A greenium is where investors are typically willing to pay more for an ESG-labeled bond than the plain vanilla equivalent bond, despite both carrying the same level of credit risk.

This is an illustrative example of how ESG factors could be incorporated into the investment process. The views expressed may differ from those of other investment professionals at T. Rowe Price.

ESG Trends to Watch in the EM Corporate Bond Space

ENERGY TRANSITION

In the shift from fossil fuels to renewables, transition pathways will vary across the EM landscape

ESG VALUES

Investor ESG values and needs vary and require customized solutions

SUSTAINABLE BONDS

Market share is likely to continue to grow, but quality and credentials need to be closely monitored

FOCUS THEMES

Keeping Pace With the Energy Transition

A rebound in oil prices in 2022 helped spur an ESG backlash in the United States, while, at the same time, the energy crisis forced some European markets to take a step back on their transition to clean energy. Despite these challenges, the energy crisis, coupled with growing geopolitical tensions, may have ultimately sown the seeds for a faster energy transition.

Maria Elena Drew
Director of Research, Responsible Investing, TRPA

In 2020 and 2021, market commentators were eager to herald the impending death of the fossil fuel industry. Oil and gas prices were depressed due to the pandemic's impact on energy demand, and investors had trimmed energy holdings—leaving the sector with very low valuations. When the world started to reopen after the pandemic, demand picked up, boosting oil and gas prices. This was followed by Russia's invasion of Ukraine, which caused a major supply disruption from one of the world's largest oil and gas exporters. The media and other commentators then pivoted to herald the demise of ESG.

The reality is that both accounts were too short-sighted and alarmist. Energy transition is a monumental undertaking that will take many decades—it is deeply complex, and its success or failure cannot be measured in yearly increments. A common way to depict the energy transition is the energy mix required to reach net zero[1] by 2050 and stay within a 1.5°C pathway.[2] Given that this is a forward-looking scenario, it is typically illustrated as a straight-line transition, which can create an overly simplistic perception of the journey. In reality, there will be many ups and downs as the multitude of factors driving energy supply and demand play out. The simplified straight-line transition forecast will ultimately be made up of many twists and turns.

Following the post-pandemic economic rebound and energy crisis, the tone and rhetoric on energy transition turned decidedly negative in 2022; however, we believe there are many positive-leaning factors that should be considered when evaluating the pace of change. First, a look at historical technological revolutions indicates that the social tensions we are currently experiencing are very normal for this type of change—in the past, they have indicated a turning point ushering a period of economic prosperity. Second, some progress is being made on energy transition and global figures may not be the most informative indicators. Third, the idiosyncrasies of energy transition (in comparison with other technological revolutions) will make regulation a critical driver of success or failure.

[1] Net zero refers to a state where greenhouse gas emissions into the atmosphere are balanced by removals (such as through forests or carbon capture and storage).
[2] The 1.5°C pathway refers to the measures required to contain global temperature increases to 1.5°C above pre-industrial levels.

Technological Revolutions—Economic Growth Followed Social Upheaval

Historical technological revolutions have displayed a pattern of new technologies displacing established industries and destroying jobs on a huge scale, followed by a prolonged period of prosperity. Because financial capital drives the mobilization of production capital into new technologies, it is not uncommon to experience asset bubbles and crashes, which in turn reveal the inequalities that have resulted from the new technology. In their study "Technological Revolutions: Which Ones, How Many and Why It Matters: A Neo-Schumpeterian View", Carlota Perez and Tamsin Murray Leach highlighted that each technological revolution had a "turning point," which heralded a golden age characterized by a great surge of development. While technological revolutions tend to create volatility and may destroy many jobs short term, in the long run more jobs tend to be created, although often in new industries or geographies.

Notably, new jobs can emerge in areas that were previously unimagined. These new opportunities may not be suitable to the existing skill set of the unemployed, however, particularly if created outside the new high-tech sectors or in a different geography. For example, the age of oil, autos, and mass production led to a rise in suburban living in the U.S., generating demand for housing and new consumption patterns.

Given the level of social displacement and recession that inevitably followed asset bubbles and crashes, it was not uncommon to see a rise in populism and heightened political division. Historically, a new golden era of economic growth followed the recessionary turning point, when the new technology moved from a niche application to a broader one.

The Sustainable Golden Age?

Historical technological revolutions have followed a pattern, with a bubble emerging, followed by recession and then a golden age of development.

	BUBBLE	RECESSION	GOLDEN AGE
1771 | Industrial Revolution (Britain)	Canal Mania	1797–1801	Great British Leap
1829 | Steam and Railways (Britain)	Railway Mania	1848–1850	Victorian Boom
1875 | Steel and Heavy Engineering (Britain, U.S., Germany)	Global Infrastructure Build	1890–1895	Progressive Era
1908 | Oil, Autos, Mass Production (U.S.)	Roaring '20s	1929–1933 Europe 1929–1943 U.S.	Post-War Economic Boom
1979 | Information, Communications, Technology (U.S.)	1990s Tech and Telecoms 2000s Housing and Global Financial Crisis	2000–2003 2007–2009	**Global Sustainable Golden Age?**

Actual future outcomes may differ materially from past events. For illustrative purposes only.

Source: Based on Perez 2016—Perez, C (2016) "Capitalism, technology and a green global golden age: the role of history in helping to shape the future" in Mazzucato and Jacobs (eds), Rethinking Capitalism. London: Wiley Blackwell.

This Revolution Has a Few Twists

We believe that the transition to clean energy is indeed a technological revolution, but it has some distinctly different characteristics to prior revolutions.

The first is that the increase in productivity from clean energy is not as clear-cut as other instances, where the new technology provided immediate and direct benefits to the consumer. In the case of energy transition, the benefit will be derived from two sources—one has a clear and direct benefit to the consumer (energy efficiency), while the other is less direct (renewable energy).

An easily observable direct benefit to industry from energy efficiency is that more efficient resource use leads to lower costs. The contribution of energy efficiency in net zero scenarios is substantial. In the International Energy Agency's net zero scenario, absolute energy demand is forecast to decline by 16.5% between 2020 and 2050, despite continued population and economic growth.[3] A review of 77 different 1.5°C scenarios indicated that the median decline in energy use per capita would fall 37%.[4]

The benefits to the consumer from renewable energy and decarbonization are more circuitous. For example, renewable energy benefits from less cyclicality than fossil fuels, which has an economic benefit for manufacturers (although, in many cases, it still requires subsidies or carbon tax avoidance for it to be the most economically efficient source of energy). Renewable energy is usually generated domestically, which brings improved security of supply. Renewable energy also brings public health benefits—according to the World Health Organization, air pollution from fossil fuels (one of the leading causes of premature death globally) caused $2.9 trillion in health and associated economic costs globally in 2018. And, last but not least, decarbonization from the transition to renewable energy should mitigate the worst effects of physical risk that will result from global warming.

The interaction between new clean energy technologies and the products they displace will also be different from the historical experience. In prior technological revolutions, new technologies coexisted with those they eventually displaced for very long periods of time. However, to stay within a 1.5°C warming scenario this coexistence will not be feasible, meaning regulators must actively work to displace fossil fuels.

Another differentiator is that energy transition sits within a broader technological revolution that happens to align with the needs of sustainable innovation—namely the information revolution. The information revolution brings its own potential to drive a different type of social disruption than experienced historically. Previous revolutions have focused on replacing physical work with machines, while the information revolution is about replacing mental power with digital technologies and artificial intelligence. Not only are two technological revolutions acting to displace workers, but the information revolution will likely create an altogether different type of displacement than previously experienced.

Measuring Progress—Watch the Leading Indicators

As a byproduct of combustion, greenhouse gas emissions have been linked to economic growth since the start of the Industrial Revolution. Reducing greenhouse gas emissions without disrupting economic growth requires changes in the way energy is produced and lost to inefficiencies, which both require significant long-lived capital investment. This means, at the current stage of the transition, the measurement of progress must focus on leading indicators.

Chart 1 illustrates on a global basis, a strong improvement in energy intensity (amount of energy per unit of economic growth), but only modest progress in energy mix (CO_2 emissions per unit of energy used). For high-income countries,[5] trend improvements in energy intensity and energy mix are more pronounced (Chart 2). Furthermore, absolute energy demand (Chart 3) and CO_2 emissions (Chart 4) have been mostly declining for more than a decade.

For high-income countries, we are also starting to see a decoupling of gross domestic product (GDP) growth and carbon emissions. This is most clearly illustrated by data inputs of the Kaya Identity (Charts 5 and 6). The Kaya Identity expresses the total emissions of carbon dioxide as a product of four factors: population, GDP per capita, energy intensity (per unit of GDP), and carbon intensity (emissions per unit of

[3] International Energy Agency, World Energy Outlook, 2020.
[4] Energy systems in scenarios at net-zero CO_2 emissions, DeAngelo, Azevedo et al, Nature Communications (October 2021).
[5] High-income countries is a World Bank classification. High-income countries are defined as any with gross national income per capita in excess of $13,205 (fiscal year 2023).

Relative Change in Energy Intensity[6] and Mix[7]:

Chart 1 - World

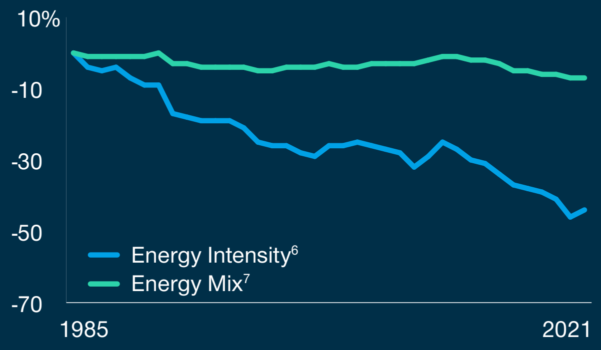
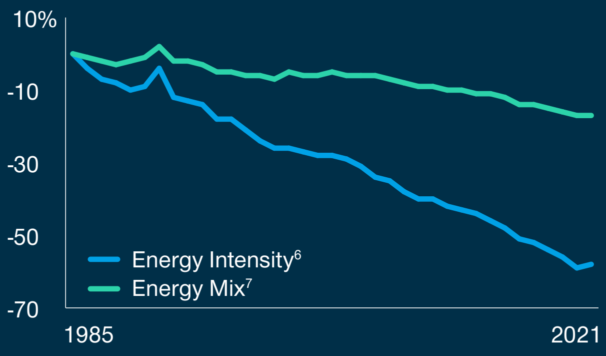


Chart 2 - High-Income Countries



Change in Energy Consumption and Emissions:

Chart 3 - Total Energy Consumption (5-Year CAGR[8])

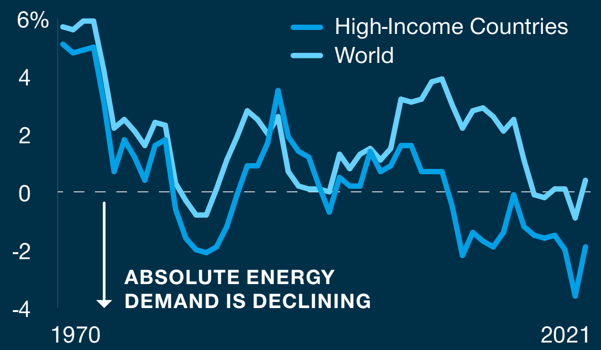
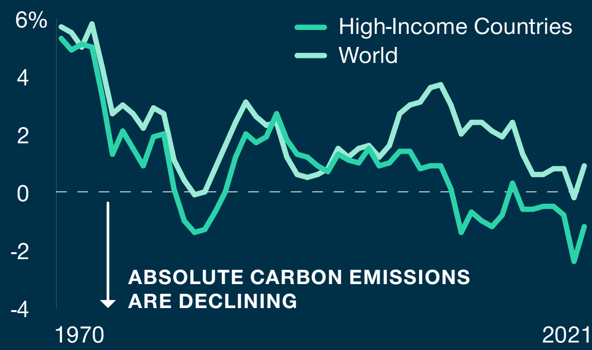


Chart 4 - Total CO_2 Emissions (5-Year CAGR[8])



Relative Change in Kaya Identity Inputs:

Chart 5 - World

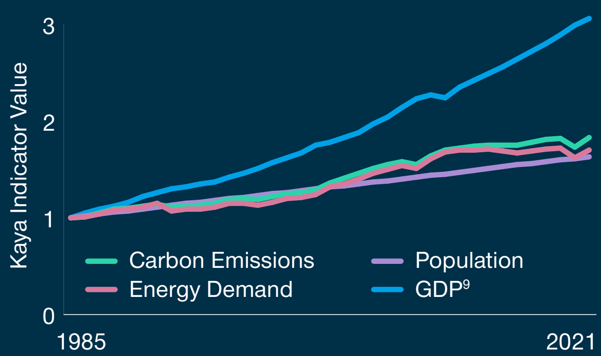
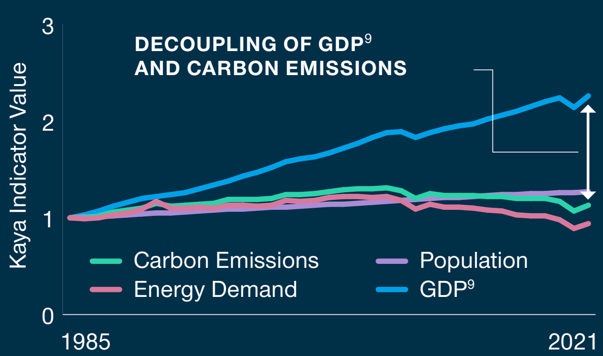


Chart 6 - High-Income Countries



As of December 31, 2021.

Actual future outcomes may differ materially from past events.

[6] Energy Intensity = Energy per unit of GDP (economic growth).

[7] Energy Mix = Carbon emissions per unit of energy used.

[8] CAGR = Compound Annual Growth Rate. It represents the consistent rate of growth had the indicator compounded at the same rate each year over the previous 5 year period.

[9] GDP = Gross domestic product (Per Capita).

Sources: Our World in Data based on Global Carbon Project, UN, BP, World Bank, analysis by T. Rowe Price. Most recent data available.

energy consumed). It is a helpful tool to understand decarbonization trends and their relationship to economic growth and population change. As virtually every government deploys policies to drive GDP growth and few countries are willing to make policies that materially change population growth, the potential for political influence really sits with the latter two of the formula's four components (energy and carbon intensity).

The progress made in high-income countries predominantly reflects changes in the electricity generation mix, which is roughly halfway through its transition. In the coming years, we expect several "next acts" of the energy transition to accelerate—namely decarbonization of transportation, industry, and buildings. As energy transition investments extend beyond electricity generation in a much more meaningful way, we expect the investment opportunities to expand across many sectors, potentially creating a "golden age" akin to those seen in prior technology revolutions.

Predicting Change—Science and Economics

Scientific models have generally proven to be accurate about the pace and impact of climate change; however, economic models have repeatedly underestimated the adoption of clean energy technologies. We believe a big reason why is that economic models have struggled to incorporate broader social and systemic feedback loops. For example, many economic models are heavily focused on carbon taxes as the key catalyst for new technology adoption; however, in practice, we have seen many companies adopt greener business practices based on a variety of drivers (e.g., subsidies for green technologies, the expectation for carbon taxes or other punitive regulation, reduced energy cost volatility, consumer preference for greener products, employee recruitment and retention, etc.).

Economic models also generally struggle to cope with factoring in paradigm shifts, which is a highly prevalent issue for energy transition. An interesting example of this was highlighted by the European energy crisis in 2022, which amplified the friction points stemming from green energy deployment across an electricity market designed for the fossil fuel era.

[11] Source: Our World in Data, based on BP World Energy Review, 2021. Most recent data available.
[12] Non-fossil fuel sources include hydro, renewables, and nuclear.

In Europe, most electricity prices are set based on the marginal fuel price, which makes sense for a market dependent on imported fossil fuels. It ensures the Continent can attract the fuel it requires and incentivizes investment to secure supply in the future. However, with renewables, hydro, and nuclear now generating a majority of electricity supply, is this market structure still the best way to meet European energy requirements? A rebasing of the market structure would represent a type of new equilibrium that is difficult for economic models to factor into their assumptions and would likely lead to faster adoption of renewables and other technologies driving decarbonization.

The Impact of Public Policy

The idiosyncrasies of energy transition—namely forced phaseout of the displaced technology (fossil fuels), coexistence with the information revolution (displacement of mental power with digital technologies), and reliance on subsidies/carbon taxes to make clean energy technologies economically viable—have the potential to drive substantial volatility. We expect that regulators around the world will take varying approaches and act at different speeds when progressing through their energy transition. Political will and the resources available to each country will likely be key drivers of the pace of transition.

Importantly, we see evidence that clean energy is moving from niche to broader applications. As the new technologies continue to increase their market share, new market equilibriums will be set that can drive even faster adoption. In many cases, governments will be in a position to smooth the path to reaching these new equilibriums. We believe those that can manage more orderly transitions are likely to create more stable operating environments for the companies and other securities in which we invest.

Energy Transition and Investing

Regardless of the path taken by governments or the speed of the transition, the pervasiveness of energy transition across the economy makes it an investment factor that is important to understand and integrate into our research analysis.

Despite the recent ESG backlash, we believe the events of 2022 have likely sown the seeds for a faster energy transition. In Europe, renewables are linked to energy security solutions and received a regulatory boost from the EU Green Deal. In the United States, the Inflation Reduction Act is driving an influx of green capital investment. Meanwhile, unfortunately, the physical risks predicted by climate scientists have continued to materialize.

> As the new technologies continue to increase their market share, new market equilibriums will be set that can drive even faster adoption.

Counting the Cost of Biodiversity Loss

The natural world is undergoing unprecedented, exponential deterioration,[1] with human activity being the principal driver.[2] Consequently, the rates of species loss are unparalleled in human history. One million species are threatened with extinction within the next few decades,[3] setting Earth on an alarming trajectory for what biologists warn could be the sixth mass extinction.[4]

Tongai Kunorubwe
TRPA Head of ESG, Fixed Income

The Importance of Preserving Biodiversity

Biodiversity is defined as the natural world. It refers to plants, animals, insects and microorganisms, all of which work together to support life on earth. We believe that preserving biodiversity is essential to the long-term social and economic development of humanity and also that biodiversity loss and climate change are fundamentally interlinked twin crises.

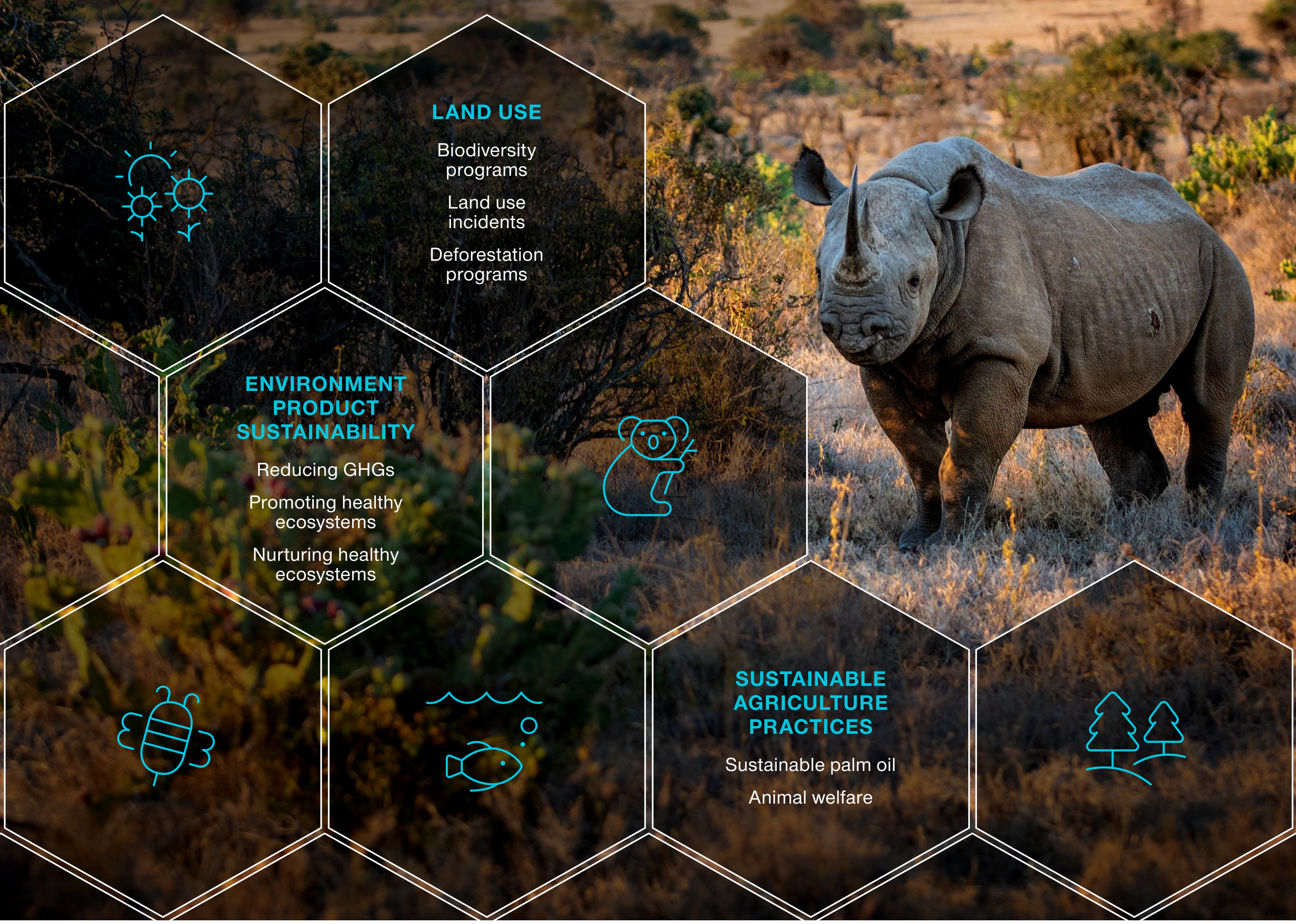
Natural carbon sinks (both on land and underwater) play a key role in controlling climate change as they absorb significant amounts of human-generated greenhouse gas emissions. In turn, climate change, whether through changing rainfall patterns, extreme weather events, or ocean acidification, is having a materially negative impact on biodiversity. Furthermore, biodiversity is so vital to maintaining a sustainable future for humanity that its loss undermines 80% of the United Nations Sustainable Development Goals targets relating to poverty (SDG 1), hunger (SDG 2), health (SDG 3), water (SDG 6), cities (SDG 11), climate (SDG 13), oceans (SDG 14), and land (SDG 15), whereas biodiversity preservation and restoration support the delivery of targets for the SDGs related to education (SDG 4), gender equality (SDG 5), reducing inequality (SDG 10), and peace and justice (SDG 16).

To contextualize the cost of biodiversity decline in economic terms, the World Economic Forum (WEF) states that over 50% of global gross domestic product is highly or moderately dependent on natural ecosystems.[5] This is unsurprising since biodiversity is an implicit enabler asset that underpins many human activities.[6] For example, pollination by bees and other pollinators is vital to global food security—75% of the world's food crops rely on it.[7] According to the WEF, investing in opportunities that directly address the threats to biodiversity has the potential to generate up to $10.1 trillion in annual business value and 395 million jobs by 2030.[8]

[1] WWF Living Planet Report 2022—Building a nature-positive society. Almond, R.E.A., Grooten, M., Juffe Bignoli, D. & Petersen, T. (Eds). WWF, Gland, Switzerland.
[2] Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), Models of Drivers of Biodiversity and Ecosystem Change.
[3] IPBES Global Assessment, 2019.
[4] A mass extinction is characterized as when Earth loses more than three-quarters of its species in a geologically short interval, as has happened only five times in the past 540 million years or so. Biologists suggest that a sixth mass extinction may be underway, given the known species losses over the past few centuries and millennia.
[5] The World Economic Forum, September 2022.
[6] The Economics of Biodiversity: The Dasgupta Review, August 2021.
[7] United Nations, 2022
[8] World Economic Forum, The Future of Nature and Business, July 2020.

Biodiversity-Related Factors in RIIM

(non-exhaustive list)

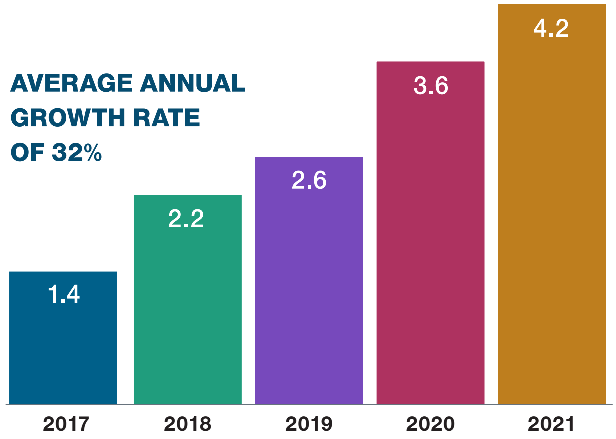


Integrating Biodiversity in Investment Analysis

With this in mind, we believe that a diligent, long-term investment strategy should consider biodiversity risks and opportunities. This does, however, present a variety of challenges to investors. For one, most investors are inherently reliant on quantitative data to inform the relative performance of corporate, sovereign, or municipal issuers. Data on biodiversity impact remain scarce, and while we are seeing a major uptick in corporate, sovereign, and municipal issuers setting goals concerning regenerative agriculture, climate, and deforestation (all factors that directly impact biodiversity), the universe of issuers sharing measurable data points on their actual biodiversity outcomes (such as Mean Species Abundance or Species Threat Abatement and Restoration) is limited. Moreover, third-party data sets for biodiversity remain relatively nascent, and where available, they are often very reliant on significant assumptions to deal with data gaps. Like many of our investee companies, we are looking to the development of frameworks like the Taskforce on Nature-Related Financial Disclosures (TNFD) for guidance to enhance our measurement of nature-related risks, opportunities, and financial implications. Comparable and consistent reporting will be a cornerstone for engagement and accountability in the space.

Indeed, we can look at the trend for ESG disclosures in the chart below for clues on how quickly we might expect more formalized nature-related information from corporates:

Average Number of TNFD-Aligned Disclosures per Company by Fiscal Year[9]



With TNFD recommendations only released in 2023, it could be several years before investors have sufficient information on biodiversity impact for a wider investment universe—time that the natural world simply does not have.

In the absence of data that measure the biodiversity impact of investments, what can investors do? We leverage quantitative and qualitative inputs that are drivers of biodiversity in our proprietary Responsible Investing Indicator Model (RIIM). Key parameters in our sovereign RIIM include terrestrial biome protection, protected areas, and species habitat—all of which are inextricably linked to biodiversity outcomes. Our responsible investing analysts undertake in-depth research into corporates, which includes consideration of sectors and business activities that are either highly dependent or heavily impactful on biodiversity. This evaluation, alongside a variety of other fundamental, technical, and ESG metrics, are inputs that may be used by our fixed income investment teams in their capital allocation decisions.

During 2022, the TRPA responsible investing team undertook analysis at the corporate level that included assessments of biodiversity risks and opportunities. Among them was an analysis of Brazil's listed meat producers and the impact they have on Amazonian deforestation. Further, we engaged with a variety of sovereign, supranational, and agency issuers and corporates on biodiversity.

Some securities we evaluate also feature specific biodiversity factors. In 2022, these included Uruguay sovereign bonds, which explicitly tie cost of capital to biodiversity targets, and International Bank for Reconstruction and Development/World Bank supranational bonds that promote wildlife conservation. The World Bank's Wildlife Conservation Bond, often referred to as the Rhino Bond, is an innovative, outcome-driven fixed income instrument that channels funds to biodiversity conservation.[10]

Biodiversity to Remain in the Spotlight

Looking ahead, we are encouraged by the outcome of the Kunming-Montreal COP15, namely a new Global Biodiversity Framework (GBF) that includes objectives for conservation, sustainable use, access, and benefits sharing and covers all the main drivers of biodiversity loss (land and sea-use change, exploitation of organisms, climate change, pollution, and invasive species). While it was notable that the framework did not ultimately include the term "nature positive,"[11] the headline "30 by 30" target[12] aims to ensure that by 2030 at least 30% of areas of degraded terrestrial, inland water, and coastal and marine ecosystems are under effective restoration. Much of the GBF is open to interpretation and is by no means all-encompassing, yet COP15 has certainly put biodiversity firmly in the spotlight—and has gone some way toward raising awareness of the issue among governments, corporates, municipal issuers, and investors alike.

[9] Task Force on Climate-Related Financial Disclosures 2022 Status Report, based on 1,370 companies surveyed.
[10] The specific securities identified and described are for informational purposes only and do not represent recommendations.
[11] Nature positive (also referred to as 'nature net positive') is a term increasingly used in the biodiversity sphere. It measures biodiversity outcomes beyond the prevention of the decline in nature (species and ecosystems) to include nature restoration. In relation to a rainforest, for example, it goes beyond prevention of deforestation to include the restoration of already degraded areas.
[12] Kunming-Montreal COP15, Final Text, 2022.

ENGAGING WITH THE WORLD BANK ON ITS RHINO BOND

In 2022 we undertook an evaluation of the World Bank's Wildlife Conservation Bond, often referred to as the Rhino Bond. TRPA's emerging market debt, global impact credit, and responsible investing teams collaborated on an ESG engagement with the World Bank to request and encourage continued impact reporting, with tangible and quantifiable metrics related to the security.

The objective of our engagement was to reiterate our support for nature-based contingent capital instruments, as well as our desire to partner with the World Bank across its dual mandates of ending extreme poverty and promoting shared prosperity and greater equity.

We provided very specific feedback on impact metrics for the Rhino Bond, and the World Bank recommitted to reporting these, with credible third-party verification. T. Rowe Price will look to track progress based on ongoing public disclosure.

T. Rowe Price communicated why we felt it was imperative that the World Bank set the tone with the Rhino Bond and similar issuance. Specifically, the credible, tangible quantification and third-party verification elements of, in this instance, black rhino population growth were key for T. Rowe Price from a biodiversity perspective. Additionally, we believe there is a co-benefit around employment creation and education.

The World Bank welcomed the feedback and recommitted to public disclosure of the impact metrics we asked for, which we aim to track.

Following the engagement, we will continue to evaluate the World Bank's use of its capital market presence and activities to address its twin mandates.

URUGUAY'S SUSTAINABILITY-LINKED BOND

In 2022, our responsible investing team partnered with our emerging market debt investment team to meet with representatives of the Uruguayan government regarding its inaugural Sustainability-Linked Bond (SLB). The engagement focused on biodiversity and GHG reduction. We believe these issues are interlinked and that sovereigns are a key part of the solution.

In October 2022, Uruguay brought to market a first of its kind SLB, which had two key performance indicators focused on GHG reduction and native forestry.

We leveraged our engagements and a variety of proprietary ESG integration tools, including our sovereign RIIM framework and separate ESG-labeled bond assessment models, in assessing the SLB.

Our assessment of Uruguay's credit and sustainability fundamentals; its ambition in setting stretching, yet impactful, sustainability targets; and elements of the post-issuance reporting (which we believe enhance credibility and transparency) was favorable. In our opinion, actively tying a sovereign's cost of capital to relevant sustainability metrics, which over time could impact creditworthiness, aids in promoting well-functioning capital markets.

Natural Capital in Numbers

Biodiversity loss has distinct implications for many activities on which humans depend. While the ecological ramifications alone are alarming, calculating the impact in economic terms helps to emphasize the distinct opportunities and risks of investing (or not) to protect biodiversity and nature.

BIODIVERSITY AND THE GLOBAL ECONOMY

50%+

More than half of global GDP is highly or moderately dependent on natural ecosystems[10]

$10T

Estimated global investment required (in USD) for protecting nature annually over the next decade[10]

$598B–$824B

Estimated global biodiversity financing gap (in USD)[9]

400M

Jobs could be created through protecting nature and increasing biodiversity[10]

[9] Paulson Institute, 2019.
[10] The World Economic Forum (WEF), September 2022.

FUNDING NEEDS FOR BIODIVERSITY CONSERVATION

Amounts needed in each sector to reverse the decline in biodiversity by 2030, according to the Paulson Institute (2019). Figures represent the upper limit of the funding need on an annual basis in USD.

FORESTS
$32B

FISHERIES
$47B

URBAN ENVIRONMENTS
$73B

RANGELANDS
$81B

INVASIVE SPECIES
$84B

COASTAL
$84B

PROTECTED AREAS
$192B

CROPLANDS
$420B

Climate in the Spotlight

Any successful asset manager needs to identify and analyze large systemic changes and the corresponding risks and opportunities they could bring. These types of changes are often driven by technological advances and/or regulation. As we discussed in Keeping Pace With the Energy Transition on pages 14–19, we believe climate change represents a large systemic change set to have a material impact on investment performance across geographies and asset classes. Given the complexity of climate change dynamics, blending them into investment decision-making requires not just the capacity to derive the data and insights, but also the systems and processes to integrate them into the analysis.

Maria Elena Drew
Director of Research, Responsible Investing, TRPA

At T. Rowe Price Associates, Inc., our approach combines fundamental analysis (by analysts and portfolio managers), thematic and topical research (by in-house ESG specialist teams) and our proprietary Responsible Investing Indicator Model (RIIM) analysis—which includes an assessment of issuers' net zero status. It also integrates appropriate stewardship measures that seek to align with clients' investment objectives.

Given its materiality to investment performance, climate factors and their level of materiality are considered across our investment platform; however, the investment implications can vary depending on the client's mandate. Most of our clients have given us a mandate to deliver financial performance—in these cases, consideration of climate factors is for the purpose delivering better financial performance. This requires insights into how corporate and other issuers may perform under a variety of climate-related scenarios, ranging from adherence to evolving regulatory demands to their capacity to conduct business in a changing environment. More specifically, this might include how they plan an orderly transition to net zero or how they are preparing for a hotter world where physical adaptation of business activities becomes necessary.

At the other end of the spectrum, a small but growing number of clients have dual mandates that include specific sustainable objectives alongside financial performance. Their sustainable objectives might include meeting net zero or greenhouse gas reduction targets, excluding securities linked to fossil fuel production or voting decisions that are not predominantly driven by financial materiality. In these cases, the analysis of climate factors will be the same, but the strategy may take a different approach to stewardship and divestment.

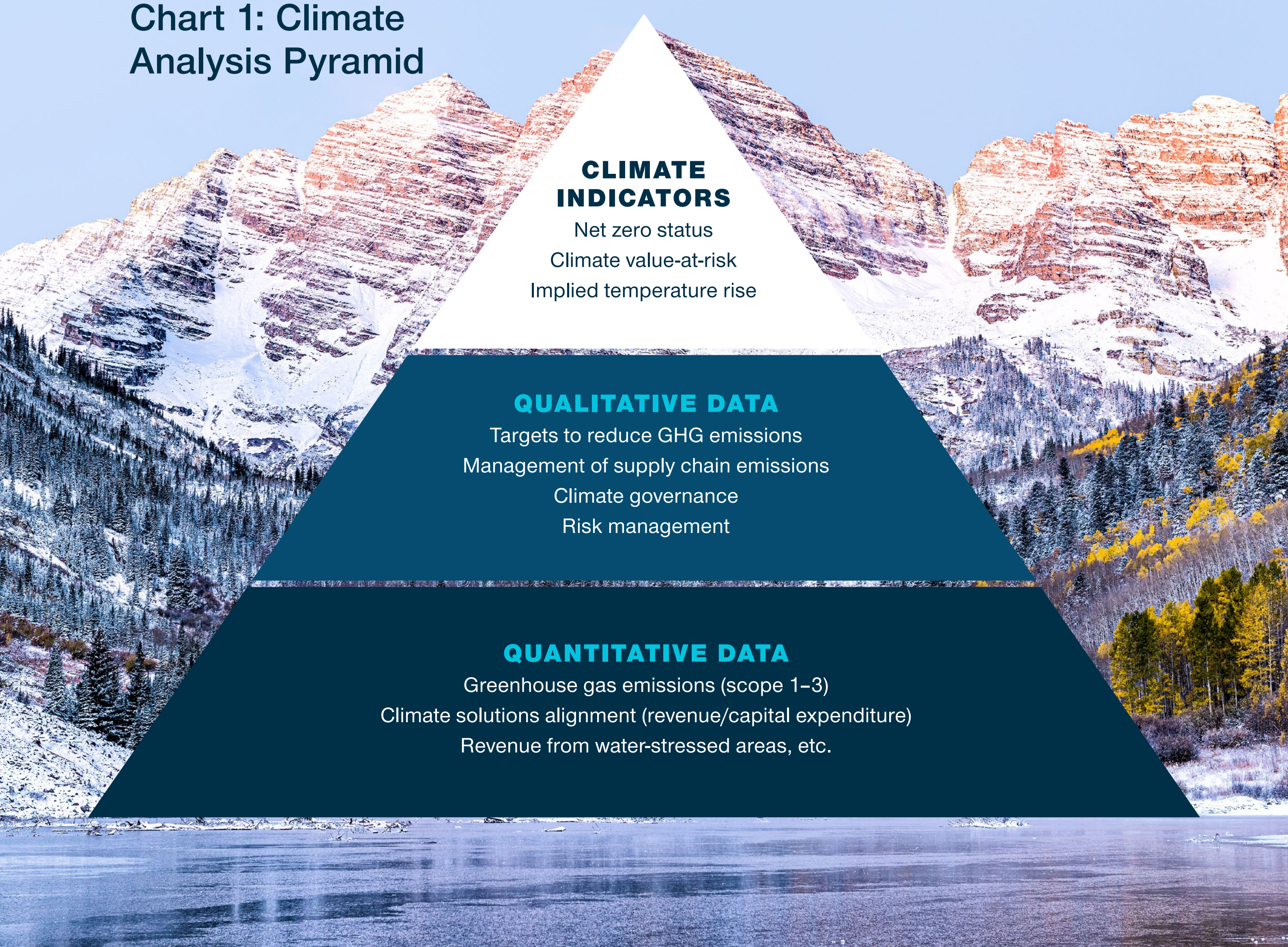
In both cases, our analysis of climate factors is benchmarked against a 1.5°C net zero pathway. To achieve this, the base case scenario implies a 50% reduction in greenhouse gas emissions by 2030 and achieving net zero by 2050. The pathway to net zero also must be science-based, which means that offsets can only be used for hard-to-abate emissions.

The Challenge of Quantifying Climate

For many years we have discussed data availability as a notable headwind to analyzing climate change-related risks and opportunities. The bottom line is that data remain lagged and underreported, but have been improving steadily. To evaluate an issuer's climate change exposure, an investor needs a mix of quantitative and qualitative inputs. We believe that the Taskforce on Climate-Related Financial Disclosure (TCFD) reporting standard captures the required information very comprehensively, which is why we have long advocated that our investee companies adopt this reporting standard. TCFD standards have now been absorbed by the new International Sustainable Standards Board (ISSB) that is gaining support from regulators around the world.

One of the most critical data inputs for climate analysis is the greenhouse gas emissions footprint of an issuer. While other data inputs are also very relevant and important, we believe that most investors view reporting of scope 1-3 greenhouse gas emissions as the base of the climate analysis pyramid (see Chart 1). As the reporting of climate scenario metrics across portfolios is starting to become more common, we feel it is important that the end investor (i.e., our clients) understands the robustness of the underlying data. As such, we have provided a snapshot of greenhouse gas emissions data availability for the MSCI World Index, a developed market benchmark that spans geographies.

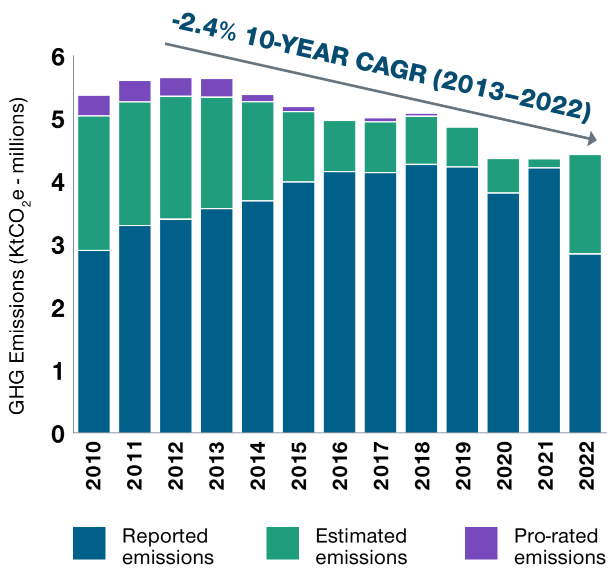
Chart 1: Climate Analysis Pyramid



Scope 1 and 2 represent the direct GHG emissions of a company. Reporting of these emissions is pretty good for the companies within the MSCI World Index. For 2021, 85% of MSCI World Index constituents reported scope 1 and 2 greenhouse gas emissions (compared with 52% five years prior). Furthermore, high emitters are more likely to report, as 94% of the MSCI World Index's constituents' aggregate emissions were reported in 2021. The drop seen in reported emissions in 2022 (see Chart 2) is a function of companies having not yet reported their year-end 2022 data. With more and more regulators starting to require greenhouse gas emissions disclosure, we expect to see continued improvement in the number of companies reporting, as well as in the timeliness of reporting.

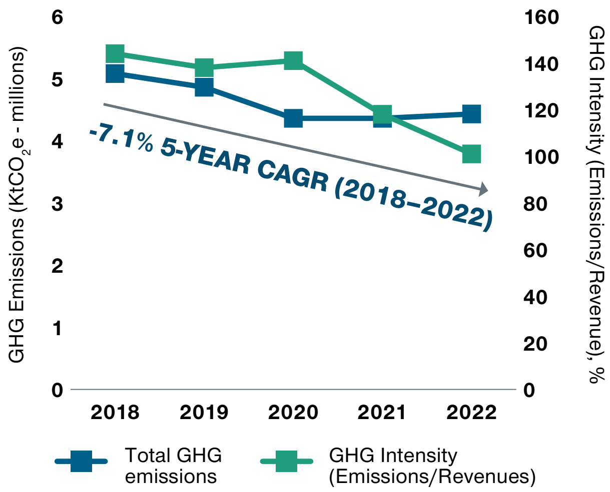
Chart 2 illustrates the aggregated GHG emissions of the current constituents of the MSCI World Index (there is no adjustment for benchmark weight). Over the past 10 years, absolute aggregated scope 1 and 2 emissions have fallen by 2.4% CAGR,[1] well short of the 7% per annum decline required to be in line with a 1.5°C pathway. However, when evaluating the MSCI World Index on an intensity basis[2] using a weighted average approach, we see a decline of 7.1% CAGR over the past five years (Chart 3).

Chart 2: MSCI World Index Total GHG Emissions—Scope 1–2



Source: Bloomberg Finance L.P. (time series includes current constituents of MSCI World Index). As of December 31, 2022. Investors cannot invest directly in an index. Please see Additional Disclosures for information about this MSCI Index.

Chart 3: MSCI World Index Total GHG Emissions vs. GHG Intensity—Scope 1–2



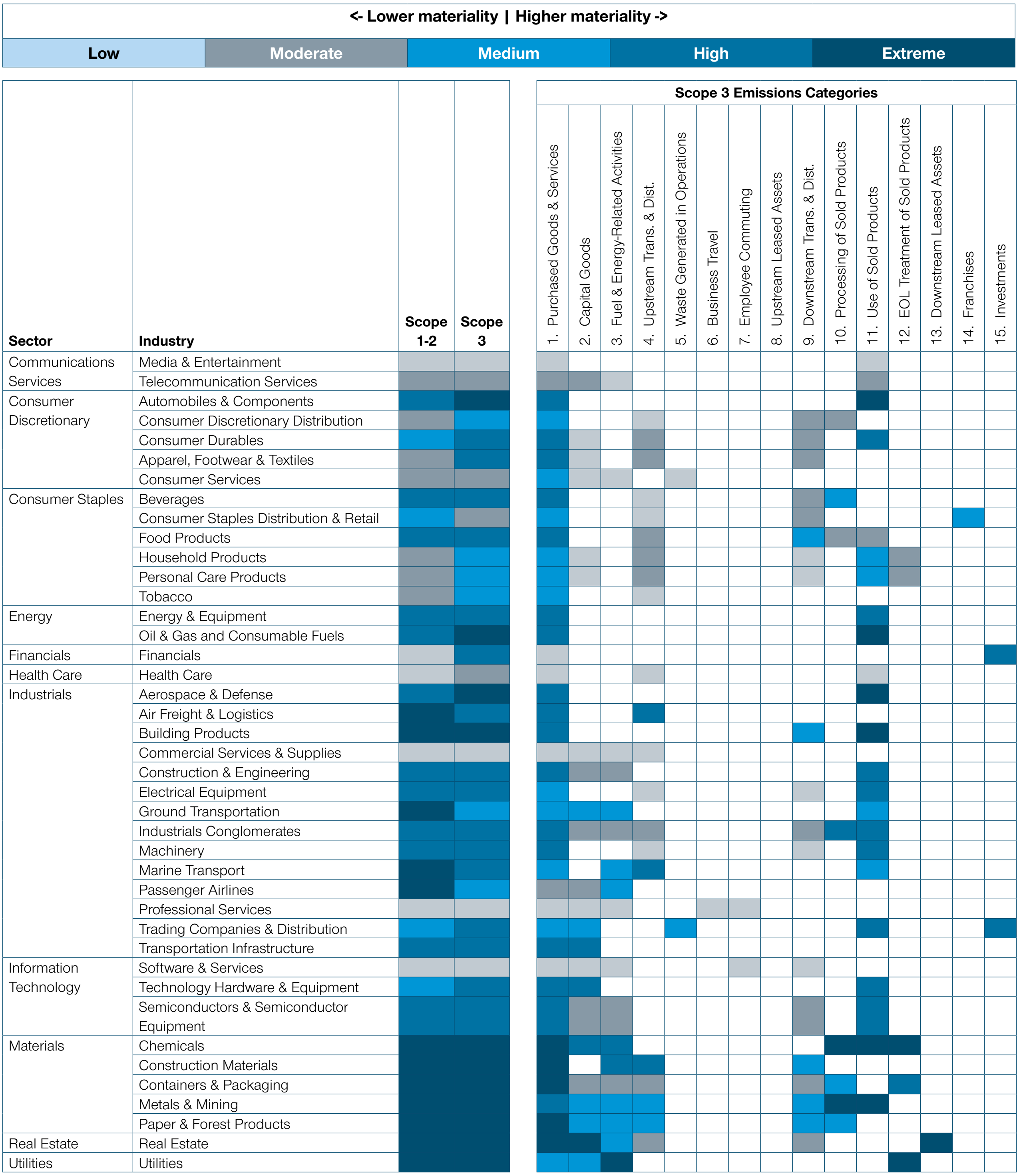
Source: Bloomberg Finance L.P. (time series includes current constituents of MSCI World Index). As of December 31, 2022. Investors cannot invest directly in an index. Please see Additional Disclosures for information about this MSCI Index.

The data picture is very different when it comes to scope 3 emissions. As these are the emissions that are not under the company's direct control, they are more complex to measure and comprise 15 different categories—not all of which will be material to a particular issuer. Measurement typically relies on estimating standards and tools developed by organizations such as the Greenhouse Gas Protocol. These standards guide companies to put the most effort into accurately estimating the scope 3 categories that are most relevant for their business, and to use broader estimates for the other categories.[3] Our own analysis takes a similar approach, and where there is enough data to analyze scope 3 emissions, we focus on the

[1] CAGR = Compound Annual Growth Rate. It represents the consistent rate of growth had the indicator compounded at the same rate each year over the previous 10 year period.
[2] This calculation refers to Weighted Average Carbon Intensity (WACI) and applies the benchmark weighted average for greenhouse gas emissions/revenues.
[3] The GHG Protocol recommends that a company should focus on which scope 3 activities are expected to generate the most significant emissions, offer the most significant GHG reduction opportunities and are the most relevant to the company's business goals. As a first step, companies should conduct a screening process using less specific data (i.e., industry average data). Next, each category should be examined to determine whether to further refine the emissions estimates.

data for the specific emissions categories deemed most relevant for each industry. Chart 4 illustrates the various categories, with the darker shading representing the categories deemed most material for each industry.

Chart 4: Scope 1–3 emissions materiality assessment by sector



Analysis by T. Rowe Price as at March 2023. For illustrative purposes only.

Chart 5: % of Companies in MSCI World Index Reporting Scope 3 Emissions by Source

Only 1.7% of companies report all 15 sources of scope 3 emissions, which means that any portfolio level analysis including scope 3 emissions must rely on estimated data.

65% **BUSINESS TRAVEL**

58% **PURCHASED GOODS AND SERVICES**

55% **FUEL AND ENERGY RELATED ACTIVITIES**

51% **EMPLOYEE COMMUTING**

45% **UPSTREAM TRANSPORTATION AND DISTRIBUTION**

43% **CAPITAL GOODS**

38% **USE OF SOLD PRODUCTS**

36% **WASTE GENERATED IN OPERATIONS**

32% **END-OF-LIFE TREATMENT OF SOLD PRODUCTS**

31% **DOWNSTREAM TRANSPORTATION AND DISTRIBUTION**

23% **UPSTREAM LEASED ASSETS**

21% **DOWNSTREAM LEASED ASSETS**

20% **EMISSIONS FROM INVESTMENTS**

16% **PROCESSING OF SOLD PRODUCTS**

14% **EMISSIONS FROM FRANCHISES**

Source: Bloomberg Finance L.P. Data reflects MSCI World Index constituents' emissions for 2021. Investors cannot invest directly in an index. Please see Additional Disclosures for information about this MSCI Index.

Chart 6: Criteria for Issuer Net Zero Targets

	Scope 1–2		Scope 1–3	
Criteria	**Score**	**Target**	**Score**	**Target**
Net Zero target (2050 or earlier)	100	Company has a 2040 Net Zero target in place.	100	Company has a 2040 Net Zero target in place.
Medium term GHG reduction target	50	Lacks explicit medium-term target for GHG emissions but has a target to make 50% of its shipments net zero by 2030.	0	Lacks medium-term target for scope 3 GHG emissions.
Short-term GHG reduction target	50	Lacks explicit short-term target for GHG emissions, but has targets to power 100% of its operations with renewables by 2025. (Target was advanced from original date of 2030.)	0	Lacks short-term target for scope 3 GHG emissions.
Credible pathway to achieve targets	50	Company is making strong progress on "indicators" to achieving GHG reduction (e.g., renewable energy use, green logistics, etc.).	75	Company has encouraged its suppliers to publicly sign on to a 2040 Net Zero pledge.
SBTi-certified targets[4]	0	In 2020, company submitted its target to SBTi; however, in our last engagement, company indicated that it was "far away" from reaching agreement.	0	In 2020, company submitted its target to SBTi; however, in our last engagement, company indicated that they were "far away" from reaching agreement.
Net Zero pathway performance	50	Company has reported GHG emissions for 2018–2021. Intensity figures are declining for scope 1–2 but not in line with Paris trajectory. Additionally, company has made substantial progress on shifting toward renewable energy.	50	Company has reported GHG emissions for 2018–2021. Intensity figures have declined for scope 1–3, but not in line with Paris trajectory.
Net Zero realized	—		—	
Net Zero status	**COMMITTED**		**NOT ALIGNED**	

Achieved Net Zero | Aligned | Aligning | Committed | Not Aligned

Proprietary Net Zero analysis as of March 2023. TRPA's Responsible Investing team uses an internal scoring system in 25 point increments from 0 to 100, with 0 being the worst and 100 being the best. For illustrative purposes only.

Evaluating Net Zero Pathways

In assessing a company's net zero status, we view best practice as adopting a science-based net zero target, aligned to a 1.5°C pathway that covers scope 1–2 and the most relevant scope 3 emissions. If a company has these targets validated by the Science Based Targets initiative (SBTi),[4] it gives us confidence that it is adequately addressing its material emissions—not simply relying on carbon offsets (balancing actual emissions by investing in projects that reduce or store carbon elsewhere) when emissions should in fact be mitigated.

[4] The Science Based Targets initiative (SBTi) is a partnership between Carbon Disclosure Project (CDP), World Resources Institute (WRI), the World Wide Fund for Nature (WWF), and the United Nations Global Compact (UN Global Compact). It provides companies with a clearly defined pathway to future-proof growth by specifying how much and how quickly they need to reduce their greenhouse gas emissions.

Our net zero analysis goes beyond simply identifying whether a company has a net zero target in place; it also includes a company's short- and medium-term GHG reduction targets and a view on the credibility of its emissions trajectory. It is underpinned by the principles established by the Paris Aligned Investment Initiative Net Zero Framework. The range of targets and pathway factors we look to quantify are illustrated in Chart 6. According to our scoring system, the company in this illustration is assessed as being "committed" in its journey toward net zero for scope 1-2, but is "not aligned" when taking into consideration scope 3 emissions. Higher gradings are possible depending on the extent to which a company has either achieved net zero, or the degree to which its emissions targets are aligned to that objective.

Our analysis culminates in a net zero profile for each issuer, providing essential climate information for our investment analysts and portfolio managers to evaluate. A sample profile and data inputs is illustrated in Chart 7.

Chart 7: Illustrative Net Zero Profile and Data Inputs

Net Zero Status*	
Net Zero Status Scope 1–2	Aligned
Net Zero Status Scope 1–3	Committed

	S	W	△12 Mo
RIIM Indicator	0.42	–	–
Environment	0.08	27%	↑ 0.03
Social	0.35	44%	↓ 0.01
Governance	0.42	29%	↓ 0.03
Weighted avg.	0.3	100%	↑ 0.01

	S	W	△12 Mo		S	W	△12 Mo		S	W	△12 Mo
Environment	0.08	27%	↑ 0.03	Operations	0.06	10%	↓ 0.01	Supply Chain Environment	0.30	3%	0.00
								Raw Materials	0.25		0.00
								Energy & Emissions	0.15	3%	↓ 0.05
								Land Use	n.c.		–
								Water Use	n.c.		–
								Waste	0.00	3%	0.00
								General Operations	0.00	11%	0.00
				Environment End Product	0.10	8%	↑ 0.10	Environment Product Sustainability	0.30	3%	↑ 0.30
								Products & Services Environmental Incidents	0.00	5%	0.00
Social	0.35	44%	↓ 0.01	Human Capital	0.10	8%	↑ 0.01	Supply Chain Social	0.75	3%	0.00
								Employee Safety & Treatment	0.50	11%	0.00
								Diversity, Equity, & Inclusion (DEI)	0.19		–
				Society	0.10	8%	0.00	Society & Community Relations	0.25		0.00
				Social End Product	0.10	8%	↓ 0.01	Social Product Sustainability	0.25		0.00
								Product Impact on Human Health & Society	0.10		0.00
								Product Quality & Customer Incidents	0.65	5%	0.00
Governance	0.42	29%	↓ 0.03	Governance	0.42	29%	↓ 0.04	Business Ethics	0.50	5%	0.00
								Bribery & Corruption	0.50	5%	0.00
								Lobbying & Public Policy	0.47	3%	↑ 0.00
								Accounting & Taxation	0.65	5%	↑ 0.00
								Board & Management Conduct	0.30	5%	↑ 0.01
								Remuneration	0.25	5%	–
								ESG Accountability	0.25	1%	0.00
Data Incidents	0.50	–	0.00	Data Incidents	0.50	–	0.00	Data Privacy Incidents	0.50	–	0.00

Net Zero Pathway Factors	S
Energy & Emissions	0.15
Net Zero (scope 1-2) – Target 2050 or Earlier	
Net Zero (scope 1-2) – Medium Term Target	
Net Zero (scope 1-2) – Short Term Target	
Net Zero (scope 1-2) – Credible Pathway	
Net Zero (scope 1-2) – STBi Certified	
Net Zero (scope 1-3) – Target 2050 or Earlier	
Net Zero (scope 1-3) – Categories Covered	
Net Zero (scope 1-3) – Medium Term Target	
Net Zero (scope 1-3) – Short Term Target	
Net Zero (scope 1-3) – Credible Pathway	
Net Zero (scope 1-3) – STBi Certified	
Scope of GHG Reporting	
GHG Risk Management	
Carbon Intensity	
Carbon Intensity Trend	
Below Net Zero 1-2 Pathway	
Below Net Zero 1-3 Pathway	
Net Zero 1-2 Realized	
Net Zero 1-3 Realized	

Source: T. Rowe Price as at March 2023. For illustrative purposes only. Green indicates no/few flags, orange indicates medium flags, and red indicates high flags.

S=Score; W=Weight; △12 Mo=12 Month change.

*Scope 1 (direct emissions from owned or controlled sources); scope 2 (indirect emissions from the generation of purchased electricity, steam, or cooling); scope 3 (all other indirect emissions).

Conclusion

Ultimately, the imperative to embed analysis of climate-related data into investment decision-making continues to intensify. The systemic challenge posed by climate change means that we need to understand and evaluate the financial risks and opportunities it creates for the issuers we may invest in on behalf of our clients. For some clients, the requirement goes beyond the need to achieve financial performance, as they target distinct sustainability objectives that govern how we construct and manage their portfolio. And while the challenges around climate data are not insignificant, the good news is that there is progress, and our platform has robust systems and processes in place to accommodate it.

> "While the challenges around climate data are not insignificant, the good news is that there is progress...

Fostering Change With Impact Investing

Impact investing has gained traction in recent years to address the needs of investors to drive sustainable outcomes alongside financial returns. We brought together our three impact portfolio managers to discuss the rise of impact investing and how they see the sector evolving. In addition to financial objectives, impact approaches target sustainability objectives. They direct capital toward investments that seek to address issues surrounding climate and resource impact, social equity and quality of life, or sustainable innovation and productivity. Impact investing may take a global or regional perspective and can be applied using equity or fixed income approaches.

David Rowlett
TRPA Portfolio Manager, U.S. Impact Equity

Matt Lawton
TRPA Portfolio Manager, Global Impact Credit

Hari Balkrishna
TRPA Portfolio Manager, Global Impact Equity

Q: Why is impact investing important? What qualifies as an impact investment?

David Rowlett (DR): As impact investment managers, we seek to direct capital to companies whose primary business operations are working toward solving the world's most significant environmental and social issues. In pursuit of this, we use the United Nations Sustainable Development Goals as our North Star. These are a set of 17 goals, intended to help achieve a better and more sustainable future for all. Every one of our investments needs to be aligned to at least one of those goals.

Matt Lawton (ML): I would highlight the sheer amount of investment required to achieve the UN Sustainable Development Goals (SDGs). An estimated USD 5 trillion–7 trillion in investment is required per year through to 2030 to meet the SDGs, and the entire global economy will need to transition energy use to reach net zero by 2050.

Hari Balkrishna (HB): When identifying impact investments, we first evaluate whether a company's revenues or profits are delivering impact that is **material** to its business model and aligned with one of our impact pillars or sub-pillars. The second criteria we look for is **measurability**. We use the Five Dimensions of Impact framework[1] to measure the impact that investments can potentially deliver over time and review annually the total impact achieved. Third, we focus on **additionality**. Here, we aim to make a difference primarily through stakeholder engagement and working with companies to influence the debate around the delivery of impact. For example, we have worked with multi-industrial companies to discuss how they can direct merger and acquisition capital toward positive impact activities, as well as water infrastructure companies to help introduce water-safe targets. The final part of our process is the **resilience** angle—working to ensure that the impact identified is durable.

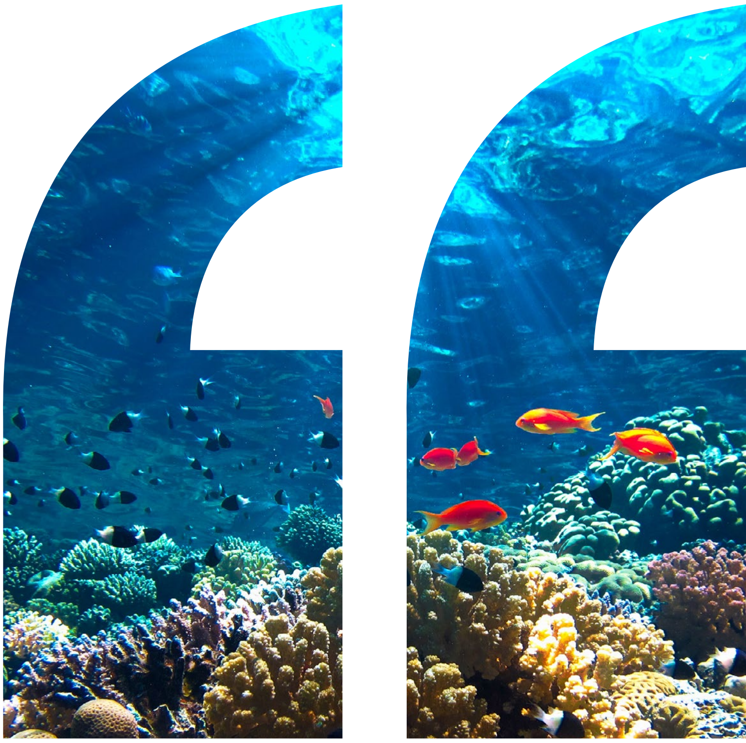
[1] The Five Dimensions of Impact is a measurement framework developed by the Impact Management Project, an impact practitioner community of over 2,000 organizations. The IMP is a project by Bridges Fund Management Ltd (company number 10401079) ("Bridges").

Q: Do you have to sacrifice financial returns to achieve impact?

DR Our investment philosophy is that there is an inherent tailwind by investing in companies driving positive environmental and/or social impact. However, the impact universe is dramatically narrower than the broader market, so over shorter periods of time an impact strategy's performance may deviate from the broader market. Our dual mandate is to pursue positive environmental or social change alongside benchmark outperformance by identifying companies that are successfully driving positive impact. We believe such companies have a higher likelihood of outperforming the benchmark over time. We want to find the winners that are leading the charge and put capital behind those accelerating the move toward positive outcomes.

HB I completely agree. These dynamics can, in many cases, translate into better growth prospects.

ML We have a shared belief that those companies that are helping to solve for the world's environmental and social pressure points will have an advantage from a capital markets perspective, from a competitive perspective, and from an economic returns perspective. In the fixed income space specifically, the presence of a significant ESG-labeled bond market allows for a modestly wider investment universe.



We want to find the winners that are leading the charge and put capital behind those accelerating the move toward positive outcomes.

Q: What differentiates impact from responsible investing, sustainable investing, and ESG integration?

ML Impact investing is distinct in that it aims to pursue measurable positive social or environmental impact, alongside a financial return. Those two objectives have equal priority. Among investment strategies where clients have set specific ESG mandates, impact sits at the top end of the spectrum—meaning its sustainable objectives are among the most strenuous.

There are other types of strategies that may set sustainable objectives (e.g., reaching net zero by 2050) or promote ESG objectives (e.g., setting minimum hurdles for exposure to sustainable activities). Additionally, other strategies may choose to simply exclude certain securities from a portfolio based on their exposure to certain activities (e.g., coal mining) or due to conduct-based concerns (e.g., United Nations Global Compact violations).

ESG integration is not so much an investment style as it is a capability, in that it considers ESG factors in the overall decision-making process, alongside other more traditional factors, in order to maximize financial performance. As such, ESG integration is a building block capability that can be deployed across a range of strategies, including impact. After a security has been evaluated to meet our impact criteria, ESG integration is included in our investment process alongside financial, macro, industrial, and any other factors relevant to our investment decision.

HB I would add that ESG integration typically takes a more inward-looking approach when looking at a company's operations. For example, ESG integration might focus on a company's internal carbon emission footprint, or how they treat their own employees, to determine if the company is sustainable. Impact investors focus more on the products and services produced by the company, and what is the external impact of those operations on our planet and society.

Q: How do public and private investing compare in the impact discussion?

HB Public equity and debt markets are integral to meeting the challenges we face. Without the participation of large publicly listed companies, we believe it will be extremely difficult to achieve the investment needed to meet the UN SDGs. The debate between public and private investing typically goes beyond the scale of potential impact because, clearly, publicly listed companies have huge scale. The focus centers on additionality and whether, as impact managers, we can improve the impact delivered from our investments.

Ultimately, we are looking to provide capital to companies that we believe are engendering change. But we also have deep, strategic engagement with publicly listed companies to bring impact issues to the forefront, and we use our proxy voting rights to push that forward.

ML We have worked with companies that are early in their impact journey and have helped them to identify impact projects with accompanying performance indicators. We have also guided them on how to structure their social bonds to help maximize impact potential. This helps develop a viable pathway to make an impact through public debt markets.

DR This is not a competition between public and private. Both can be additional, and we need all types of investment capital to invest with impact to help meet the UN SDGs.

Without the participation of large publicly listed companies, we believe it will be extremely difficult to achieve the investment needed to meet the UN SDGs.

In 2022, there was USD 1.6 trillion of green, social, and sustainability bond issuance—with total issuance of these bonds reaching USD 6.9 trillion currently.[2]

Q: What does the future hold for impact investing?

ML From a fixed income perspective, we are very excited about the future of impact investing. The market is growing every day. In 2022, there was USD 1.6 trillion of green, social, and sustainability bond issuance—with total issuance of these bonds reaching USD 6.9 trillion currently.[2] That is important because, as new companies and sectors come to the ESG bond market to finance environmental and social projects, it creates more opportunities for investors to make an impact. It also presents additional alpha (excess return) opportunities, alongside greater portfolio diversification potential.

Looking at the bigger picture, there is a secular element to this movement. We believe impact investing offers a clear and differentiated solution for investors seeking to be on the right side of change. Over time, we believe investors will think about impact investing as a complement to the core building blocks that compose a diversified asset allocation approach.

HB When we think about future success, it will be twofold. If more clients see the value and benefits of impact investing in terms of pursuing positive impact alongside positive financial performance, then more money should be allocated to the space. We also hope it crystallizes the objectives of companies as they think more along the lines of impact investors to make their operations more sustainable and more impactful.

DR If we can deliver financial returns and measurable impact, we believe that the category is positioned to grow dramatically. That could mean more investors interested in investing in impact and more companies following our lead. That can create a flywheel effect that moves us toward our goal of focusing companies on the large and pressing environmental and social issues we face today. It is our firm belief that if you can achieve financial returns while creating positive impact, then many investors will choose that over just financial returns alone.

[2] Bloomberg Finance L.P. As of July 31, 2023.

Transparency Is a Two-Way Street

Due to changing regulations and ever-ratcheting investor demand for data on ESG factors, corporate issuers face growing demands for improved disclosure every year. T. Rowe Price represents part of that demand, as we work with individual issuers throughout the year to broaden and strengthen their reporting on the ESG topics we deem material to our investment processes.

Donna Anderson
Head of Corporate Governance, TRPA

The steady improvement in issuers' disclosure of ESG data drives our ability to derive insights about the companies we invest in on behalf of our clients. However, this push for transparency should not be a one-way street. Companies providing additional transparency should have the ability to confirm that investors (both asset owners and asset managers) value and put to use the information they provide. Moreover, other participants in the investment value chain, such as clients and beneficiaries, should be able to access evidence on how their investment managers exercise the duties entrusted to them.

In short, thoughtful investment managers should periodically review whether they are implementing the same practices that they ask of the companies in their portfolios.

In 2022, the stewardship program at T. Rowe Price took three important steps to improve the transparency of our practices.

- **Proxy Voting Case Studies:** TRPA began publishing Proxy Voting Case Studies on our website. This collection of deep-dive analyses of specific votes brings to life the various elements and perspectives that help form our voting decisions at key shareholder meetings throughout the year. Of the hundreds of resolutions we review and vote each month, we publish those that best illustrate a particular aspect of our analytical process or are situations of interest to the wider investor population. Case studies are published on or before the meeting dates of the selected companies.
- **Enhanced Proxy Voting Disclosure:** We enhanced the way we disclose our full set of proxy voting decisions, which are published in a searchable database on our website. Users can search for our voting records by portfolio or by the name of the issuer. The database contains voting rationales for key categories such as shareholder resolutions and votes contrary to the Board's recommendations. In 2022, we added a feature allowing users to search for "Significant Votes." This designation is applied by T. Rowe Price to shareholder meetings that included particularly complex voting items, situations of broad interest to the market, or meetings where we are large shareholders and our vote was particularly meaningful. Given the very large volume of voting activity we conduct each year—with more than 65,000 ballot items across more than 6,000 shareholder meetings—the Significant Vote label enhances our clients' ability to analyze the votes we cast on their behalf. In 2022, we also began work on enhancing our client reporting by producing twice-yearly case studies that describe our voting at significant meetings. These were introduced in the first quarter of 2023, initially for a selection of strategies.

- **2022 Stewardship Report:** We expanded the scope of our 2022 Stewardship Report (distributed in EMEA and APAC), which already contains detailed descriptions of our firm's internal processes as well as dozens of illustrative case studies, to include a description of how we meet stewardship reporting expectations in other regions. Our global footprint means T. Rowe Price is subject to numerous regional codes as well as regulations that set the standards for ESG-related reporting. Our new report includes cross-reference tables, increasing its utility as a reference guide for our clients who wish to explore elements of our stewardship program in greater depth.

Key 2022 T. Rowe Price Transparency Milestones

PUBLISHING PROXY VOTING CASE STUDIES

- TRPA published collection of deep-dive analyses of specific votes
- Perspectives that help inform our voting decisions

ENHANCED PROXY VOTING DISCLOSURE

- New feature allowing users to search for significant votes
- Enhanced ability for clients to analyze the votes we cast on their behalf

2022 STEWARDSHIP REPORT

- Detailed descriptions of stewardship processes and case studies
- How we meet stewardship reporting expectations in different regions

CORPORATE ENGAGEMENT

2022 Engagement Activity

At T. Rowe Price, we are fortunate to manage USD 1.27 trillion of assets for our clients,[1] predominantly in actively managed portfolios. We believe the scale and scope of our business puts us in a powerful position compared with many of our peers when we carry out our ESG engagements with companies. The sheer size of our assets under management has clout. Simply put, it gives us better access to company management.

Our active investment approach also affords us real influence. In most cases, if we see an impediment to reaching our investment goals, such as a company's poor business practices or disclosure, we have the option not to invest. This contrasts with managers of passive portfolios, who typically have no choice but to hold an investment despite any evidence of business practice or disclosure concerns.

Our investment-driven engagement program frequently identifies targets through our proprietary RIIM analysis, governance screening, and analysts' fundamental research. ESG engagement meetings are conducted separately by TRPA and TRPIM and are carried out by portfolio managers and analysts from our equity and fixed income teams as well as by our ESG specialists.

While we engage with companies in a variety of investment contexts, ESG engagement focuses on influencing or exchanging perspectives on the environmental practices, corporate governance, or social issues affecting their businesses.

On March 7, 2022, the management of six investment strategies transitioned from TRPA to TRPIM. Engagements for those strategies that occurred prior to March 7 are included in the TRPA engagement figures below and next. TRPIM engagement data are provided on page 48.

TRPA Engagements by Category

TRPA Top 5 Engagement Topics by Category

ENVIRONMENT

1. Greenhouse gas emissions[2]
2. Disclosure of environmental data
3. Product sustainability
4. Water
5. Single-use packaging/plastics

SOCIAL

1. Disclosure of social data
2. Employee safety and treatment
3. Diversity, equity, and inclusion
4. Supply chain
5. Product safety and sustainability

GOVERNANCE

1. Executive compensation
2. Board composition[3]
3. Succession
4. ESG accountability
5. Disclosure of governance data

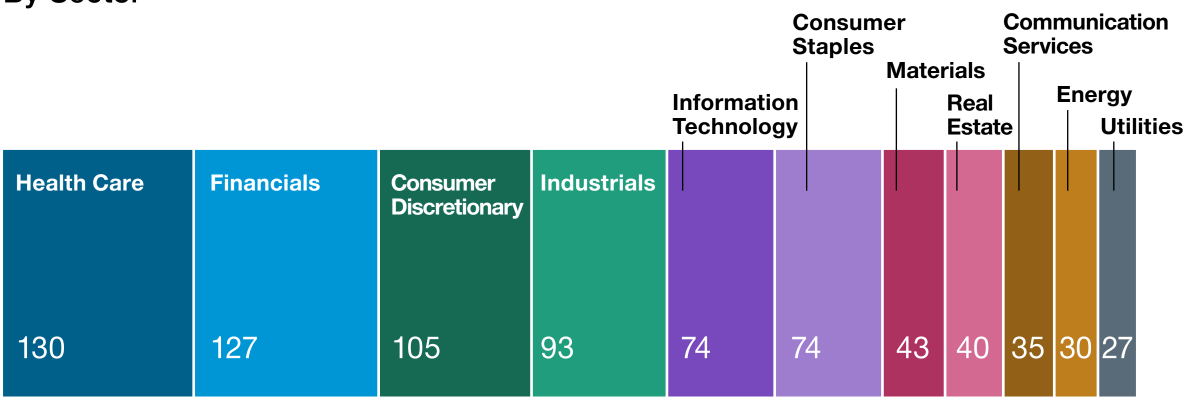
[1] As of December 31, 2022. Firmwide AUM includes assets managed by T. Rowe Price Associates, Inc., and its investment advisory affiliates, including TRPIM and OHA.
[2] Includes GHG reduction/net zero targets and financed emissions.
[3] Includes board independence and board diversity.

TRPA Engagements–Numbers by Category

By Market Capitalization

By Region

By Sector



PROXY VOTING

2022 Proxy Voting Activity

64,056
Proposals Voted at TRPA

51.2%
Americas

21.8%
APAC

27.0%
EMEA

76
Countries

5,445
Proposals Voted at TRPIM
(AMERICAS ONLY)

Proxy voting is a crucial link in the chain of stewardship responsibilities that we execute on behalf of our clients. We vote our clients' shares in a thoughtful, investment-centered way, considering both high-level principles of corporate governance and company-specific circumstances. Decisions are inclusive, involving our ESG specialists and the investment professionals who follow the companies closely.

Our overarching objective is to cast votes in support of the path most likely to foster long-term, sustainable success for the company and its investors. T. Rowe Price portfolio managers are ultimately responsible for the voting decisions within the strategies they manage.

Our proxy voting program serves as one element of our overall relationship with corporate issuers. We use our voting power in a way that complements the other aspects of our relationship with these companies, including engagement, investment due diligence, and investment decision-making.

T. Rowe Price Associates voted on 64,056 proposals in 2022 and T. Rowe Price Investment Management voted on 5,445 proposals. TRPIM and TRPA each have their own distinct proxy voting guidelines, meaning that voting decisions are made completely independently. The data in the following tables highlight the top five most common voting issues in each category for TRPA in each region. TRPIM data are provided separately on page 49.

2022 Proxy Voting Activity at TRPA

Americas | **32,793** Management and Shareholder Proposals

Management Proposals	# of Proposals	% With Mgmt.
Elect Directors (Uncontested)	22,395	85.7%
Management Compensation: Say on Pay and Equity Plans	3,777	82.8%
Appoint Auditors/Approve Auditor Fees	3,408	99.5%
Routine Business and Operational Matters	1,040	73.8%
Capital Structure Items	820	74.8%
Other	507	91.9%
Total	**31,947**	

Shareholder Proposals	# of Proposals	% With Mgmt.
Social, Political, or Environmental Matters	341	79.9%
Elect Directors (Contested)	229	84.4%
Adopt or Amend Shareholder Rights	153	85.3%
Related to Routine Business and Operational Matters	44	93.0%
Related to Compensation Policies	39	84.6%
Other	40	85.0%
Total	**846**	

APAC | **13,936** Management and Shareholder Proposals

Management Proposals	# of Proposals	% With Mgmt.
Elect Directors (Uncontested)	6,560	92.0%
Routine Business and Operational Matters	2,408	93.0%
Capital Structure Items	1,896	92.0%
Management Compensation: Say on Pay and Equity Plans	1,380	84.4%
Mergers and Acquisitions	890	80.2%
Other	439	96.1%
Total	**13,573**	

Shareholder Proposals	# of Proposals	% With Mgmt.
Elect Directors (Contested)	165	92.1%
Related to Routine Business and Operational Matters	65	90.8%
Related to Auditors	52	100.0%
Social, Political, or Environmental Matters	50	92.2%
Related to Compensation Policies	23	56.5%
Other	8	87.5%
Total	**363**	

EMEA | **17,327** Management and Shareholder Proposals

Management Proposals	# of Proposals	% With Mgmt.
Elect Directors (Uncontested)	7,056	94.6%
Routine Business and Operational Matters	3,204	96.7%
Management Compensation: Say on Pay and Equity Plans	2,799	88.0%
Capital Structure Items	2,721	97.1%
Appoint Auditors/Approve Auditor Fees	938	98.0%
Other	354	86.2%
Total	**17,072**	

Shareholder Proposals	# of Proposals	% With Mgmt.
Elect Directors (Contested)	96	86.3%
Related to Routine Business and Operational Matters	88	98.8%
Social, Political, or Environmental Matters	35	89.5%
Related to Auditors	19	100.0%
Related to Compensation Policies	10	100.0%
Other	7	85.7%
Total	**255**	

As of December 31, 2022.

Shareholder Proposals in Focus

In 2022, portfolios managed by T. Rowe Price Associates voted on 1,464 shareholder resolutions across all markets. Of those, 583 were situations where shareholders were nominating directors to a company's board. Another 401 were resolutions asking companies to adopt specific corporate governance practices, and 480 were social and environmental resolutions.

A notable development in proxy voting for 2022 was the increase in the number of shareholder-sponsored resolutions. In our 2021 ESG Investing Annual Report, we examined the 323 environmental and social resolutions voted across T. Rowe Price portfolios. That figure increased by 49% to the 480 proposals we examine in this year's report.

There are multiple reasons for this increase. We have observed growth globally in investor engagement on environmental and social concerns, and some of that increased focus results in resolutions submitted for a vote. The other primary reason was a decision by the U.S. Securities and Exchange Commission (SEC) to adapt its interpretation of the types of resolutions eligible to be added to a company's proxy, allowing more proposals across a wider range of topics to move forward. Proposals at U.S. companies represent 70% of the 480 environmental and social proposals voted during the year, so this change by the securities regulator had a notable effect on the overall volume of resolutions.

A Rise in Anti-ESG Resolutions

Our observation is that the increase in the volume of proposals resulted in a decrease in their overall quality. We observed more inaccuracies in proposals this year, more poorly targeted resolutions, and more proposals addressing non-core issues. In fact, the category with the largest increase in volume was anti-ESG resolutions, which request that companies unwind their investments in environmental and social improvements. Last year, TRPA voted only nine of these resolutions; this year it was 46. We do not support anti-ESG resolutions.

In addition, we observed a marked increase in the level of prescriptive requests. Proponents have moved swiftly from disclosure-based requests (seeking additional reporting on ESG matters) to action-based requests (seeking specific commitments, capital investments, or structural changes from the targeted companies). At the same time, proponents exhibited a lower propensity to negotiate settlements with issuers before taking a proposal to a vote.

These dramatic shifts in the landscape reinforced our commitment to a company-by-company approach. It is more important than ever to understand the company's overall circumstances, disclosure levels, performance, and material ESG risks before determining votes on these proposals.

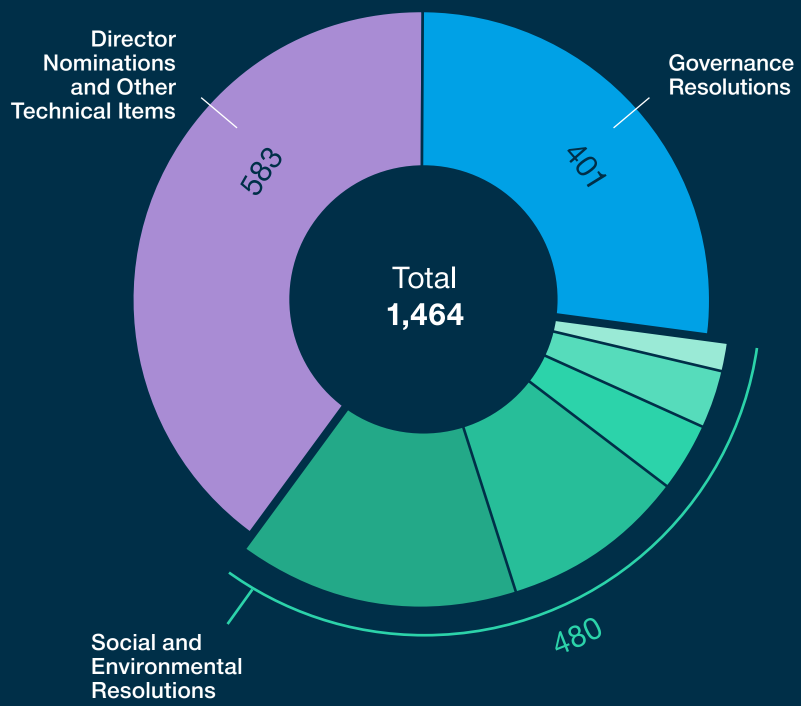
> It is more important than ever to understand the company's overall circumstances, disclosure levels, performance, and material ESG risks before determining votes on these proposals.

Say on Climate

Outside the U.S., another significant development is affecting voting patterns, particularly in the Europe, Middle East, and Africa (EMEA) region and Australia. In these markets, voluntary, management-sponsored climate resolutions, or so-called say on climate votes are increasingly being embraced. The purpose of these votes is for the company to present the details of its medium- and long-term climate strategy and to report to investors for their endorsement.

TRPA 2022 Shareholder Resolutions by Topic

Number of shareholder resolutions we voted on in 2022 by proposal topic. For "Social and Environmental Resolutions" we classify the proposals into five separate categories.



	Social	Environmental	Political	Anti-ESG	Anti-nuclear
Resolutions	**221**	**143**	**50**	**46**	**20**
Supported	11%	21%	32%	-	-
Opposed	85%	69%	68%	98%	100%
Elected not to vote*	4%	10%	-	2%	-

In markets where the say on climate voting concept has not gained traction—notably Japan—the spotlight remains on a small number of high-profile environmental resolutions brought by shareholders. In markets where the say on climate concept is more prevalent, we observe a more nuanced dynamic where the management-supported resolution may compete with a proponent's request for additional disclosure.

Ultimately, T. Rowe Price's investment advisers have dedicated significant resources toward building ESG expertise and insight. Consistent with our strategic investing approach, voting decisions on these matters are made using case-by-case analysis, taking into account the company's particular ESG risks, opportunities, and disclosure.

* In some cases, we elected not to vote due to proxy contests or share blocking. Share blocking is a requirement in certain markets that impose liquidity constraints in order to exercise voting rights. We generally do not vote in these markets.
As of December 31, 2022.

INTRODUCING TRPIM

Introducing T. Rowe Price Investment Management, Inc.

More than a year[1] has passed since T. Rowe Price Associates, Inc. (TRPA), transitioned six of its well-established U.S. equity and fixed income investment strategies to a new, separate, SEC-registered U.S. investment adviser—T. Rowe Price Investment Management, Inc. (TRPIM). As part of this shift, TRPIM established its own separate ESG team, using a similar framework and investment philosophy to TRPA, but with investment and proxy voting decisions made completely independently.

Chris Whitehouse
Head of ESG, TRPIM

At TRPIM, our philosophy is to embed ESG considerations into a research-led, active management approach, supported by dedicated ESG research resources and proprietary tools and processes. While TRPIM and TRPA share policies for ESG, principal adverse impacts, and engagement, each has its own distinct proxy voting guidelines. Moreover, the implementation and oversight of the Responsible Investing Indicator Model for TRPA and TRPIM differ, with TRPIM RIIM covering equities and corporate bonds only.

We also conduct our company engagements separately—though TRPIM and TRPA still share the same philosophy of being engaged, long-term owners committed to openness and transparency and sharing our views of stewardship.

Consistent across TRPA and TRPIM, our analysts and portfolio managers integrate ESG factors alongside other factors into their investment thesis, company ratings or credit ratings, price targets, position sizes, and proxy voting decisions, as appropriate to their mandate.

TRPIM Responsible Investing Indicator Framework

Impact Pillar
Measures impact opportunity, as opposed to ESG risk.[2] Data are derived from proportion of revenue aligned to company's sustainable activity

Disclosure Scores
Measures ESG awareness and preparedness, with data developed for companies with market cap above USD 500 million

→

Materiality
Most relevant ESG factors and data sets analyzed to inform investment case

→

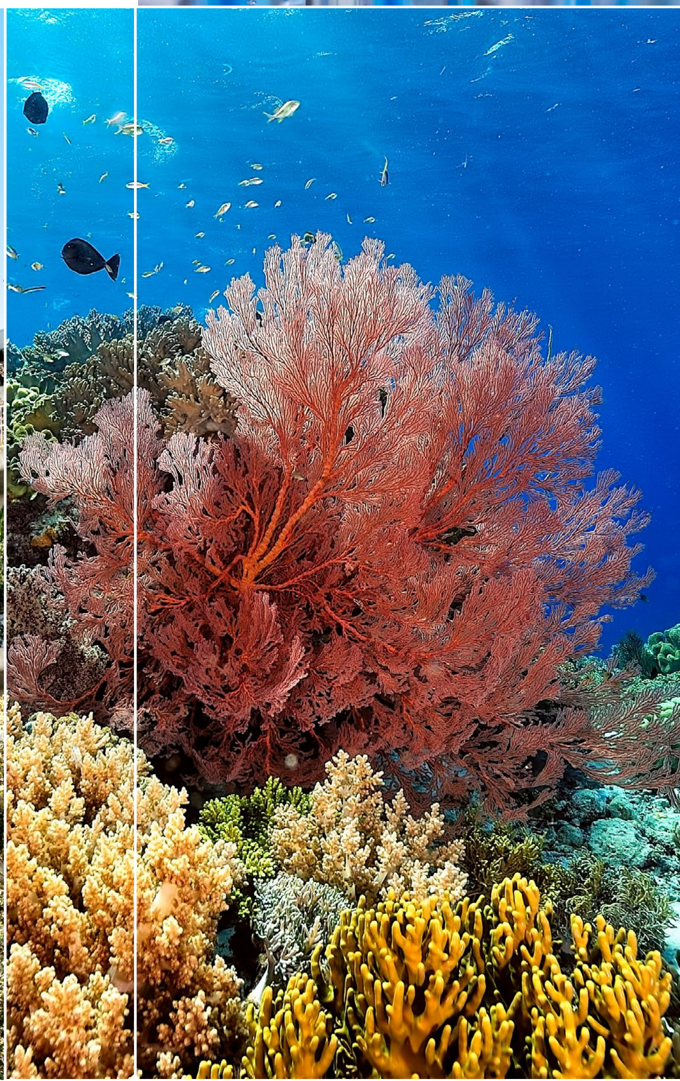
RIIM Profile
ESG and quantitative specialists engage with analysts and portfolio managers on company ESG profiles

↔

Integration
Investment analysts and portfolio managers integrate analysis into investment thinking

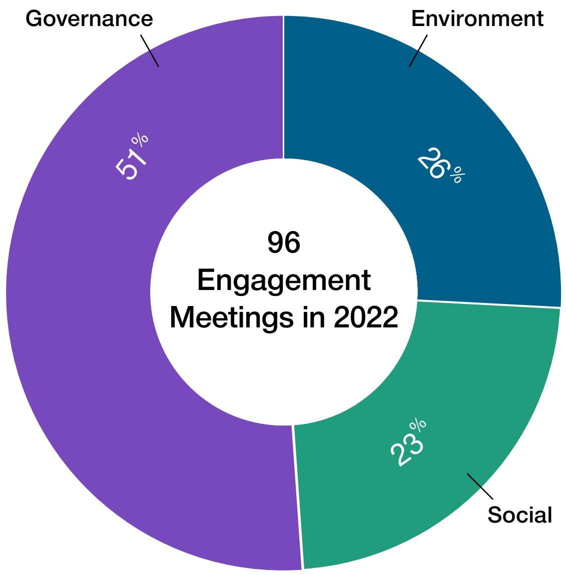
[1] Established on March 7, 2022.
[2] ESG risk is measured elsewhere in the model.

> While TRPIM and TRPA share policies on ESG, principal adverse impacts, and engagement, each has its own distinct proxy voting guidelines, meaning our voting decisions are made completely independently.



TRPIM Engagements[3]

Engagements by Category



Top 5 Engagement Topics by Category

ENVIRONMENT

1. Greenhouse gas emissions[4]
2. Disclosure of environmental data
3. Product sustainability
4. Water
5. Single-use packaging/plastics

SOCIAL

1. Diversity, equity, and inclusion
2. Disclosure of social data
3. Employee safety and treatment
4. Social stakeholders
5. Financial inclusion/affordability

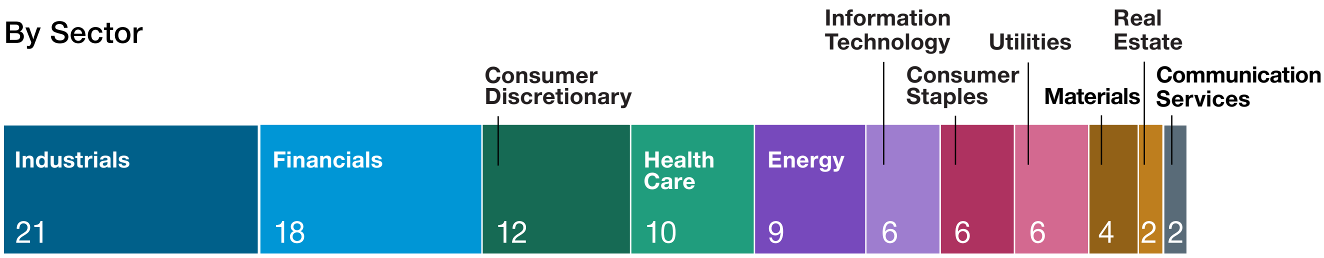
GOVERNANCE

1. Board composition[5]
2. Executive compensation
3. ESG accountability
4. Governance structure/oversight
5. Disclosure of governance data

TRPIM Engagements–Numbers by Category

By Market Capitalization

By Sector



[3] March 7, 2022–December 31, 2022.
[4] Includes GHG reduction/net zero targets and financed emissions.
[5] Includes board independence and board diversity.

TRPIM 2022 Proxy Voting Activity | 5,445 Management and Shareholder Proposals

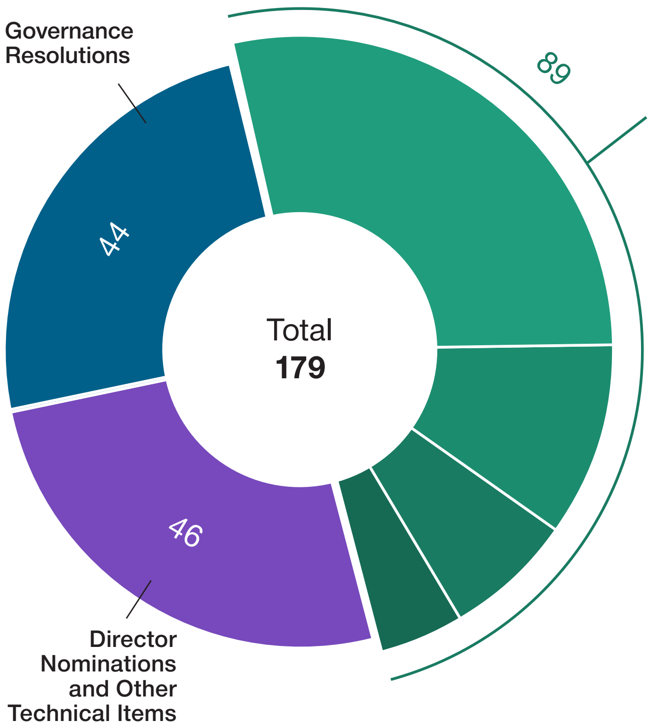
March 7, 2022–December 31, 2022.

Management Proposals	# of Proposals	% With Mgmt.
Elect Directors (Uncontested)	3,791	91.0%
Management Compensation: Say on Pay and Equity Plans	644	91.5%
Appoint Auditors/Approve Auditor Fees	569	98.4%
Routine Business and Operational Matters	112	74.6%
Capital Structure Items	77	93.2%
Other	73	86.3%
Total	**5,266**	

Shareholder Proposals	# of Proposals	% With Mgmt.
Social, Political, or Environmental Matters	89	84.9%
Elect Directors (Contested)	46	87.0%
Adopt or Amend Shareholder Rights	28	88.5%
Related to Compensation Policies	7	85.7%
Proposals to Amend or Remove Takeover Defenses	6	33.0%
Other	3	66.7%
Total	**179**	

TRPIM Shareholder Proposals

Between March 7, 2022, and December 31, 2022, portfolios managed by TRPIM voted on 179 shareholder resolutions. Of those, 46 were situations where shareholders were nominating directors to a company's board. Another 44 were resolutions asking companies to adopt specific corporate governance practices, and 89 were social and environmental resolutions.



With the SEC adapting its eligibility criteria, allowing more proposals to move forward, we observed more poorly targeted and prescriptive shareholder proposals. This reinforced our approach of voting resolutions on a case-by-case basis taking into consideration individual company factors, disclosure levels, and ESG performance. We vote according to what we believe to be in the best long-term interests of the company; this is part our investment management responsibilities to clients.

Social and Environmental Resolutions

	Resolutions	Supported	Opposed	Elected Not to Vote[6]
Social	51	16%	84%	0%
Environmental	18	17%	83%	0%
Political	12	25%	75%	0%
Anti-ESG	8	0%	100%	0%

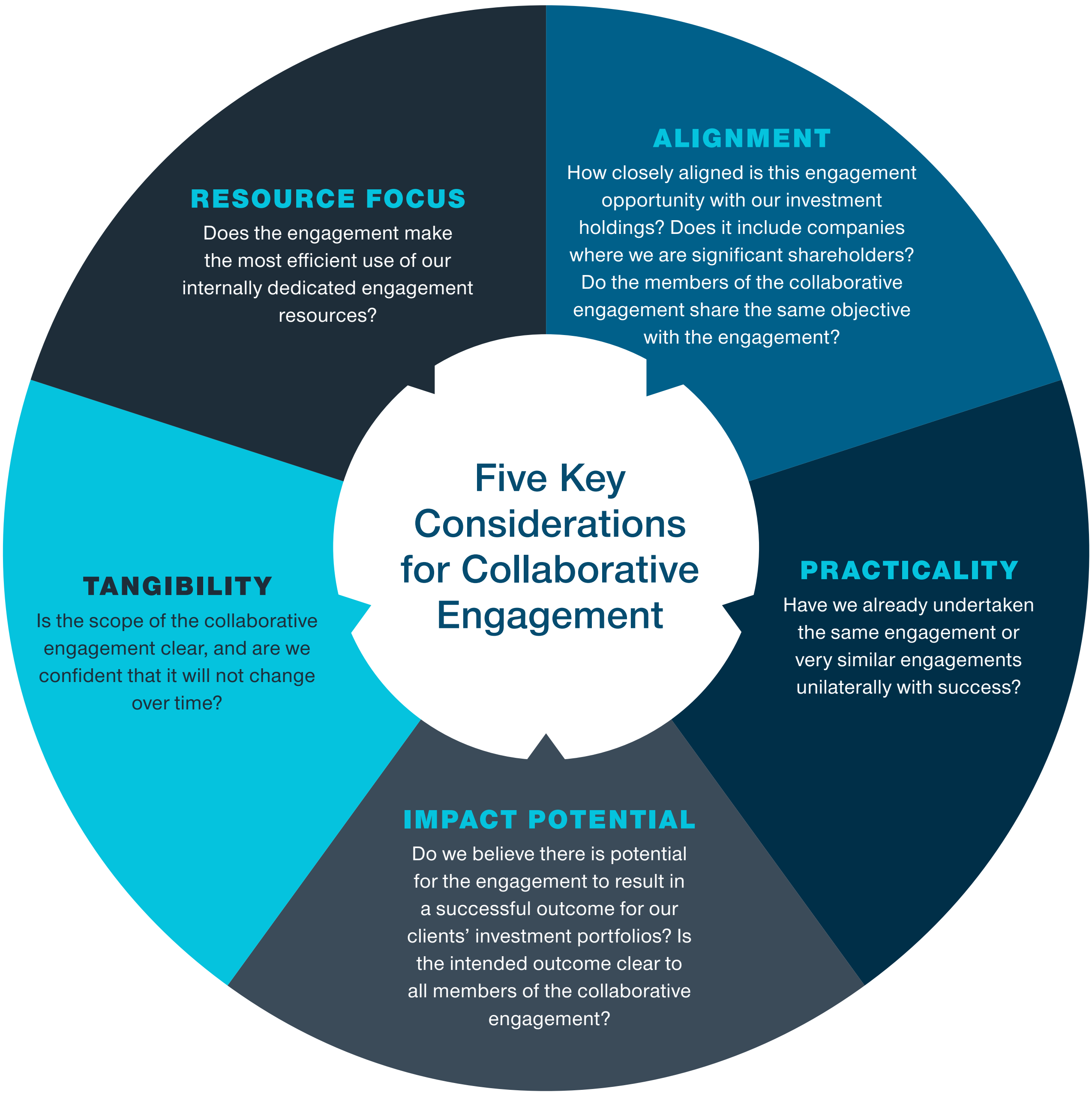
[6] In some cases, we may elect not to vote due to proxy contests or share blocking. Share blocking is a requirement in certain markets that impose liquidity constraints in order to exercise voting rights. We generally do not vote in these markets.

As of December 31, 2022.

COLLABORATIONS

Collaborative Engagement

Industry collaboration can be a means of escalating a concern we have identified in an individual dialogue. When considering participation in a collaborative engagement initiative, we weigh the following factors:



Collaboration Highlights

In 2022 TRPA participated in 40 collaborative engagements with 31 companies. We engaged mainly through the UK Investor Forum, the Access to Medicine Index, the Access to Nutrition Initiative (ATNI), and Farm Animal Investment Risk and Return (FAIRR). We have been an active member of the Japan Working Group of the Asian Corporate Governance Association (ACGA), and in 2022 we also joined the ACGA's China Working Group.

One key development we observed in 2022 was the discussion relating to diversity, equity, and inclusion, expanding its focus beyond gender. In 2022 we signed the 30% Club's UK Investor Group Statement on race equity. We are also a member of the 30% Club UK Investor Group Race Equity Working Group, and in 2022 we led a dialogue with two UK companies in the FTSE 250 to promote compliance with the expectations of the Parker Review to have at least one ethnically diverse board director by 2024.

The majority of collaborative engagements in 2022 took place in the Europe, Middle East, and Africa region. This can be explained by the presence of local investors who are open to engaging collaboratively, companies that are familiar with this mode of engagement, and investor initiatives that provide secretariat support. Another key driver is a regulatory framework that provides investors with reassurance that they will not be considered to be acting in concert with other investors merely by participating in a collaborative engagement. In other regions, different regulatory stances have inhibited market acceptance that collaborative engagement is a routine practice, and therefore also inhibited the development of supportive local infrastructure.

CASE STUDY: PROMOTING BETTER NUTRITION STRATEGIES AMONG UK RETAILERS (TRPA)

In 2022, we participated in a collaborative engagement organized by the Access to Nutrition Initiative, an independently funded research group that analyzes and ranks food manufacturers and retailers on their preparedness and performance on product nutrition. The purpose of the engagement was to follow up on the results of ATNI's UK Retailer Index 2022, which is the first full nutrition- and health-specific index to assess all major food retailers within the UK market. The finding was that the average score across all retailers is 3.3 out of 10. Our main objective was to advocate several actions to promote better nutrition strategies among the retailers.

T. Rowe Price signed an engagement letter with UK retailers and supermarket chains Marks & Spencer, Asda, Iceland, Sainsbury's, and Ocado to highlight the findings of the ATNI UK Retailer Index and invite the companies to engage in further dialogue. The engagement letters set out a number of questions to each company specific to their performance in the UK retailer index. The questions focused on several topics, including governance, strategy, and accountability for nutrition.

We encouraged targets to increase the sale of healthy products and asked retailers to establish responsible marketing and labeling commitments and to establish a strategy to promote the affordability of healthy products. ATNI proposed to organize investor dialogues for each company with a subgroup of investors. T. Rowe Price is a co-lead on the investor dialogue with Ocado. Following the dialogues, ATNI agreed to circulate a set of outcomes that have been achieved for each company.

Information is that of T. Rowe Price Associates, Inc. The security identified and described is for illustrative and informational purposes only and is not a recommendation to buy or sell any security. No assumption should be made that the security mentioned was or will be profitable. The views and opinions above are as of the date noted and are subject to change.

Initiatives Promoting Advocacy and Engagement

As of December 31, 2022, at least one T. Rowe Price entity is a signatory, founder, or member of the following groups committed to change.

Council of Institutional Investors (CII)
ASSOCIATE MEMBER SINCE 1989

Principles for Responsible Investment (PRI)
SIGNATORY SINCE 2010

UK Stewardship Code
SIGNATORY SINCE 2010

Japan Stewardship Code
SIGNATORY SINCE 2014

Associação de Investidores no Mercado de Capitais (AMEC)
MEMBER SINCE 2015

Asia Corporate Governance Association (ACGA)
MEMBER SINCE 2016

UK Investor Forum
FOUNDING MEMBER SINCE 2016

International Capital Market Association (ICMA)
MEMBER SINCE 2017

Investor Stewardship Group (ISG)
FOUNDING MEMBER SINCE 2017

Japan Stewardship Initiative
FOUNDING MEMBER SINCE 2019

Investment Association Climate Change Working Group
MEMBER SINCE 2020

Institutional Investors Group on Climate Change (IIGCC)
MEMBER SINCE 2020

Pensions and Lifetime Savings Association (PLSA) Stewardship Advisory Group
MEMBER SINCE 2020

Emerging Markets Investors Alliance
MEMBER SINCE 2020

Task Force on Climate-related Financial Disclosures (TCFD)
SUPPORTER SINCE 2020

Responsible Investment Association Australasia (RIAA)
MEMBER SINCE 2020

Farm Animal Investment Risk & Return (FAIRR)
MEMBER SINCE 2020

Access to Medicine Index
SIGNATORY SINCE 2021

Task Force on Climate-related Disclosures (TCFD) Consortium (Japan)
MEMBER SINCE 2021

Global Impact Investing Network (GIIN)
MEMBER SINCE 2021

Sustainability Accounting Standards Board (SASB) Alliance
MEMBER SINCE 2021

UN Global Compact
SIGNATORY SINCE 2021

International Corporate Governance Network (ICGN)
MEMBER SINCE 2021

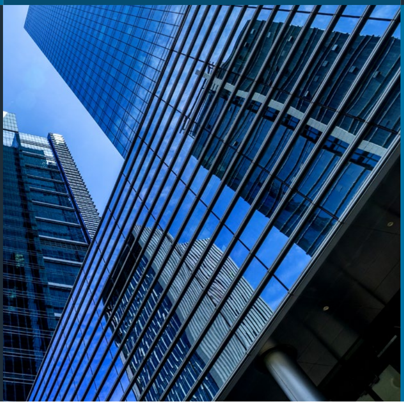
Investment Management Education Alliance ESG Committee
MEMBER SINCE 2021

30% Club Investor Group–UK Chapter
MEMBER SINCE 2021

International Capital Market Association (ICMA) Principles*
MEMBER SINCE 2022

Net Zero Asset Managers initiative
SIGNATORY SINCE 2022

Access to Nutrition Initiative
SIGNATORY SINCE 2022



Japan Impact-Driven Financing Initiative
SIGNATORY SINCE 2022

Taskforce on Nature-Related Financial Disclosures (TNFD)
FORUM MEMBER SINCE 2022

*Principles—Green Bond Principles, Social Bond Principles, Sustainability Bond Guidelines, and Sustainability-Linked Bond Principles.

RESOURCES

ESG Investment Resources[1]

TRPA Responsible Investing

Maria Elena Drew
Director of Research, Responsible Investing (London)

Tongai Kunorubwe
Head of ESG, Fixed Income (London)

Joe Baldwin
Analyst (London)

Greg Bragg
Associate Analyst (London)

Francesco Buonocore
Associate Analyst (London)

Dylan Cotter
Associate Analyst (Baltimore)

Ashley Hogan
Associate Analyst (Baltimore)

Clarice Hung
Associate Analyst (Hong Kong)

Matthew Kleiser
Associate Analyst (Baltimore)

Natalie McGowen
Associate Analyst (Baltimore)

Iona Richardson
Analyst (Hong Kong)

Daniel Ryan
Associate Analyst (London)

Duncan Scott
Analyst (London)

Suha Read[2]
General Manager (London)

Matt Lodge[2]
Senior Analyst, Responsible Investing Data Analytics (London)

Michael Ray[2]
Senior Business Analyst (Baltimore)

TRPA Governance

Donna Anderson
Head of Corporate Governance (Baltimore)

Jocelyn Brown
Head of Governance, EMEA and APAC (London)

Kara McCoy
Governance Analyst (Baltimore)

[1] As of August 31, 2023.
[2] ESG data and business support.

TRPA Impact Investing

Hari Balkrishna
Portfolio Manager, Global Equity (London)

Chris Vost
Investment Analyst, Global Equity (London)

Matt Lawton
Portfolio Manager, Global Credit (Baltimore)

Willem Visser
Associate Portfolio Manager, Fixed Income, ESG (London)

Ellen O'Doherty
Associate Analyst, Impact (London)

Kaoutar Yaiche
Analyst, U.S. Equity (Washington)

David Rowlett
Portfolio Manager, U.S. Equity (Baltimore)

TRPA Specialist Support

Véronique Chapplow
ESG Investment Specialist (London)

Penny Avraam
ESG Portfolio Analyst (London)

Caroline Ramscar
ESG Portfolio Analyst (Sydney)

Global Proxy Operations[3]

Amanda Falasco
Supervisor (Baltimore)

[3] Part of Investment Operations Group which serves both TRPA and TRPIM.

TRPIM ESG Team

Chris Whitehouse
Head of ESG, TRPIM
(Washington)

Kevin Klassen
Quantitative Analyst
(Baltimore)

Brandon Lee
Associate Analyst
(Washington)

Molly Shutt
Associate Analyst
(Washington)

Allie Hidalgo
Associate Analyst
(Baltimore)

Thearra Su
Associate Analyst
(Washington)

TRPIM Regulatory Research

Gil Fortgang
Associate Analyst
(Washington)

ESG Investing Committees

Each investment adviser has its own independent ESG Investing Committee. These are made up primarily of senior investment leaders from TRPA or TRPIM, with additional representatives from legal and operations, who have oversight of ESG integration. ESG committees are chaired by members of our ESG leadership team. Their primary purpose is to assist the Investment Management Steering committees. The role of the committees is to oversee:

- ESG policies (including proxy voting policy and exclusion policies)
- Implementation of ESG in investment processes
- Implementation of proxy voting policy
- Implementation of exclusion lists
- Impact investment framework

TRPA ESG Investing Committee

Donna F. Anderson
Cochair, Head of Corporate Governance

Maria Elena Drew
Cochair, Director of Research, Responsible Investing

Austin Applegate
Portfolio Manager, Municipal Bonds

Kamran Baig
Director of Equity Research, EMEA and Latin America

Hari Balkrishna
Portfolio Manager, Global Impact Equity

Oliver Bell
Associate Head, International Equity

R. Scott Berg
Portfolio Manager, Global Growth Equity

Jocelyn Brown
Head of Governance, EMEA and APAC

Archibald Ciganer
Portfolio Manager, Japan Equity

Anna Driggs[1]
Managing Legal Counsel, Legislative and Regulatory Affairs/ESG

Amanda Falasco[1]
Supervisor, Global Proxy Operations

Jennifer Geary
General Manager, Fundamental Equity

Ryan Hedrick
Associate Portfolio Manager, U.S. Large-Cap Equity

Arif Husain
Head of International Fixed Income

Michael Lambe
Director of Research

Matt Lawton
Portfolio Manager, Impact Credit

Yoram Lustig[1]
Head of EMEA and Latin America Multi-Asset Solutions

Ryan Nolan[1]
Senior Legal Counsel

Ken Orchard
Portfolio Manager, Global Fixed Income

Sally Patterson
General Manager, International Equity

Thomas Poullaouec[1]
Head of Multi-Asset Solutions, APAC

Preeta Ragavan Srinivasan
Equity Investment Analyst

Justin Thomson
Head of International Equities and CIO

Mitchell Todd
Portfolio Manager, UK Equity

Eric Veiel
Head of Global Equity and CIO

Willem Visser
Associate Portfolio Manager, Fixed Income, ESG

Ernest Yeung
Portfolio Manager, Emerging Markets Discovery Equity

TRPIM ESG Investing Committee

Chris Whitehouse
Chair, Head of ESG, TRPIM

Paul Cho
Research Analyst

Amanda Falasco (Observer)[1,2]
Supervisor, Global Proxy Operations

David Giroux
CIO and Head of Investment Strategy for TRPIM

Stephon Jackson, CFA
Head of TRPIM

Steven Krichbaum, CFA
Director of Research

Sara Pak[1,2]
Managing Legal Counsel

Farris Shuggi
Head of Quantitative Equity, TRPIM

Thomas Watson, CFA
Director of Research

David Wagner
Portfolio Manager, Small-Cap Value

Ashley Woodruff
Associate Portfolio Manager, Mid-Cap Growth

Doug Zinser
Research Analyst

[1] These individuals attend in an advisory capacity and although not classified as restricted investment personnel must adhere to the strict information barrier policy and guidelines.

[2] Not part of TRPIM.

As of August 31, 2023.

ENGAGEMENT DATA

2022 Engagements

Environmental (E), Social (S), and Governance (G) classifications of all company engagements.

TRPA

Company Name	Quarter	E	S	G
A O Smith Corp	1	●		
Abbott Laboratories	2		●	●
AbbVie Inc	2		●	
	2			●
	2			●
	3			●
	4	●	●	●
	4		●	
ABN AMRO Bank NV	2	●		
Acadia Healthcare Co Inc	2			●
ACADIA Pharmaceuticals Inc	2			●
Acadia Realty Trust	4	●	●	
Accenture PLC	3	●	●	●
Accor SA	1	●	●	
Activision Blizzard Inc	2		●	●
	4		●	●
Adesso SE	2			●
AES Andes SA	1	●		
AES Corp/The	2	●		
Agilent Technologies Inc	3	●	●	
Agios Pharmaceuticals Inc	4	●	●	●
AIA Group Ltd	4	●	●	
AIB Group PLC	1	●	●	
Air Liquide SA	2	●		
Airbus SE	1			●
	4	●		●
Aircastle Ltd	1	●	●	
AJ Bell PLC	4			●
	4			●
Akbank TAS	1	●	●	
Albemarle Corp	4	●		●
Alcon Inc	4	●	●	●
Alesco Corp Ltd	3			●
Alibaba Group Holding Ltd	1	●		●
	3	●	●	●
	3			●
	4			●
Alicorp SAA	1	●	●	
Alkermes PLC	1			●
Alnylam Pharmaceuticals Inc	2			●
Alphabet Inc	2	●	●	●
	4		●	●
Alstom SA	2	●		●
Altria Group Inc	4		●	●
Altus Group Ltd/Canada	2			●
Amadeus IT Group SA	1			●
	2			●
	4			●
Amazon.com Inc	2	●	●	●
	4	●	●	●
Amcor PLC	3	●	●	●
America Movil SAB de CV	3			●
American Electric Power Co Inc	4	●		●
American Express Co	2			●
	2	●	●	
	4			●
American Homes 4 Rent	4			●
American International Group Inc	2			●
Anheuser-Busch InBev SA/NV	4	●		●
Antofagasta PLC	3	●		
APA Group	4	●		●
Apartment Investment and Management Co	4			●
Apple Hospitality REIT Inc	4	●	●	
Apple Inc	4		●	●
Applied Materials Inc	1	●		
	4	●		
Arco Platform Ltd	4			●
Ares Capital Corp	1	●	●	
Argenx SE	2			●
Aristocrat Leisure Ltd	4	●	●	
Aritzia Inc	3	●	●	●
Arvinas Inc	4			●
Asahi Kasei Corp	4	●	●	●
Ascendis Pharma A/S	2			●
Ashtead Group PLC	1			●
Asics Corp	1		●	
ASML Holding NV	1			●
ASOS PLC	1			●
	1			●
	2			●
	2			●
	3			●
	3			●
	3	●	●	
	4			●
	4			●
Astellas Pharma Inc	4		●	●
AstraZeneca PLC	1	●	●	●
	4		●	
Autodesk Inc	1	●	●	
	4	●		
Automatic Data Processing Inc	2	●	●	
AvalonBay Communities Inc	1	●	●	●
	2			●
Avantor Inc	3	●	●	
Avery Dennison Corp	4		●	●
B3 SA - Brasil Bolsa Balcao	3	●	●	
Bakkafrost P/F	2	●	●	

The specific securities identified and described are for informational purposes only and do not represent securities purchased, sold, or recommended by T. Rowe Price. No assumption should be made that the securities identified were or will be profitable.

Company Name	Quarter	E	S	G
Banco Santander Chile	3	●	●	
	3	●		
Bank of America Corp	2	●	●	●
	4	●	●	●
Bank of New York Mellon Corp/The	1			●
Barclays PLC	2	●		
Barry Callebaut AG	2		●	
	4			●
BAWAG Group AG	2			●
Baxter International Inc	2			●
Bayer AG	1		●	●
	2	●	●	
	3			●
	4		●	
Becton Dickinson and Co	3	●	●	
Bellis Finco PLC	2		●	●
Best Buy Co Inc	4	●	●	●
BHP Group Ltd	1		●	●
	4	●		●
Bill.com Holdings Inc	4			●
BNP Paribas SA	2		●	●
Boeing Co/The	2	●	●	●
boohoo Group PLC	1			●
	3	●	●	
Booking Holdings Inc	2			●
	4		●	●
Borouge PLC	2	●		
BP PLC	2			●
BRAC Bank Ltd	3	●	●	
Bristol-Myers Squibb Co	4	●	●	
Britvic PLC	1			●
	1	●	●	
	2	●	●	
Brixmor Property Group Inc	1	●	●	
Broadcom Inc	1			●
Broadridge Financial Solutions Inc	4			●
	4	●	●	
Bunge Ltd	2	●		●
Bunzl PLC	4	●	●	
Burberry Group PLC	1	●		
Burlington Stores Inc	1	●	●	●
ByteDance Ltd	1		●	
Cadence Design Systems Inc	4	●	●	●
CAE Inc	4			●
Canadian Natural Resources Ltd	4	●		
Capitec Bank Holdings Ltd	2			●
Cardinal Health Inc	3	●	●	●
	4			●
Cboe Global Markets Inc	4	●	●	
Cellnex Telecom SA	3			●
	4			●
Cenovus Energy Inc	1	●	●	
CenterPoint Energy Inc	2			●
Ceridian HCM Holding Inc	4		●	●
CF Industries Holdings Inc	4	●		●
Challenger Ltd	4			●
	4	●		●
Charles Schwab Corp/The	2		●	●
Cheniere Energy Inc	4	●		

Company Name	Quarter	E	S	G
Chevron Corp	2	●	●	
China Merchants Bank Co Ltd	1	●	●	
China Oil & Gas Group Ltd	2	●	●	
China Overseas Land & Investment Ltd	2	●	●	
China Resources Mixc Lifestyle Services Ltd	2	●		
Chipotle Mexican Grill Inc	2		●	●
Chubb Ltd	2	●	●	●
	4	●		●
Chubu Electric Power Co Inc	2	●		●
Cigna Corp	2		●	●
CIMB Group Holdings Bhd	1		●	
	3	●		
Citigroup Inc	2	●	●	●
	4	●	●	●
Citrix Systems Inc	1			●
Close Brothers Group PLC	2			●
CME Group Inc	2			●
Coca-Cola Co/The	4		●	
	4	●	●	
Coca-Cola Europacific Partners PLC	4	●	●	
Colbun SA	4	●		
Colgate-Palmolive India Ltd	1	●	●	
Coloplast A/S	2		●	
ComfortDelGro Corp Ltd	2			●
Commonwealth Bank of Australia	3			●
	4	●		●
Compass Group PLC	1			●
	3	●	●	
Conagra Brands Inc	4		●	
ConocoPhillips	2	●	●	●
	4	●		●
Constellation Brands Inc	2			●
	4			●
Coterra Energy Inc	4	●		●
Coupang Inc	3	●	●	
Covestro AG	4	●		●
Credicorp Ltd	3	●	●	
CSX Corp	4			●
CTS Eventim AG & Co KGaA	3			●
Daikin Industries Ltd	2	●		
	4	●		
Danaher Corp	1	●	●	●
	3	●	●	
Darling Ingredients Inc	4	●	●	●
DCC PLC	1			●
	3			●
Dechra Pharmaceuticals PLC	3		●	
Deliveroo PLC	1			●
	1			●
	2			●
Derwent London PLC	2			●
Descartes Systems Group Inc/The	4			●
Devon Energy Corp	4	●		●
Digital Realty Trust Inc	4	●	●	
	4	●	●	
Dime Community Bancshares Inc	2			●
	4			●

Company Name	Quarter	E	S	G
Dollar General Corp	4	●	●	
	4		●	●
Dominion Energy Inc	2	●		●
	4	●		
Domino's Pizza Enterprises Ltd	4		●	●
DoorDash Inc	1	●	●	
Douglas Emmett Inc	2			●
	4			●
Dover Corp	4	●	●	
Downer EDI Ltd	4		●	●
	4			●
	4			●
Drax Group PLC	1	●		
DTE Energy Co	4	●		●
EastGroup Properties Inc	4	●	●	
eBay Inc	4	●	●	
Edenred	1			●
Elanco Animal Health Inc	3		●	
	4	●	●	●
Element Solutions Inc	2			●
Elevance Health Inc	4	●	●	●
Eli Lilly & Co	4	●	●	●
Emirates NBD Bank PJSC	1		●	
Empresa Nacional de Telecomunicaciones SA	3			●
Endava PLC	4			●
Enel SpA	4	●		
	1	●		●
EOG Resources Inc	4	●	●	
Equifax Inc	4	●	●	●
Equinor ASA	1	●		
Equitable Holdings Inc	4	●	●	●
Ermenegildo Zegna NV	1	●	●	●
	3	●	●	
Erste Group Bank AG	1	●		
Essex Property Trust Inc	2			●
	2	●		
	4	●	●	
EssilorLuxottica SA	2			●
	4		●	●
Estee Lauder Cos Inc/The	2	●	●	
Etsy Inc	4	●		
Eurofins Scientific SE	2	●		●
Euronet Worldwide Inc	2			●
Evotec SE	1			●
	2			●
Exact Sciences Corp	1			●
	4		●	●
Exelixis Inc	4	●	●	●
Exxon Mobil Corp	1	●		●
	1		●	●
	2	●		●
	4	●		●
Faurecia SE	2			●
Federal Farm Credit Banks Funding Corp	4	●		
FedEx Corp	3	●		
	4			●
Fifth Third Bancorp	4	●	●	●
Figs Inc	1	●	●	●

Company Name	Quarter	E	S	G
Fine Organic Industries Ltd	3			●
FinecoBank Banca Fineco SpA	1		●	●
First Abu Dhabi Bank PJSC	2	●		
FirstEnergy Corp	4	●	●	●
FirstRand Ltd	2	●		
	3			●
	4	●		●
Fiserv Inc	2			●
	4			●
Floor & Decor Holdings Inc	4	●		●
Flowers Foods Inc	2		●	
Freeport-McMoRan Inc	2			●
Fresenius SE & Co KGaA	4	●	●	●
Freshpet Inc	4	●	●	●
FTI Consulting Inc	1		●	●
Fujitec Co Ltd	1			●
	2		●	●
Funding Circle Holdings PLC	1	●		●
Galapagos NV	2			●
	2	●	●	
Galp Energia SGPS SA	4	●		
Gecina SA	4	●	●	
General Electric Co	2			●
	4			●
Genmab A/S	4		●	●
Genus PLC	1			●
Givaudan SA	3	●	●	
Global Blood Therapeutics Inc	2			●
Global Payments Inc	2			●
Goldman Sachs Group Inc/The	1			●
Goodman Group	3	●		●
	4			●
Great Portland Estates PLC	1	●	●	●
Green Dot Corp	1			●
Greenko Energy Holdings	3	●	●	
Grieg Seafood ASA	2	●	●	
Grupo Financiero Banorte SAB de CV	1			●
	3	●	●	●
GSK PLC	1		●	
	4		●	
	4			●
Guangdong Kinlong Hardware Products Co Ltd	2			●
Guardant Health Inc	2			●
	4		●	●
Halliburton Co	2			●
	3			●
Hamamatsu Photonics KK	4			●
Hartford Financial Services Group Inc/The	2	●		
	4	●		●
HCA Healthcare Inc	2		●	
HDFC Bank Ltd	2	●	●	
Health & Happiness H&H International Holdings Ltd	3	●		
Henkel AG & Co KGaA	4	●		
Hichain Logistics Co Ltd	2			●
Hikari Tsushin Inc	4		●	
Hilton Worldwide Holdings Inc	2			●
Hino Motors Ltd	1		●	
Holcim AG	4	●	●	

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Company Name	Quarter	E	S	G
Hologic Inc	4		●	●
Hon Hai Precision Industry Co Ltd	4		●	
Honeywell International Inc	2	●	●	●
	3	●		●
Hongfa Technology Co Ltd	2			●
Hoshizaki Corp	4	●		●
Host Hotels & Resorts Inc	4	●		●
Howmet Aerospace Inc	2			●
HSBC Holdings PLC	1	●		
	2			●
	4	●	●	
HubSpot Inc	4	●	●	●
Humana Inc	3	●		●
Huntington Bancshares Inc/OH	4	●	●	●
Hypoport SE	2			●
Hyundai Mobis Co Ltd	3			●
	4	●	●	
Hyundai Motor Co	4		●	
	4	●	●	●
Iberdrola SA	2	●	●	●
	4	●		
Iceland Foods Ltd	2		●	●
IDEX Corp	4	●		
Imperial Brands PLC	3			●
Imperial Oil Ltd	4	●		
Incyte Corp	4	●	●	●
Indofood CBP Sukses Makmur Tbk PT	2	●	●	
Info Edge India Ltd	2			●
Informa PLC	1			●
	2			●
Infosys Ltd	2			●
Ingersoll Rand Inc	3	●		●
	3	●		●
Inner Mongolia Yili Industrial Group Co Ltd	4	●	●	
Insmed Inc	2			●
Insulet Corp	2			●
	4	●	●	●
Intelbras SA Industria de Telecomunicacao Eletronica Brasileira	1	●	●	
InterContinental Hotels Group PLC	2			●
Intermediate Capital Group PLC	1			●
	1	●		
	3			●
International Container Terminal Services Inc	3	●	●	●
International Paper Co	1			●
Intesa Sanpaolo SpA	1	●		
Intuit Inc	4	●	●	
Invesco Ltd	4		●	●
Investec PLC	3	●		●
Isuzu Motors Ltd	4	●	●	
Itau Unibanco Holding SA	3	●	●	
J Sainsbury PLC	2		●	●
Jackson Financial Inc	4	●		●
Japan Tobacco Inc	4	●	●	
Jardine Matheson Holdings Ltd	4	●		●
Jason Furniture Hangzhou Co Ltd	2			●

Company Name	Quarter	E	S	G
JBG SMITH Properties	1	●		●
JBS SA	3	●	●	
JD Sports Fashion PLC	2			●
	4			●
Jetti Resources LLC	1	●		
Johnson & Johnson	4		●	●
JPMorgan Chase & Co	2	●		●
	4	●	●	●
Julius Baer Group Ltd	4			●
Karuna Therapeutics Inc	2			●
KBC Group NV	4	●	●	●
Kemper Corp	2			●
Kering SA	4	●	●	
Keyence Corp	3	●	●	
Keywords Studios PLC	2			●
Kimberly-Clark Corp	4	●	●	●
Kimco Realty Corp	4	●		
Kingspan Group PLC	2		●	●
KLA Corp	4	●		●
Klabin SA	1	●		
	3		●	●
Kohl's Corp	1			●
Kojamo Oyj	1			●
Koninklijke Ahold Delhaize NV	3	●		
Koninklijke DSM NV	1	●		
	3	●	●	
Koninklijke Philips NV	2		●	●
	2	●	●	
	4			●
Kotak Mahindra Bank Ltd	1	●	●	
KT Corp	1		●	
	4		●	●
Kyoritsu Maintenance Co Ltd	2			●
Las Vegas Sands Corp	4			●
Legrand SA	2			●
Leroy Seafood Group ASA	2	●	●	
Li Ning Co Ltd	2		●	
Linde AG	3			●
Linde PLC	1	●		
Lloyds Banking Group PLC	4			●
	4	●	●	●
Lonza Group AG	4	●	●	
Lululemon Athletica Inc	2			●
MACOM Technology Solutions Holdings Inc	4	●		●
Macquarie Group Ltd	3			●
Magazine Luiza SA	2	●	●	
Marel HF	1			●
MarketAxess Holdings Inc	3	●	●	●
Marks & Spencer Group PLC	2		●	●
Marriott International Inc/MD	2		●	●
Marsh & McLennan Cos Inc	4	●		●
Mattel Inc	4	●	●	●
Mayr Melnhof Karton AG	2			●
McDonald's Corp	2	●	●	●
Meituan	2	●	●	●
MercadoLibre Inc	2	●	●	
	4	●		
Merck & Co Inc	2		●	●
	3		●	
	4	●	●	●

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Company Name	Quarter	E	S	G
Meta Platforms Inc	2		●	●
	4		●	
	4		●	●
MetLife Inc	4	●	●	●
Microsoft Corp	3		●	●
Middleby Corp/The	1	●		●
Mitsubishi Corp	1	●	●	●
	2	●		
Mitsubishi Electric Corp	1		●	●
	2		●	●
	4		●	●
Mitsubishi UFJ Financial Group Inc	2	●		
	3			●
	4			●
Miura Co Ltd	1	●		
Moderna Inc	2		●	●
	2	●	●	
	4		●	●
Molten Ventures PLC	3			●
Mondelez International Inc	2		●	●
	4	●	●	●
MongoDB Inc	4	●		●
Montana Aerospace AG	4			●
Morgan Stanley	3	●	●	●
MorphoSys AG	1			●
Motorola Solutions Inc	4		●	
Mowi ASA	2	●	●	
MSCI Inc	4		●	●
Munich Re	4			●
MYT Netherlands Parent BV	4			●
Nasdaq Inc	1	●		
National Australia Bank Ltd	4		●	●
	4	●	●	
National Express Group PLC	1			●
National Fuel Gas Co	4	●		●
National Instruments Corp	4		●	●
Natura Cosmeticos SA	1	●	●	
NatWest Group PLC	4	●		
NAVER Corp	4		●	
Nestle SA	3	●	●	
	4		●	
NET One Systems Co Ltd	1		●	●
Neurocrine Biosciences Inc	2			●
Nevro Corp	4			●
News Corp	4			●
Next PLC	2	●	●	●
	4			●
NextEra Energy Inc	2		●	
	4	●	●	●
Ninety One PLC	1			●
	3	●		●
Nintendo Co Ltd	4	●	●	
NiSource Inc	4	●		●
NN Group NV	1		●	
Northern Star Resources Ltd	4			●
Northrop Grumman Corp	2		●	●
Novartis AG	2		●	
	4			●
	4	●	●	●
Novo Nordisk A/S	2	●	●	

Company Name	Quarter	E	S	G
Novocure Ltd	4	●	●	●
NVIDIA Corp	4	●	●	
NXP Semiconductors NV	3	●		
	3	●	●	●
Ocado Group PLC	2	●		
	2		●	●
Occidental Petroleum Corp	2	●		●
Ocean's King Lighting Science & Technology Co Ltd	2			●
Olaplex Holdings Inc	3			●
Olympus Corp	1	●	●	●
OneMain Holdings Inc	1		●	
	1	●		
oOh!media Ltd	2			●
Oppein Home Group Inc	2			●
Oxford Nanopore Technologies PLC	1		●	
	2	●	●	
Pacific Biosciences of California Inc	2			●
Palomar Holdings Inc	3			●
Paycom Software Inc	2			●
PayPal Holdings Inc	4	●	●	
Pebblebrook Hotel Trust	2			●
	4	●	●	
	4			●
PepsiCo Inc	2	●	●	●
PerkinElmer Inc	3	●	●	
Persimmon PLC	1			●
	3			●
Persol Holdings Co Ltd	1			●
Pertamina Persero PT	4		●	
Petronet LNG Ltd	3			●
Pfizer Inc	1		●	●
	2		●	●
	4	●	●	●
PG&E Corp	1	●	●	●
Philip Morris International Inc	2		●	●
Phillips 66	2	●		
Playtech Plc	1			●
PolyPeptide Group AG	4			●
POSCO Holdings Inc	3	●	●	
Post Holdings Inc	1		●	
PRADA SpA	2	●	●	●
Prologis Inc	1	●		
	2	●	●	
Prosus NV	2			●
	3			●
Prothena Corp PLC	2		●	●
	4			●
	4	●	●	
Prudential PLC	4	●	●	
Prysmian SpA	1	●	●	●
	4	●	●	●
	4	●	●	
PTC Therapeutics Inc	2			●
PTT Exploration & Production PCL	1	●		
QT Group Oyj	1			●
QUALCOMM Inc	1			●
	4		●	●
Quest Diagnostics Inc	4	●	●	●
Ralph Lauren Corp	4		●	●

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Company Name	Quarter	E	S	G
Rayonier Inc	1	●		●
	1	●	●	
Recruit Holdings Co Ltd	4	●	●	●
Regeneron Pharmaceuticals Inc	2			●
	4	●	●	
Relay Therapeutics Inc	1	●	●	●
	1	●	●	
Rentokil Initial PLC	2			●
Repligen Corp	1	●		●
Republic Services Inc	2	●	●	●
	4	●	●	●
Rheinmetall AG	1		●	
Rio Tinto PLC	2		●	
Roche Holding AG	1	●	●	
ROCKWOOL A/S	3			●
Rolls-Royce Holdings PLC	3			●
Roper Technologies Inc	1	●		
	3	●	●	
Royal Bank of Canada	1	●		
RWS Holdings PLC	1	●	●	●
Sage Therapeutics Inc	1			●
	3			●
Salesforce Inc	1	●	●	
Salmar ASA	2	●	●	
Samsung Electronics Co Ltd	1	●	●	●
	3			●
	4	●		●
Sanofi	1		●	●
	4		●	
Sartorius AG	4	●	●	
Saudi Tadawul Group Holding Co	1	●	●	
SBA Communications Corp	4	●	●	●
Scentre Group	1		●	●
Scout24 SE	1			●
Sea Ltd	4			●
SEACOR Marine Holdings Inc	1	●	●	●
Seagen Inc	4			●
Sealed Air Corp	4	●		●
Select Medical Holdings Corp	2			●
Sempra Energy	1	●	●	●
	2	●		●
	4	●		●
ServiceNow Inc	1	●	●	
	2			●
	4			●
Seven & i Holdings Co Ltd	1			●
Shandong Sinocera Functional Material Co Ltd	1	●		●
Shimadzu Corp	4			●
Shop Apotheke Europe NV	1			●
	4	●		●
Shopify Inc	2			●
Shoprite Holdings Ltd	4	●	●	
Siemens AG	4	●		●
Signature Bank/New York NY	2			●
Sika AG	3	●		
Silergy Corp	3	●	●	
SiteOne Landscape Supply Inc	4	●	●	
Skyworks Solutions Inc	1			●
SL Green Realty Corp	2			●
Sompo Holdings Inc	1	●	●	

Company Name	Quarter	E	S	G
South32 Ltd	2	●	●	
	4	●		
	4	●	●	●
Spirit AeroSystems Holdings Inc	4	●	●	●
Splunk Inc	1			●
Spotify Technology SA	2		●	
Sprouts Farmers Market Inc	4	●	●	
Square Pharmaceuticals Ltd	2			●
Standard Chartered PLC	2	●		
	2			●
	4	●		
Stanley Black & Decker Inc	4	●	●	●
State Street Corp	4		●	●
Steadfast Group Ltd	4			●
Stericycle Inc	2	●		●
Stora Enso Oyj	1	●		
Stryker Corp	2	●	●	
Sumitomo Corp	1	●		
Sumitomo Mitsui Trust Holdings Inc	1	●		●
Sungrow Power Supply Co Ltd	2			●
Suzano SA	1	●		
Suzuki Motor Corp	1	●	●	●
Swedbank AB	4	●		
Swiss Re AG	1	●		
Sysco Corp	3	●	●	●
Takeda Pharmaceutical Co Ltd	2			●
	4		●	
Targa Resources Corp	4	●	●	●
Tassal Group Ltd	2	●	●	
Taylor Wimpey PLC	4	●	●	
TE Connectivity Ltd	2	●		
Teledyne Technologies Inc	2			●
Telefonaktiebolaget LM Ericsson	1		●	●
	4	●		
Telefonica Deutschland Holding AG	1	●	●	●
Teleperformance	1			●
	4		●	
	4	●	●	
Tencent Holdings Ltd	1	●	●	
	1	●	●	●
	4	●	●	
Terna - Rete Elettrica Nazionale	1	●		●
Terreno Realty Corp	1	●	●	●
Tesla Inc	1	●	●	
	3	●	●	●
Texas Instruments Inc	4	●		●
Textron Inc	4	●		●
Thales SA	1			●
Thermo Fisher Scientific Inc	3	●	●	
	4	●	●	●
THG PLC	1			●
	2			●
TJX Cos Inc/The	2		●	●
	4			●
Toast Inc	4	●	●	●
Together Financial Services Ltd	1	●	●	
Tosoh Corp	1	●	●	●
Toyota Motor Corp	1	●		
	3			●

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Company Name	Quarter	E	S	G
	4	●		●
Tradeweb Markets Inc	4	●	●	●
	4			●
Trainline PLC	1			●
	1			●
	2			●
	3			●
Transaction Capital Ltd	1			●
Travelers Cos Inc/The	2	●	●	
Treasury Wine Estates Ltd	2			●
	3			●
Trex Co Inc	2			●
TRG Pakistan	1			●
	1			●
	4		●	
Turkiye Sise ve Cam Fabrikalari AS	1	●	●	
Tyson Foods Inc	4	●	●	●
Uber Technologies Inc	4	●	●	
UBS Group AG	4	●		
Ultragenyx Pharmaceutical Inc	1	●	●	●
UniCredit SpA	1	●		
Unilever PLC	1			●
	2			●
	2			●
	2	●		
	4		●	
United Parcel Service Inc	1	●	●	●
UnitedHealth Group Inc	2		●	●
	4	●	●	
Universal Music Group NV	2			●
Universal Robina Corp	2	●	●	●
	3	●	●	
US Bancorp	2	●	●	
Valeo	2			●
Valmet Oyj	1			●
Verallia SA	1			●
	2			●
	4			●
Verisk Analytics Inc	4	●		●
Vertex Pharmaceuticals Inc	4	●	●	
Victoria Gold Corp	2			●
Virtus Investment Partners Inc	1		●	●
	2			●
Visa Inc	3	●	●	●
Vistra Corp	1	●		●
Vodafone Group PLC	1			●
Volkswagen AG	4		●	
Vulcan Materials Co	1	●		
Walmart Inc	1	●	●	●
	3	●		
	4	●	●	
Walt Disney Co/The	4	●	●	●
Warom Technology Inc Co	2			●
Weir Group PLC/The	2			●
Wells Fargo & Co	2	●	●	●
	4	●	●	
Welltower Inc	1	●	●	
Western Digital Corp	4			●
Westrock Co	4	●		●

Company Name	Quarter	E	S	G
Weyerhaeuser Co	4	●	●	
Wise PLC	4		●	●
Wizz Air Holdings Plc	4			●
Worley Ltd	1	●		●
	2			●
	4		●	●
WPP PLC	2			●
	4			●
Wuxi Biologics Cayman Inc	2			●
Wynn Resorts Ltd	2			●
	3			●
	4			●
Xencor Inc	4			●
Xero Ltd	3			●
Xylem Inc/NY	2	●		
Yangzijiang Shipbuilding Holdings Ltd	1	●	●	●
Yifeng Pharmacy Chain Co Ltd	2			●
	3			●
	3			●
Yixintang Pharmaceutical Group Co Ltd	2			●
	4			●
YouGov PLC	4			●
Yum China Holdings Inc	3			●
	4	●	●	
Yum! Brands Inc	2			●
Zalando SE	1		●	●
Zealand Pharma A/S	1			●
Zhejiang Shuanghuan Driveline Co Ltd	2			●
Zhongji Innolight Co Ltd	2			●
Zimmer Biomet Holdings Inc	2			●
	4		●	●
Zoetis Inc	3		●	
	3	●	●	
Zomato Ltd	4		●	
Zurich Insurance Group AG	1	●	●	
	4	●		

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TRPIM

Company Name	Quarter	E	S	G
Altus Group Ltd/Canada	2			●
Array Technologies Inc	3	●	●	●
Assurant Inc	2	●	●	●
	4	●	●	●
Atrion Corp	2			●
Axis Capital Holdings Ltd	2	●		●
	4	●	●	●
AZZ Inc	4	●	●	●
Bath & Body Works Inc	2	●	●	●
BroadStreet Partners Inc	3		●	●
Cable One Inc	2			●
Cboe Global Markets Inc	4	●	●	●
Cheniere Energy Inc	4	●	●	●
Corning Inc	4	●	●	●
CSW Industrials Inc	3			●
Darling Ingredients Inc	4	●	●	●
Deckers Outdoor Corp	1	●	●	●
Devon Energy Corp	4	●	●	●
Diamondback Energy Inc	4	●	●	●
Dime Community Bancshares Inc	4	●	●	●
Element Solutions Inc	2	●	●	●
Equifax Inc	2	●		●
	4	●	●	●
Essential Utilities Inc	3	●	●	
FB Financial Corp	2			●
FleetCor Technologies Inc	2			●
Fortive Corp	4	●	●	●
General Electric Co	2	●	●	●
Henry Schein Inc	4	●	●	●
Hexcel Corp	4	●		●
Hilton Worldwide Holdings Inc	2	●	●	●
Home BancShares Inc/AR	3	●	●	●
Howard Energy Partners	2	●	●	
Huron Consulting Group Inc	4			●
IDACORP Inc	3	●	●	●
Insmed Inc	4			●
JB Hunt Transport Services Inc	1	●	●	
JBG SMITH Properties	2			●
John Bean Technologies Corp	4	●		●
LL Flooring Holdings Inc	3	●	●	●
Meritage Homes Corp	4	●	●	●
MGE Energy Inc	4	●	●	●
MGM Resorts International	4	●	●	●
MSCI Inc	4	●	●	●
NexTier Oilfield Solutions Inc	3	●	●	●
Olaplex Holdings Inc	3	●		●
Papa John's International Inc	1		●	
Permian Resources Corp	3			●
Popular Inc	4	●	●	●
Prothena Corp PLC	4			●
Provident Bancorp Inc	2			●
Public Service Enterprise Group Inc	1	●		●
RBC Bearings Inc	3	●		●
Reata Pharmaceuticals Inc	2			●
Rent the Runway Inc	4	●	●	●
Reynolds Consumer Products Inc	4	●	●	●
Roper Technologies Inc	4	●	●	
RPM International Inc	3			●
Seagen Inc	2			●
Sealed Air Corp	4	●		●
SI Group	1	●	●	●
Signature Bank/New York NY	2			●
	3	●	●	●
Skyworks Solutions Inc	2			●
Southwest Gas Holdings Inc	2			●
Stericycle Inc	4		●	●
Tallgrass Energy Partners LP	1	●		
Teledyne Technologies Inc	2			●
Telesat Corp	1		●	●
Tempur Sealy International Inc	3		●	●
Tetra Tech Inc	4		●	●
Texas Instruments Inc	4	●	●	
Textron Inc	4	●	●	●
Toast Inc	4	●	●	●
Tradeweb Markets Inc	3	●	●	●
TreeHouse Foods Inc	4	●	●	●
Triton Water Holdings Inc	2	●	●	
Tutor Perini Corp	3			●
United Rentals Inc	3	●		●
UnitedHealth Group Inc	2		●	●
Upwork Inc	2			●
	4	●	●	●
USA Compression Partners LP	1	●	●	
Utz Brands Inc	2	●	●	●
Weatherford International PLC	3	●		●
Wellness Pet Food Holdings Co Inc/The	3	●	●	●
Xencor Inc	4		●	●
Yum! Brands Inc	2			●
Zurn Elkay Water Solutions Corp	4	●		●

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