T. Rowe Price



2023

ESG

Investing Annual Report


Environmental, Social, and Governance (ESG) Investing Annual Report. Issued September 2024.
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Our 2023 ESG Investing Annual Report details our approach to ESG integration over the reporting period—covering company engagements, proxy voting activities, and key ESG trends and developments.

– Eric Veiel
Head of Global Investments and Chief Investment Officer, T. Rowe Price Associates, Inc. (TRPA)

This document reflects the ESG investment activity of T. Rowe Price Associates, Inc. (TRPA), and certain of its investment advisory affiliates, including T. Rowe Price Investment Management, Inc. (TRPIM) where noted. TRPIM was established as a separately registered U.S. investment adviser, with a separate ESG team from TRPA. Decisions for TRPA and TRPIM ESG teams are made completely independently but use a similar approach, framework, and philosophy. TRPIM votes proxies independently from the other T. Rowe Price related investment advisers and has adopted its own proxy voting guidelines. This document does not include information of 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 journey

As of December 31, 2023.
Not all vehicles are available in all jurisdictions.

2023

IFC Partnership[1]

T. Rowe Price and the International Finance Corporation (IFC) announce plans to collaborate on a blue bond venture to support the sustainable blue economy across emerging markets

ISSB[2]

T. Rowe Price supports adoption of the International Sustainability Standards Board's (ISSB) IFRS S1 and IFRS S2 standards

NZAM

T. Rowe Price becomes a signatory to the Net Zero Asset Managers initiative (NZAM)

2022

ESG Enablement

Head of ESG Enablement hired to optimize ESG initiatives and oversee a centralized team 100% dedicated to ESG

Net Zero Target Established and Net Zero Transition Strategies Launched

T. Rowe Price establishes net zero target for 2040 covering scope 1 and 2 GHG emissions,[3] and launches its first Net Zero Transition strategy

Launch of TRPIM[4]

T. Rowe Price launches separate adviser with its own specialist ESG team and TRPIM RIIM model

2021

Global Impact Strategies

T. Rowe Price launches its first impact strategies[5]

RIIM Municipal Bonds and RIIM Securitized Bonds

The firm rolls out proprietary ESG rating system for municipal bonds and securitized bonds[5]

UN Global Compact

T. Rowe Price becomes a signatory

Portfolio Level ESG Reporting

T. Rowe Price implements portfolio-level ESG reporting

2020

SASB Alliance

T. Rowe Price becomes a member

Launch of ESG Enhanced Products

T. Rowe Price launches its first suite of funds with ESG characteristics in Europe

2019

RIIM[6] **Sovereigns**

The firm rolls out proprietary ESG rating system for sovereigns[5]

TCFD Supporter

T. Rowe Price becomes a supporter of the Task Force on Climate-Related Financial Disclosures (TCFD)

2018

RIIM[6] **Corporates**

Rollout of proprietary ESG rating system for equity and credit[5]

2017

Responsible Investing

Director of research[5] hired to establish in-house responsible investing expertise (environmental and social)

2013

"E" and "S" Research

Sustainalytics appointed as specialized ESG research provider

2010

PRI[7]

T. Rowe Price becomes signatory to the Principles for Responsible Investment (PRI)

2008

Corporate Responsibility

Investment policy on corporate responsibility established

2007

Governance

Head of governance hired[5]

[1] T. Rowe Price and IFC are not affiliated.
[2] IIFRS S1 and S2. First two sustainability standards issued by the ISSB, covering general requirements for disclosure of sustainability-related financial information (IFRS S1) and disclosure requirements specific to climate (IFRS S2).
[3] Scope 1 (direct emissions from owned or controlled sources) and scope 2 (indirect emissions from the generation of purchased electricity, steam, or cooling). Targeting achievement by year-end 2040.
[4] T. Rowe Price Investment Management, Inc. (TRPIM). TRPIM was established as a separately registered U.S. investment adviser, with a separate ESG team from TRPA. Decisions for TRPA and TRPIM ESG teams are made completely independently but use a similar approach, framework, and philosophy.
[5] T. Rowe Price Associates, Inc. (TRPA).
[6] RIIM = Responsible Investing Indicator Model. TRPA and TRPIM have separate ESG teams and RIIM models.
[7] The PRI is an independent investor initiative supported by, but not part of, the United Nations.

Not all vehicles are available in all regions.

Welcome

In last year's ESG Investing Annual Report letter, I wrote about how the events of 2022 had started to dampen the public perception of ESG and calling into question the methods that some market participants were using. A year on, while we are seeing some regions emerging from this period of ESG reckoning, in other regions the topic remains unresolved.

The underlying issues driving this ESG reckoning have been taking place at two levels. The first is across the broader economy, where we are seeing a clash between sustainability-related priorities, economic growth and political stability. The second level is more narrowly focused on sustainable finance rules—around ESG disclosure and ESG-labeled investment products. On the broader economy level, we believe that it's early innings, and it will likely be many years before a balance is found. Regarding sustainable finance, we have seen significant progress from regulators and standard setters in 2023 and the first half of 2024.

A topic at the forefront of debate has been the pace of the energy transition. The cost of the transition, particularly in the face of energy supply disruptions after Russia's invasion of Ukraine, has exacerbated existing societal inequalities. The pace of the transition has also featured in the wave of elections seen so far in 2024, as "just transition" issues have become even more prominent. As a result, we are seeing a slow-down (though, notably, not a reversal) in the pace of regulation. A good example was the UK's decision to push back the phase-out of internal combustion engine vehicles from 2030 to 2035. Furthermore, governments are facing other priorities, which are pushing climate issues further down their agendas.

When we speak with companies, we see a continued and growing trend of adoption of greenhouse gas reduction and net zero targets.[1] Most C-suites seem to think a green transition is inevitable—the differences are more about timeline, the use of new technologies and the use of carbon capture or offsets. For some industries and asset classes, climate-related capital allocation decisions will be material to the investment case, particularly in a somewhat nebulous regulatory environment. As such, our investment analysts and portfolio managers take climate considerations into account as part of their investment decisions as they seek to deliver financial outperformance.

We are seeing a significant bifurcation between regions when it comes to the level of sustainable finance. There has been a notable advancement in regulatory clarity in some regions, such as the European Union, the UK, Japan and Australia, whereas in other regions regulation has stalled.

Our 2023 ESG Investing Annual Report details our approach to ESG integration over the reporting period—covering company engagements, proxy voting activities, and key ESG trends and developments. As with previous years, we have included articles that highlight how we consider ESG factors with our investment processes.

Eric Veiel
Head of Global Investments and Chief Investment Officer, TRPA

[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).

ESG INVESTING APPROACH

Our ESG Investing Approach

This section, through to the end of the "Proxy Voting" section, reflects information of TRPA, and certain of its investment advisory affiliates, collectively referred to as "T. Rowe Price Associates", "T. Rowe Price Associates, Inc.", "TRPA" or "T. Rowe Price". These sections exclude T. Rowe Price Investment Management, Inc. (TRPIM).[1]

At T. Rowe Price Associates, we integrate environmental, social, and governance (ESG) considerations across our investment platform. ESG issues can influence investment risk and return, and therefore we integrate them into our fundamental investment analysis where they are material to the investment case. Additionally, we recognize that many of our clients' goals are not purely financial. As such, we offer select investment products that seek to invest in ways that align with our clients' values or have the potential to drive positive environmental or social impact.

ESG integration

ESG integration is the incorporation of environmental, social, and governance factors into investment analysis for the purpose of maximizing investment performance. Fiduciary duty remains the top priority. We view ESG integration as foundational—it is a core investment capability, which we have embedded in our equity and fixed income investment research platform.

ESG integration takes place on two levels:

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

[1]TRPIM information can be found in the section, "ESG at TRPIM".

Analysts and portfolio managers are able to leverage dedicated, in-house resources to assist them in analyzing ESG criteria. Our specialist ESG team provides 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),[2] which underpins our ESG integration processes.

RIIM provides a uniform standard of due diligence on ESG factors across our investment platform. 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.[3]

[2] RIIM rates companies in a traffic light system, measuring their environmental, social, and governance profile and flagging companies with elevated risks.
[3] 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.

We partner with clients to offer solutions to meet their investment objectives

(Fig. 1) ESG integration and stewardship is embedded across our asset classes and product ranges[1]

	Financial Only	ESG Enhanced	Net Zero[2]	Impact[2]
Objective	Seeks to deliver competitive financial returns	Seeks to promote specific ESG characteristics alongside financial returns	Seeks to deliver financial returns while promoting the transition to net zero	Seeks positive societal and/ or environmental impact alongside financial returns
Approach	Analyzes ESG factors for the purpose of maximizing investment performance	Incorporates binding social and/ or environmental commitments that vary by product type, such as: – Customized exclusions – Alignment to sustainable investments – Customized benchmarks – Positive ESG tilt, including those using RIIM[3]	Customized mandate seeks to align with 1.5°C scenario by incorporating commitments, such as: – Portfolio net zero status – Net zero stewardship – GHG emissions reduction – Climate solutions alignment – Climate-related Principle Adverse Impacts (PAIs) – Customizable options	All investments meet T. Rowe Price's impact criteria and are supported by: – Impact thesis – Theory of change – Measurable key performance indicators

As of May 2024.
Source: T. Rowe Price.
[1] Where appropriate and where data coverage is sufficient. ESG considerations form part of our overall investment decision-making 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 characteristics. The assessment of ESG factors for securities that are not covered by our RIIM framework is more qualitative in nature and is dependent on the mandate of the account in which they are held.
[2] Net zero and impact products available through TRPA only. TRPIM does not currently have any net zero or impact products.
[3] RIIM rates companies in a traffic light system, measuring their environmental, social, and governance profile and flagging companies with elevated risks.
Note: Not all vehicles are available in all jurisdictions. There is no guarantee that any product will meet its objectives or achieve any particular level of performance.

Analysts and portfolio managers are able to leverage dedicated, in-house resources to assist them in analyzing ESG criteria.

ESG integration—a core investment capability embedded in our investment research platform

(Fig. 2) RIIM provides a uniform standard of due diligence on ESG factors

1

Identification

Value added through the selection of material, relevant, and forward-looking data inputs

Leveraging internal and external datasets

- Sustainalytics
- Bloomberg company data
- T. Rowe Price databases

Quantitative RIIM Score

2

Analysis

Select issuers undergo fundamental analysis

Fundamental ESG analysis by the Responsible Investing team for securities flagged in RIIM

Fundamental RIIM Score

3

Integration

ESG factors incorporated into portfolio construction

Incorporated by investment analysts and portfolio managers into:

- Investment thesis
- Company ratings
- Credit ratings
- Price targets
- Position sizing
- Engagement
- Proxy voting decisions

For illustrative purposes only.
Green indicates no/few flags, orange indicates medium flags, and red indicates high flags.

1 Identification

Equities and Corporate Bonds

TRPA RIIM creates an ESG profile for companies using third-party ESG datasets, company-reported data, and datasets created internally.

Sovereign Bonds

TRPA RIIM creates an ESG profile for sovereign issuers, leveraging datasets created by nongovernmental organizations and third parties as well as datasets created internally.

Securitized Bonds

TRPA RIIM creates an ESG profile for securitized issuers, leveraging third-party datasets and issuer-reported data.

Municipal Bonds

Our TRPA municipal bond analysts create an ESG rating for issuers. To establish RIIM ratings, the analysts conduct research in-house. Environmental and social analysis leverages geospatial research tools.

2 Analysis

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 dataset. 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.

3 Integration

Analysts and portfolio managers incorporate ESG factors (as appropriate to their strategy) into:

- Investment thesis
- Company ratings
- Credit ratings
- Price targets
- Position sizing
- Engagement
- Proxy voting decision

Expanding ESG tools across our technology platform

TRPA uses various models that work in collaboration to build a comprehensive ESG profile. This involves applying a consistent and systematic process across asset classes while achieving broad, timely coverage of corporate, sovereign, securitized, and municipal issuers. We use materiality mapping to fine-tune factors at the subindustry level, and we have the ability to be flexible by upgrading and augmenting datasets as quality improves.

Building a comprehensive ESG profile

(Fig. 4) Applying a consistent and systematic process across asset classes

- Other T. Rowe Price proprietary modules
- RIIM models
- Regulatory modules

Various models work in collaboration to build a comprehensive ESG profile.

As of May 2024.
For illustrative purposes only.
[1] Sustainable Finance Disclosure Regulations (SFDR).

Investment products with ESG mandates (ESG enhanced, net zero, and impact)

Some clients' investment goals are not purely financial. As such, TRPA offers select investment products that promote ESG characteristics through use of exclusions, alignment to sustainable investments, and positive tilts to RIIM scores or targeting specific ESG objectives alongside financial return, such as the transition to net zero or positive environmental or societal impact. Additionally, we manage customized separate accounts that promote ESG factors selected by the client. While RIIM forms the cornerstone of our ESG analysis, it is supplemented by several other proprietary frameworks that we have developed in-house to evaluate securities for investment products seeking to deliver on values-related or sustainable objectives.

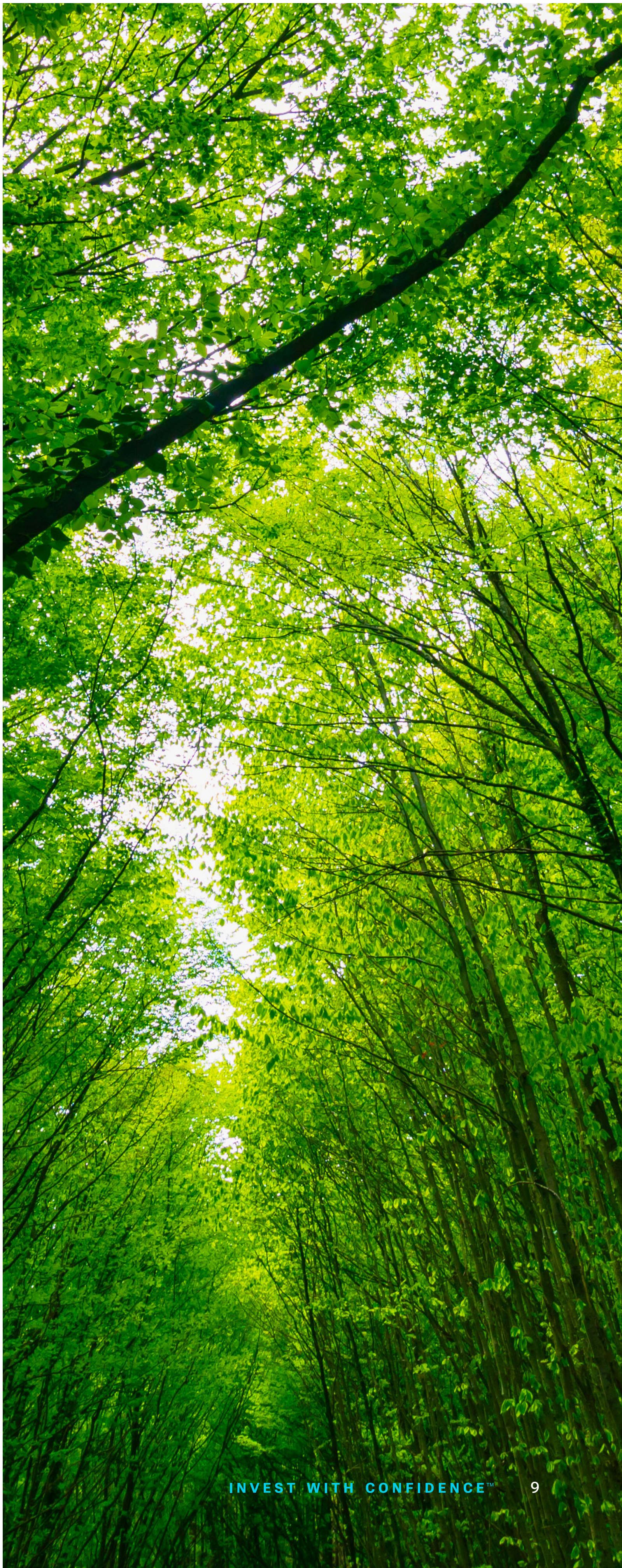
Net zero analysis

We have developed a net zero transition analysis framework that assigns to each security evaluated a net zero status based on the Paris Aligned Investment Initiative's Net Zero Investment Framework.

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 Scopes 1–2 and material Scope 3 emissions.[4] If a company has these targets validated by the Science Based Targets initiative, 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.

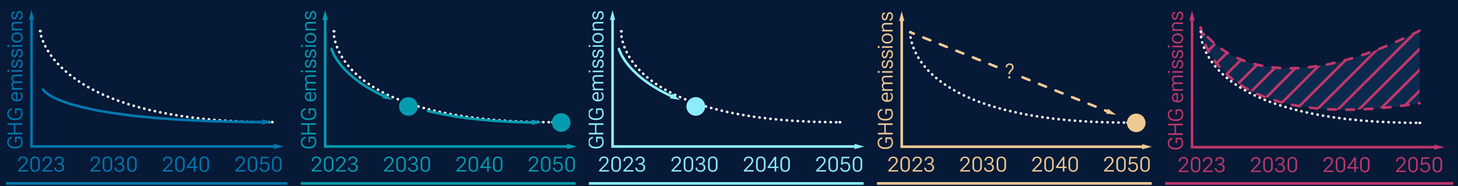
Our net zero analysis goes beyond simply identifying whether a company has a net zero target in place; it also includes a company's short- and medium-term greenhouse gas (GHG) reduction targets and a view on the credibility of its emissions trajectory, among other factors.

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



Evaluating a company's net zero status

(Fig. 5) Our net zero analysis goes beyond simply identifying whether a company has a net zero target in place



Achieving

- Current GHG emissions are close to or have already achieved net zero
- Capital allocation plan supports achievement of net zero
- Adequate disclosure of GHG emissions

Aligned

- Net zero target that meets regional/ sectoral 1.5°C pathway
- Short- and medium-term targets aligned to regional/ sectoral 1.5°C pathway
- Adequate GHG emissions disclosure
- Credible decarbonization plan supported by adequate capital allocation
- GHG emissions performance should already be in line with regional/sectoral 1.5°C pathway

Aligning

- Short- and medium-term targets aligned to regional/ sectoral 1.5°C pathway
- Adequate GHG emissions disclosure
- Credible decarbonization plan supported by adequate capital allocation

Committed

- Net zero target that meets regional/ sectoral 1.5°C pathway is in place

Not Aligned

- No net zero target
- Net zero target does not meet 1.5°C pathway

For illustrative purposes only.
The dotted white line represents emission reductions aligned with a 1.5°C pathway.
Source: Institutional Investors Group on Climate Change (IIGCC).

Illustrative net zero profile and data inputs

Net Zero Status[1]

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%	↑.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	

0.00–0.49
0.50–0.74
0.75–1.00
Not Material

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–Month change.
[1] 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).

Impact investing

We believe that impact investing goes beyond simply owning and capturing the economics and activities of certain types of companies. Impact investors direct capital toward desired environmental and/or social outcomes and utilize engagement with issuers and active proxy voting to help achieve the best results. We believe impact investing is possible in listed equity and credit markets and that expanding impact investing concepts across these asset classes will help truly make a difference.

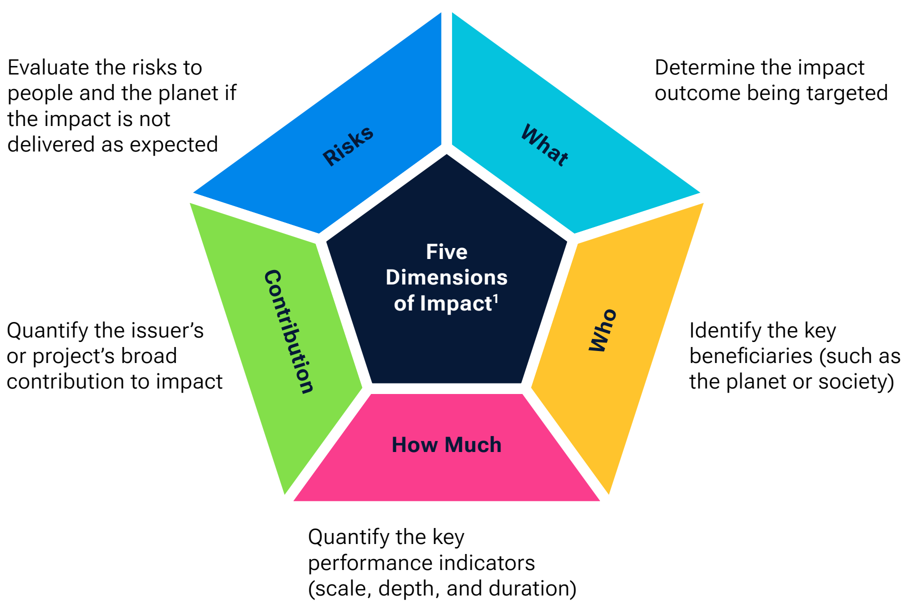
Our impact analysis is anchored to globally recognized frameworks—both Five Dimensions of Impact and Theory of Change are illustrated in Fig. 7.

All investments in our impact strategies start with an assessment of their potential to deliver positive environmental or social impacts. This considers both materiality and measurability. To aid this assessment, we have built a proprietary framework that we call our Impact Template. This framework helps to ensure we deploy a consistent standard for identifying impact activities, which feature the three proprietary impact pillars and eight sub-pillars outlined in Fig. 8.

A holistic assessment of impact

(Fig. 7) Our impact analysis is anchored to globally recognized frameworks

Five Dimensions of Impact



[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").

Theory of Change*

Input
Financial, human, or material resources the company puts in its business operations

Output
Products or services that result from the company's business activities

Outcome
Short- to medium-term effect on stakeholders attributable to a company's products or services

Impact
Long-term effect on the planet or society caused by a company's products or services

*The "Theory of Change" model is an impact measurement framework that explains the steps taken by a company to produce specific societal and environmental outcomes on a chronological basis. It provides an opportunity to dig deep into a company's activities and understand the short- and longer-term effects on stakeholders. We use the Theory of Change model as a basis for evaluating how the efforts of each holding or prospective investment is delivering impact, through the measurement of achieved outcomes.

Impact investing pillars guide our decision-making

(Fig. 8) Deploying a consistent standard for identifying impact activities

Impact Pillars	Sub-pillars	Sub-pillar Activities	UN SDG[1] Alignment
1 Climate and Resource Impact	1. Reducing greenhouse gases (GHGs)	Increasing energy efficiency Decarbonization, carbon capture, and sequestration Reducing methane and other GHGs Financing activities	7 Affordable and Clean Energy 9 Industry, Innovation and Infrastructure 11 Sustainable Cities and Communities 13 Climate Action
	2. Promoting healthy ecosystems	Protecting air quality, land use, freshwater, and oceans Sustainable agriculture Sustainable aquaculture	6 Clean Water and Sanitation 14 Life Below Water 15 Life on Land
	3. Nurturing circular economies	Reducing waste Recycling Enabling efficient consumption	12 Responsible Consumption and Production
2 Social Equity and Quality of Life	4. Enabling social equity	Education and job training Financial inclusion Enabling SMEs[2] Enabling enterprise growth Reducing discrimination Digital connections Meeting basic needs/affordable housing Consumption at the bottom of the pyramid	1 No Poverty 2 Zero Hunger 4 Quality Education 5 Gender Equality 6 Clean Water and Sanitation 8 Decent Work and Economic Growth 10 Reduced Inequalities
	5. Improving health	Providing health care solutions Improving nutrition and food quality Companion and animal health	2 Zero Hunger 3 Good Health and Well-Being
	6. Enhancing quality of life	Promoting mental and physical fitness Protection solutions Personal and worker safety solutions, safer mobility	3 Good Health and Well-Being 8 Decent Work and Economic Growth 16 Peace, Justice and Strong Institutions
3 Sustainable Innovation and Productivity	7. Sustainable technology	Innovative software and technology Innovation growth and smart infrastructure	9 Industry, Innovation and Infrastructure 11 Sustainable Cities and Communities
	8. Building sustainable industry and infrastructure	Enabling enterprise growth Improving industrial processes	8 Decent Work and Economic Growth 9 Industry, Innovation and Infrastructure 11 Sustainable Cities and Communities

[1] United Nations Sustainable Development Goals.
[2] Small and medium-sized enterprises.

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Source: T. Rowe Price uses a proprietary custom structure for impact pillar and sub-pillar classification. un.org/sustainabledevelopment/sustainable-development-goals/

ESG-labeled bonds

We have built our own proprietary framework for TRPA, for evaluating the credentials of ESG-labeled bonds. It provides more robust analysis and aids in ongoing monitoring of bonds within this category.

Issuer's ESG profile

- RIIM score
- Environmental and social commitments

Post-issuance reporting

- Detail on reporting plans
- Availability of audit report for allocation and/or impact reporting

Use of proceeds

- Credibility of use of proceeds or sustainability performance targets (SPTs)
- Unallocated proceeds
- Refinancing
- Time frame
- Provisions for unmet SPTs

Framework and standards

- Alignment to International Capital Market Association
- Second-party opinion verification
- Governance structure for project sections

FOCUS THEMES

Planetary boundaries—a framework for evaluating climate risk

Over the past decade, financial markets have built a robust framework for evaluating issuers and portfolios focused on greenhouse gas (GHG) emissions. While GHG emissions mitigation is a core element to staying within a 1.5°C warming scenario, it is by no means the only factor that will contribute to maintaining a stable planet. We believe the planetary boundaries framework—which identifies nine planetary processes whose interplay can determine the stability of the Earth system—can be a good concept for assessing the multiple drivers of climate stability.

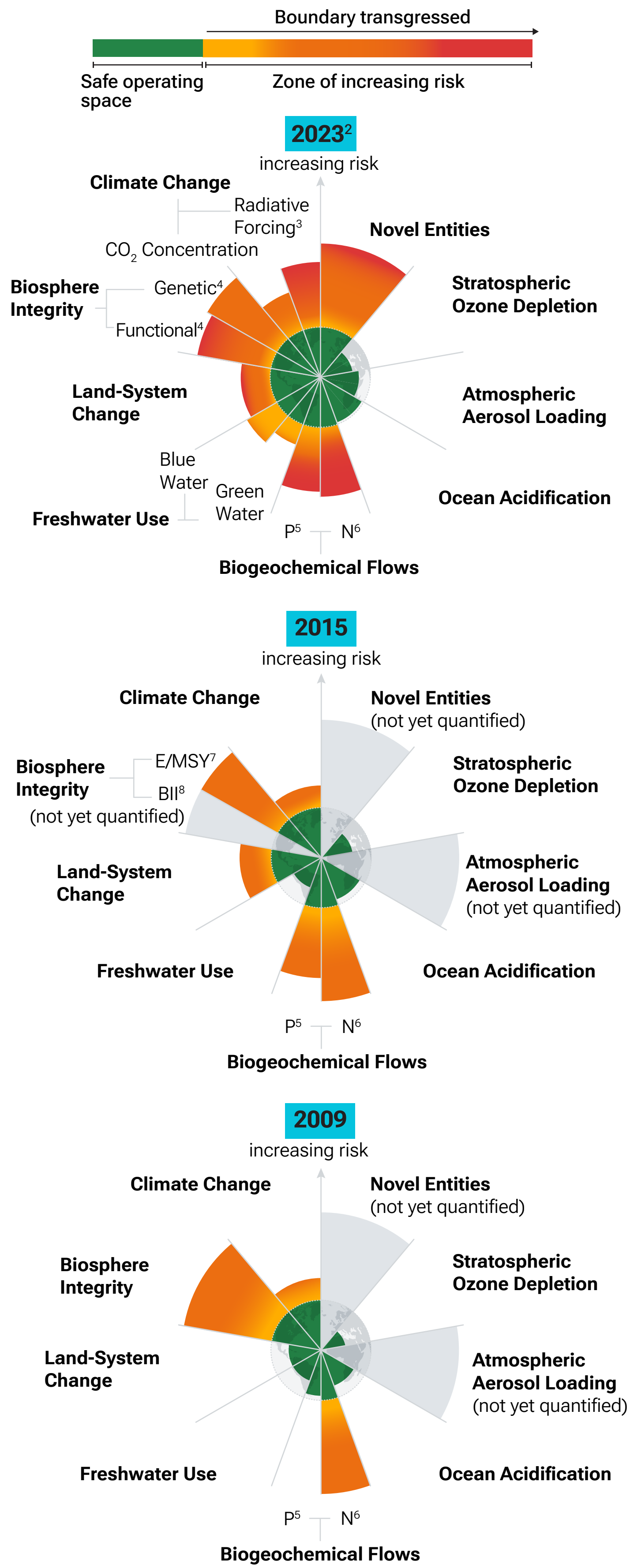
The planetary boundaries framework and how it has evolved

The planetary boundaries framework identifies nine planetary processes whose interplay can determine the stability of the biophysical Earth system[1] and defines the critical threshold for each of these processes. Moving beyond the critical threshold represents the point at which the system can no longer persist or adapt to feedback loops and will transform into something entirely different.

Some of the planetary boundaries lend themselves to quantitative outputs that can be applied to corporate or other securities, such as those developed around GHG emissions (i.e., net zero status, implied temperature rise, climate scenario analysis). However, most do not and, instead, require fundamental analysis to understand how a specific issuer is exposed and whether there is a risk to their revenue or profit streams. Furthermore, a core tenet of the planetary boundaries concept is that each of the processes should not be analyzed as separate issues, as doing so would miss the interactions between them. The impact of these interactions can be nonlinear, so understanding their interplay is crucial. The Stockholm Resilience Centre has tracked the health of these nine planetary processes over time.

The diagram on the right shows the evolution of the planetary boundaries framework, including some of the key measures used to assess each boundary. The color-coded key shows the processes that are moving further into the zone of increasing risk (from orange to red). As of 2023, six of the nine planetary boundaries assessed were operating beyond safe territory. Before 2023, scientists had only assessed seven of the nine boundaries, finding that four of them had been crossed in 2015 and three in 2009.

In the following pages, we highlight some of these processes and demonstrate how they are considered within our investment process.



For illustrative purposes only.

[1] Earth system science looks at how Earth operates as a single, complex system driven by interactions between energy, matter, and organisms.
[2] The third assessment of the planetary boundaries framework was the first to assess all nine boundaries.
[3] A measure of the change in energy balance in Earth's atmosphere.
[4] Genetic and functional diversity of ecosystems and their functions.
[5] Phosphorus.
[6] Nitrogen.
[7] E/MSY: Extinctions per million species-years.
[8] BII: Biodiversity Intactness Index.
Source: Stockholm Resilience Centre, Stockholm University, data as at September 2023. Licensed under CC BY-NC-ND 3.0 (Credit: Azote for Stockholm Resilience Centre, Stockholm University. Based on Richardson et al., 2023; Steffen et al., 2015; and Rockström et al., 2009). Original diagram sourced from the Stockholm Resilience Centre website, May 2024. The diagram is reproduced by T. Rowe Price specifically for inclusion in this article, and its use does not reflect the views of the Stockholm Resilience Centre, nor does it reflect or imply the Stockholm Resilience Centre's endorsement.

Snapshot: The nine planetary boundaries

An overview of some of the criteria included in the nine planetary processes[1]

1 Climate Change

Climate change refers to long-term shifts in temperatures and weather patterns caused by greenhouse gas emissions accumulating in the atmosphere.

2 Novel Entities

Novel entities refers to chemicals and substances that are new in a geologic sense and have the potential for large-scale impact that could threaten the integrity of planetary processes (e.g., microplastics, perfluoroalkyl and polyfluoroalkyl substances (PFAS), heavy metals, pesticides).

3 Stratospheric Ozone Depletion

The ozone layer absorbs a portion of the sun's radiation and a portion of UV light called UVB, which has been linked to harmful effects on crops and marine life as well as to skin cancers and cataracts.

4 Atmospheric Aerosol Loading

Atmospheric aerosols are suspensions of liquid, solid, or mixed particles in the atmosphere (also called "particulate matter"). Some sources of aerosols are natural (volcanos, airborne dust), while others are man-made (transport and industrial emissions). Aerosols are important because they can alter the Earth's heat balance.

5 Ocean Acidification

Ocean acidification refers to a reduction in the pH of the ocean caused by the uptake of CO_2 (carbon dioxide) from the atmosphere. Increased ocean acidity puts marine life at risk as the calcium carbonate that makes up shells and skeletons of certain organisms are beginning to dissolve.

6 Biogeochemical Flows

Biogeochemical cycles refer to the pathways by which elements or compounds flow between living organisms and the environment. The change in nutrient flows and element ratios can impact ecosystem composition. This planetary boundary focuses on nitrogen and phosphorus flows, which have been impacted by agricultural and industrial activity.

7 Freshwater Use

Water is essential to the functioning of the biosphere. This planetary boundary focuses on blue water (lakes, rivers, reservoirs, groundwater stores) and green water (rainfall, soil moisture, evaporation).

8 Land-System Change

Land plays a vital role in maintaining climate stability in that it acts as a carbon sink and a habitat to support biodiversity. This planetary boundary focuses on three major forest biomes (tropical, temperate, and boreal).

9 Biosphere Integrity

Regulation of the Earth system provided by the biosphere and its interaction with the geosphere ultimately rely on genetic diversity and the adaptive character of life on Earth. "Biosphere integrity" does not refer to an absence of change, but rather a preservation of diversity.

[1] Infographic details some, but not all, of the control variables included under each of the nine planetary boundaries. Source: Science Advances, September 13, 2023 (Earth beyond six of nine planetary boundaries).

Linking corporate profits with natural capital in the Amazon rainforest

Key Insights

- The planetary boundaries framework illustrates how deforestation can have a compounding effect on other ecosystem services, calling into question the long-term viability of the natural capital inputs that have been underpinning corporate profits for beef producers in the Amazon.
- Exposure to Brazilian beef can be found in companies that are direct producers as well as the supply chains of many corporate issuers.
- Deforestation in the Amazon is an extremely complex issue. A combination of quantitative data, fundamental research, and stewardship activities has helped us assess the potential financial risks to companies with exposure to beef production in the Amazon.

Maria Elena Drew
Director of Research, Responsible Investing, TRPA

Iona Walker
Analyst, Responsible Investing, TRPA

The world is made up of a web of self-regenerative entities called "ecosystems." The character and scale of an ecosystem can range widely. For example, an ecosystem could be as small as an animal's gut or as large as a tropical rainforest. Due to their interrelatedness, degrading one ecosystem creates a likelihood that there will be a knock-on effect to other ecosystems. As the corporate, sovereign, and other issuers in which we invest derive various economic benefits from the natural world, the health of this web of ecosystems is a relevant investment issue. These ecosystem benefits come from two main sources—firstly, the provisioning of goods (i.e., food, timber, freshwater, etc.) and, secondly, the ecosystem services that allow for regeneration and stability (i.e., climate regulation, water filtration, flood management, etc.).

Land system change and corporate profits

A good investor will be keen to understand the long-term availability of whatever natural goods are being procured as well as any knock-on effects their removal could have on the ecosystem services that allow for this natural good to be available. For example, if a company repurposes a mangrove swamp in order to set up a shrimp farm, an investor will want to understand the management practices in place that will impact cost structure and the longevity of the farm (i.e., what is the trade-off in the costs of applying sustainable management practices versus the extendable life of the farm) as well as how the presence of this farm may impact the ecosystem services that allow it to be productive (i.e., storm protection, water filtration, etc.).

Assessing the relationship between financial outcomes and a nature- or biodiversity-related system change tends to require qualitative analysis. In the case of climate change, or more specifically, greenhouse gas (GHG) emissions, it is relatively easy for an investor to discreetly measure an issuer's exposure and apply a carbon tax (or their assessment of future carbon taxes). When we look at a topic like land system change, it generally requires more fundamental or qualitative analysis to translate into a discreet line in a financial model or valuation assessment.

There can be a perception among investors that the systemic change is an uncertain event or something that is so many years away it is beyond a reasonable investment time horizon or that it should be viewed as a binary risk. We think the combination of increased scientific data, regulatory action, and, in some cases, changing customer preferences makes this perception outdated. Understanding the natural capital inputs of a business and the factors that may cause them to change (i.e., continued availability or cost structure) can help investors identify investment risks and opportunities.

> “The economic megatrend Brazil enjoyed as it became a dominant beef producer was underpinned by cheap grazing pasture.
>
> – Maria Elena Drew
> Director of Research, Responsible Investing

Deforestation in Brazil and the bottom line

Thanks to higher demand from rising population and higher global incomes, global beef production rose 38% from 1990 to 2022. During this same period, Brazilian beef production rose 152%, moving the country from a 7.4% market share in 1990 to a 13.6% market share in 2022.[1] The surge in beef production helped drive Brazilian gross domestic product (GDP) and created a favorable investment environment. This was partly catalyzed by the government's intent to create national champions in the agribusinesses, but another important factor was the low cost of beef production in Brazil, driven in large part by ample access to grazing pasture in the Amazonian states.

The economic megatrend Brazil enjoyed as it became a dominant beef producer was underpinned by cheap grazing pasture. Thanks to the availability of land, Brazilian ranchers could be competitive despite low productivity. Brazil's cattle herd is 2.4 times the size of the U.S. herd; however, its beef production is only 60% of that of the United States.[2] The productivity shortfall is attributed to cattle ranchers doing relatively little to manage soil fertility, which has meant pastures quickly become unproductive. This issue is seen to be most acute in the Amazonian states, which have accounted for 94% of the increase in Brazil's cattle herd.[2]

To date, around 20% of the Amazon has already been deforested and an additional 6% is highly degraded. Scientific studies suggest that the rainforest will hit a “tipping point” that will drive a dieback of significant portions of the Amazon if deforestation reaches 40%. Studies also suggest that the recent drying patterns experienced in the region could be the first warning signal.[3] If this occurs, the free lunch that underpinned this Brazilian megatrend could be over. At best, the ranchers will need to invest to improve their competitiveness. At worst, the Amazon will be too degraded to provide the ecosystem services that have been supporting their business.

The World Bank projects that reaching this tipping point would significantly impact agriculture, flood mitigation, water supply, and hydropower and, ultimately, could cost Brazil USD 184.1 billion by 2050 (nearly 10% of the country's GDP in 2022).[4]

[1] Food and Agriculture Organization of the United Nations (2023).
[2] context.news/nature/wheres-the-beef-brazil-balances-barbecues-and-forest-protection
[3] carbonbrief.org/unprecedented-stress-in-up-to-half-of-the-amazon-may-lead-to-tipping-point-by-2050/
[4] Source: The World Bank.

The loss of ecosystem services and corporate profitability

Given Brazil's dominant position as a producer and exporter, exposure to Brazilian beef can be found in companies that are direct producers as well as the supply chains of many corporate issuers. The view that these companies have benefited from the ecosystem services provided by the Amazon rainforest is broadly accepted. For investors focused on delivering financial returns, the key question is understanding how to navigate the potential loss of a key factor that has underpinned a long-term growth trend. This means taking a view on regulation that could step in to protect the Amazon as well as the effectiveness that changes to corporate practices could have on stabilizing these ecosystem services.

Evaluating the impact of ecosystem services on corporate profit and loss (P&L) is not as easy as feeding the impact of a carbon tax through a financial model. A combination of quantitative data, fundamental research, and stewardship activities have helped us assess the potential financial risks to companies with exposure to beef production in the Amazon.

Banking on better corporate practices to mitigate systemic risk

Three big meat companies make up around 10% of Brazil's beef supply, with the rest being composed of smaller producers. Additionally, about 75% of beef is consumed locally. To date, smaller producers have tended toward poorer deforestation controls, and local consumers have had lower sustainability requirements than most export markets. This means that the business practices of large, global players will likely have only a limited impact on stemming the systemic risk of Amazon deforestation.

Furthermore, Brazil's cattle supply chain is convoluted, with thousands of suppliers stretching over vast areas. It is common for cattle to be moved multiple times from ranch to ranch through the life cycle, which can obscure, or "launder" their connection to farms with deforestation. Many large meat companies in Brazil already enforce "no deforestation" policies with direct suppliers. However, traceability of indirect suppliers is a significant hurdle. It is through these ranchers lower down the cattle-fattening supply chain that most deforestation enters the beef supply chain today.

There is currently very little tracking of cattle from birth to slaughter in Brazil, making it hard for finishing farms to confirm the source of cattle. We have seen some companies adopt tools that aim to create traceability of monitoring by using specific databases, but legislative and data privacy constraints remain. Other companies have decided to look at how blockchain technology could create a database of cattle transactions that protects confidentiality and prevents data tampering. However, this relies on a voluntary supply of information from the ranchers.

Planetary boundaries and the Brazilian rainforest

The planetary boundaries framework, which is tracked by the Stockholm Resilience Centre (Stockholm University), identifies nine planetary processes whose interplay can determine the stability of the biophysical Earth system and defines the critical threshold for each of these processes. Moving beyond the critical threshold represents the point at which the system can no longer persist or adapt to feedback loops and will transform into something entirely different. The Amazon rainforest is a good example of how several of the processes identified in the planetary boundaries framework interact to determine the path for climate stability—namely biosphere integrity, land-system change, freshwater change, climate change, and ocean acidification.

In this case, **land-system change** occurs on a significant scale as rainforest is converted into grazing land, which in turn reduces **biosphere integrity** as plant and animal species are degraded or lost. **Freshwater change** is being experienced in the form of increased rainfall variability—i.e., more frequent and extreme droughts in some regions of the Amazon and more extreme wet events in others. Furthermore, the tree loss reduces the natural cooling effect that comes from a forest. Rising temperatures are expected to increase thermal stress, potentially reducing forest productivity and carbon storage capacity,[5] which further exacerbates climate change.

On a global scale, oceans play a role as they absorb much of the atmospheric heat generated from higher GHG emissions, and a portion of the increased carbon dioxide (CO_2) emissions are dissolved into the oceans. This drives increased **ocean acidification**, which, in turn, reduces the resiliency of the ocean.

Biodiversity reduces the risk of large-scale forest collapse as a heterogeneous forest will likely face a more gradual transition (i.e., more resilient patches of forest will transition at a different rate than less resilient patches as compared with a homogeneous forest that will transition uniformly). Forest heterogeneity also brings other benefits that help resiliency. For example, tree species; complementarity increases carbon storage, which can help accelerate forest recovery after a climate stressor. Additionally, biodiversity can provide "ecological redundancy"—i.e., if a species providing a key ecosystem service dies out, another species may be able to fill the role.

[5] Critical Transitions in the Amazon (Nature Vol 626), February 2024.

Ecological resistance and the Amazon rainforest

(Fig. 1) How the planetary boundaries interact to determine the path for climate stability

Land-System Change

Deforestation emits CO_2 into atmosphere and reduces CO_2 absorption capacity. Ninety-four percent of the increase in Brazil's cattle herd came from the Amazonian states. Around 20% of the Amazon has been deforested, and an additional 6% is highly degraded. The biome's "tipping point" is estimated to occur when 40% deforestation is reached.[1]

Biosphere Integrity

Biodiversity loss weakens resilience to climate stressors. The Amazon rainforest is rich in biodiversity—it is home to more than 15,000 tree species, and 99% of these species are classified as rare. Its heterogeneous nature is thought to have helped the Amazon's resilience to disturbances so far.[1]

Climate Change

The global average surface temperature has risen by 1°C above preindustrial levels. Dry season mean temperature is more than 2°C higher than it was 40 years ago in significant parts of the central and southeastern Amazon.[1]

Freshwater Change

Higher temperatures may contribute to lower rainfall, and a reduction in trees reduces the transpiration process. The Amazon is experiencing increasing rainfall variability. Some areas are having more extreme and longer droughts, while others are experiencing more extreme wet events and convective storms.[1]

Ocean Acidification

Increased carbon dioxide (CO_2) absorption drives warmer oceans, which contribute to higher global temperatures. Oceans have absorbed 30%–40% of CO_2 and 93% of heat since the preindustrial period.[2]

[1] Critical Transitions in the Amazon (Nature Vol 626), February 2024.
[2] The Physical Science Basis, Intergovernmental Panel on Climate Change (IPCC), 2021.

Government action to mitigate Amazon deforestation

The Amazon rainforest biome is spread across multiple countries—Brazil holds 60% of it, but the rest is shared with its neighbors. While the regulation may sit across multiple countries, the ecosystem impact does not. For example, the Amazonian territories of Bolivia, Colombia, Ecuador, and Peru are dependent on water originating from Brazil's portion of the rainforest.

Under Jair Bolsonaro's presidency, deforestation of the Amazon surged as economic growth was prioritized. When Luiz Inácio Lula da Silva took office in 2023, he pledged to end deforestation by 2030 and placed a renewed focus on environmental law enforcement. According to the country's National Space Research Institute (INPE),[6] around 5,000 square kilometers of the Amazon were cleared in 2023 versus around 10,000 square kilometers cleared in 2022.

Increased regulation outside of South America will play a role, as well. For example, the European Union (EU) has enacted two new laws that encompass deforestation. The EU Deforestation Regulation forbids imports of commodities produced on deforested land starting in 2024 and the Corporate Sustainability Due Diligence rules force companies to scrutinize their supply chains for environmental damage. As a result, there will likely be smaller markets for higher deforestation-risk commodities in the future, and companies that have adopted traceability monitoring and tools will be in better stead to adapt to new regulations.

Ultimately, there is a chance that stricter regulations may increase the price of commodities for the EU, with less impact on deforestation than hoped. The EU's "do no significant harm" (DNSH) test, which forms part of the EU's sustainable finance rules, asks investors to demonstrate that they are not supporting or carrying out economic activities that do significant harm to any sustainable objectives. So, without a feasible solution to ensure robust traceability of cattle from birth to slaughter, investors could be forced to consider failing companies on DNSH.

> “...there is a chance that stricter regulations may increase the price of commodities for the EU, with less impact on deforestation than hoped.
>
> – Iona Walker
> Analyst, Responsible Investing

EU cracks down on deforestation in supply chains

In June 2023, the European Union's Regulation on Deforestation-free products (EUDR) came into force, giving many operators and traders 18 months to implement the new rules. Any operator or trader who places certain commodities on the EU market, or exports from it, must be able to prove that the products do not originate from recently deforested land or have not contributed to forest degradation.

This law will significantly affect Brazilian agriculture. The EU is Brazil's second-biggest trading partner, and Brazil is the single-biggest exporter of agricultural products to the EU. While the rules are a welcome step toward fighting global deforestation, as with many new regulations, the devil is in the detail. The bill exclusively applies to forests, so products from other important biomes, such as the Cerrado savanna, will be exempt. The European Commission plans to determine whether to expand the law to include “other wooded land.”

Assessing deforestation risk

Our Responsible Investing team supports our equity and credit portfolio managers and analysts by undertaking in-depth analysis at a corporate level to assess exposure to deforestation in the Amazon. Our Responsible Investing Indicator Model (RIIM)[7] utilizes environmental, social, and governance (ESG) datasets to help identify companies with elevated exposure in either their own operations and/or supply chains. For select issuers, our analysis will be enhanced with fundamental research.

ESG considerations such as deforestation form part of our overall investment decision making process alongside other factors to identify investment opportunities and manage investment risk. At T. Rowe Price this is known as ESG integration.

Engagement plays a role as well. It helps us understand how companies are managing their exposure and how it fits into their corporate strategy. It also helps us impart our view on best practices that we believe will ultimately yield a better long-term financial outcome for our clients.

[6] Source: INPE (Instituto Nacional de Pesquisas Espaciais), 2024.
[7] T. Rowe Price Responsible Investing Indicator Model (RIIM) is a proprietary system that rates companies in a traffic light system measuring their environmental, social, and governance profile and flagging companies with elevated risks.

Countries step up commitments to address deforestation

(Fig. 2) Increased regulation outside of South America will play an important role.

Year	Goal	Commitment	No. of Signatory Countries
2023	EU Deforestation-Free Product Regulation	Companies registered in EU member states must ensure that deforestation-linked commodities (soy, cocoa, palm oil, cattle, coffee, wood, and rubber) have not been produced on land deforested since December 31, 2020.	**EU**
2022	Kunming-Montreal Global Biodiversity Framework	**Target 2:** Ensure that by 2030 at least 30% of areas of degraded terrestrial, inland water, and coastal and marine ecosystems are under effective restoration, in order to enhance biodiversity and ecosystem functions and services, ecological integrity, and connectivity. **Target 3:** Ensure and enable that by 2030 at least 30% of terrestrial, inland water, and coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem functions and services, are effectively conserved and managed through ecologically representative, well-connected, and equitably governed systems of protected areas and other effective area-based conservation measures, recognizing indigenous and traditional territories, where applicable, and integrated into wider landscapes, seascapes, and the ocean, while ensuring that any sustainable use, where appropriate in such areas, is fully consistent with conservation outcomes, recognizing and respecting the rights of indigenous peoples and local communities, including over their traditional territories.	**196**
2021	Glasgow Declaration	End forest loss and land degradation by 2030.	**141**
2015	United Nations Sustainable Development Goal	**Goal 15.1:** By 2020, ensure the conservation, restoration, and sustainable use of terrestrial and inland freshwater ecosystems and their services, particularly forests, wetlands, mountains, and drylands, in line with obligations under international agreements. **Goal 15.2:** By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests, and substantially increase afforestation and reforestation globally. **Goal 15.3:** By 2030, combat desertification; restore degraded land and soil, including land affected by desertification, drought, and flooding; and strive to achieve a land degradation-neutral world.	**193**
2015	United Nations Strategic Plan for Forests	**Goal 1.1:** Forest area is increased by 3% worldwide by 2030. **Goal 1.3:** By 2030, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests, and substantially increase afforestation and reforestation globally.	**22**
2014	New York Declaration on Forests	**Goal 1:** End the loss and degradation of natural forests by 2030. **Goal 5:** Increase global restoration of degraded landscapes and forestlands to restore and maintain 350 million hectares of landscapes and forestlands by 2030.	**39**
2011	Bonn Challenge	Restore 150 million hectares by 2020 and 350 million hectares by 2030.	**74**

As of May 2024.
Sources: T. Rowe Price, United Nations, European Commission, Kunming-Montreal Global Biodiversity Framework, The Bonn Challenge.

Engaging with Minerva on traceability

In 2023, the T. Rowe Price Associate's Responsible Investing team engaged with Minerva, one of Brazil's largest beef producers and exporters, to encourage continued progress on supply chain traceability and deforestation.

We discussed the company's tools for traceability of direct and indirect suppliers. The company uses a geospatial tool that continually monitors deforestation and overlays farm boundary data. If irregularities or deforestation is detected, the farm will be blocked from the company's sourcing list. The company monitors all Brazilian suppliers with this tool, and the next phase is for the company to encourage all direct suppliers to use the tool for their suppliers, with around 15% of suppliers having started to use it.

We also discussed a tool that leverages federal animal transaction and farm boundary databases in Brazil. However, it has several weaknesses, including data accuracy issues and the fact that cattle tracking is at the herd level. The company argued that, ultimately, full indirect traceability necessitates a change in government policy, with compulsory individual cattle tracking from birth to slaughter.

We also discussed the scope and time frames for Minerva's zero deforestation targets, including a 2030 target for traceability and a 2030 target to end illegal deforestation. We believe these targets are more realistic than some of Minerva's competitors. We asked the company whether it would consider including legal deforestation in its targets, like some of its peers, but it said it will prioritize illegal deforestation, which is the required minimum hurdle, before beginning to address other deforestation.

We concluded that the company has the most effective mechanism to track direct suppliers, as verified by federal auditors. Indirect supplier tracking continues to be a major challenge, but this is not entirely within the company's control. We also noted that policy change is needed, particularly policies that promote full traceability of individual cattle from birth.

Next steps for the company include expanding the use of one of its existing tools by suppliers to trace indirect cattle supply and broadening its deforestation commitment to include zero legal deforestation.

When we engage with meat buyers, such as large quick-service restaurants (QSRs), we look at whether indirect supplier monitoring is taking place or considered within the process. Some of the biggest risks that we consider relate to supply chain and raw material sourcing. There are some players demonstrating more advanced efforts than others on their sourcing processes, and therefore presenting lower risk of controversy or reputational damage. That said, our knowledge of the complexities around Latin American beef supply chains lends to our conservative approach when scoring major beef consumers and QSRs in our proprietary RIIM.

Bilateral and collective engagements with meat companies give us the opportunity to discuss indirect supply chain monitoring. This can include:

- Engaging protein producers in discussions about ESG issues that investors and policy experts consider material.
- Providing companies with a forum to not only communicate policy intentions and actions to the investment community but also to receive feedback on them.
- Highlighting issues that act as hurdles to the implementation of best practices, such as government data transparency.
- Discussing the impact of government policy.

Conclusion

While we see shortcomings in companies' ESG preparedness for deforestation, it is important to consider the progress made—including a significant uptick in their ambitions and investments into tools that can support traceability. We believe that corporates that take reasonable steps to prepare for tightening regulations and focus on minimizing their exposure to deforestation risk in their supply chains will be better placed to weather future changes. Investors need to bear in mind that deforestation in the Amazon is an extremely complex issue and cannot be solved by company action alone. A combination of quantitative and qualitative inputs and fundamental research is essential for investors looking to evaluate meat companies' deforestation risks. Crucially, constructive engagement aimed at improving shareholder value is one of the most effective tools to creating positive change in this area.

The securities identified and described are for illustrative purposes only, do not represent recommendations, and do not necessarily represent securities purchased or sold by T. Rowe Price. No assumptions should be made that the security described, or other securities described, purchased, or sold, was or will be profitable. The material is not recommendation to buy or sell any security and is not indicative of a company's potential profitability. Information is subject to change.

Could GLP-1s help rebalance the food trilemma?

Key Insights

- The global food system is closely tied to seven of the nine processes within the planetary boundaries framework.
- We see signs of environmental and health tipping points in global food due to the clear shift in global diets from “food poor” to “food rich” issues.
- Anti-obesity medications could play a key role in balancing the food trilemma but may also have broad implications that alter public attitudes toward food and obesity, potentially leading to healthier and more productive societies.

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The clear shift in global diets from “food poor” to “food rich” issues has highlighted signs of environmental and health tipping points in global food. This raises the possibility of a meaningful change in consumer attitudes and government policy on food. While both health and environment are contributing to the “hidden costs” within our food system, we believe there may be more catalysts for change from a health perspective due to the escalating pressure of health care costs on national budgets, reduced workforce productivity, and the emergence of glucagon-like peptide-1 (GLP-1) drugs and other anti-obesity medications.

Elements of the food trilemma

Food sustainability can be considered as part of a “food trilemma”—balancing the three key, and often conflicting, criteria outlined below:

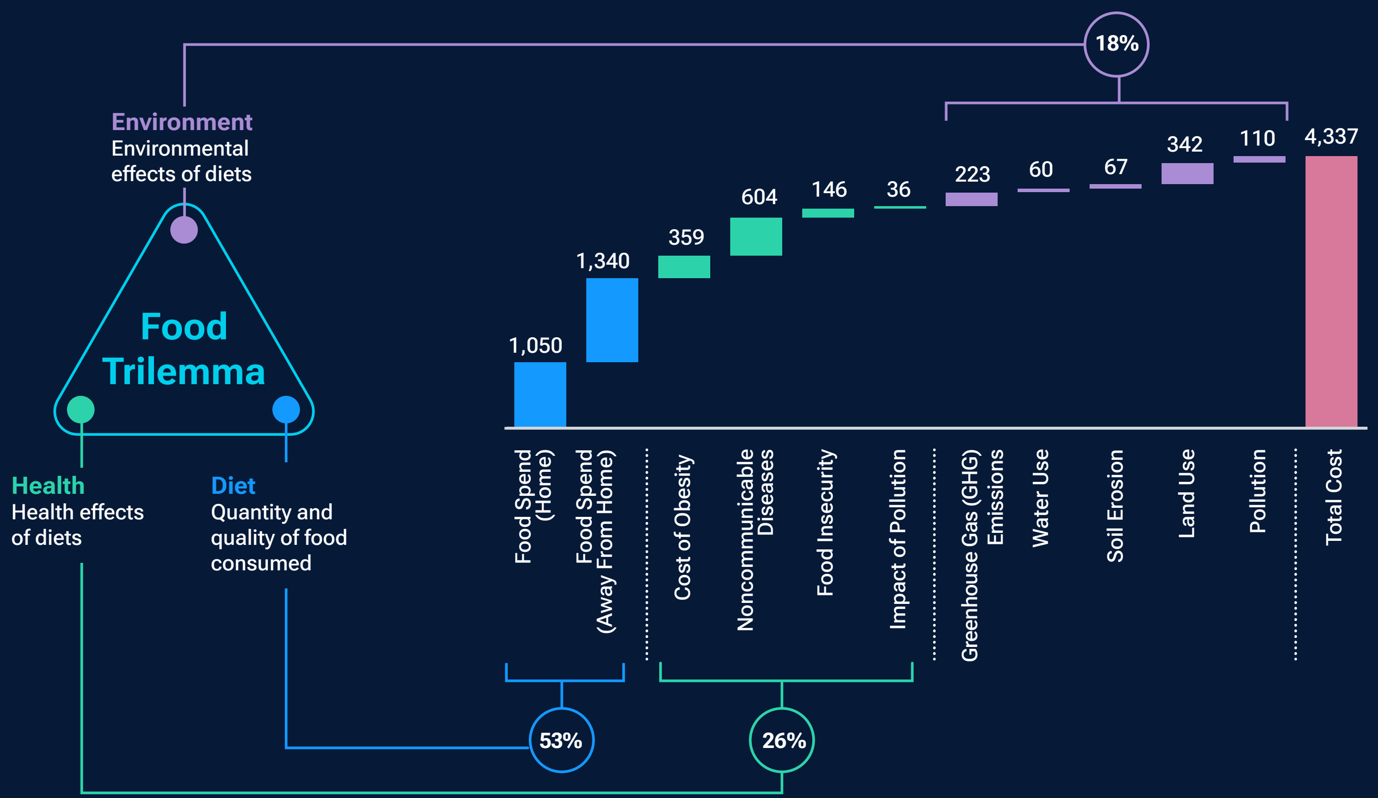
Diet—The types and quantities of food consumed.

Health—The health effects of diets characterized by inadequate, unbalanced, or excessive food consumption—i.e., how poor diet manifests itself in a burden of undernutrition and nutrient deficiency but especially obesity.

Environment—The role of agriculture in anthropogenic climate change, biodiversity loss, and water scarcity.

Balancing health, diet, and environment

(Fig. 1) Diet, health, and environmental costs as a proportion of the total cost of U.S. food



Costs are in USD bn. % figures show diet, health, and environmental costs as a proportion of the total cost of U.S. food. Total may not sum due to rounding.
Note: The cost of purchasing food accounts for around 50% of the total cost of food in this trilemma. For a food system to be sustainable it has to address the total cost of food to society.
Sources: Analysis by T. Rowe Price; health and environmental cost estimates are sourced from the Rockefeller Foundation (as of July 2021), food spend is sourced from the U.S Department of Agriculture, as of February 14, 2024.

The food trilemma and the planetary boundaries

Over the past 50 years, a dramatic shift in diets has had wide-ranging consequences for the environment and human health. Growing affluence and urbanization has driven calorie consumption higher, with global diets now including more ultra-processed food and animal products. Looking at this shift through the lens of the food trilemma, we see that changes in global diets have been negatively impacting human health (due to food quality and quantity) and the environment (due to increased agricultural activity). Consumers only pay for around half of the total societal cost of food—the rest is borne by broader society as governments are forced to remediate the environmental and health costs associated with today's diets.

The global food system is closely tied to seven of the nine processes within the planetary boundaries framework[1]—namely biosphere integrity, land-system change, freshwater change, climate change, novel entities, biogeochemical flows, and ocean acidification. With agriculture contributing around a quarter of GHG emissions, tackling the environmental impact of the food system is critical to achieving net zero.[2] However, with cost-of-living pressures being experienced around the world, the political will to enact new regulation on farmers is limited.

[1] The planetary boundaries framework, which is tracked by the Stockholm Resilience Centre (Stockholm University), identifies 9 planetary processes whose interplay can determine the stability of the biophysical Earth system and defines the critical threshold for each of these processes. Moving beyond the critical threshold represents the point at which the system can no longer persist or adapt to feedback loops and will transform into something entirely different. A core tenet of the concept is that each of the processes should not be analyzed as separate issues—as doing so would miss the interactions between them.
[2] Net zero refers to a state where greenhouse gas emissions released into the atmosphere are balanced by removals (such as through forests or carbon capture and storage).

The global food system and the interaction of planetary boundaries

(Fig. 2) How different processes interact to determine the path for climate stability[1]

Land-System Change

Agricultural expansion drives almost 90% of global deforestation—49.6% is attributable to cropland expansion and 38.5% is driven by livestock grazing.[2]

Biogeochemical Flows

Nitrogen and phosphorus flows have been impacted by agricultural and industrial activity. Nearly 80% of anthropogenic nitrous oxide (N_2O) emissions come from agriculture.[3]

Ocean Acidification

Increased carbon dioxide (CO_2) absorption drives warmer oceans, which contribute to higher global temperatures. Oceans have absorbed 30%–40% of CO_2 and 90% of heat since the preindustrial period.[4]

Climate Change

The global average surface temperature has risen by 1.3°C above preindustrial levels. Around 21%–37% of total greenhouse gas emissions are attributable to the food system.[5]

Freshwater Change

Higher temperatures may contribute to lower rainfall, and a reduction in trees reduces the transpiration process. Food and agriculture are responsible for around 70% of freshwater withdrawal.[6,7]

Biosphere Integrity

Biodiversity loss weakens resilience to climate stressors. The global food system is the primary driver of biodiversity loss, with agriculture alone being the identified threat to 24,000 of the 28,000 (86%) species at risk of extinction.[8]

Novel Entities

These are certain chemicals and substances, such as plastics, that are new in a geologic sense. The FAO estimates that agriculture value chains use 12.5 million tons of plastic products in plant and animal production and 37.3 million tons in food packaging.[9]

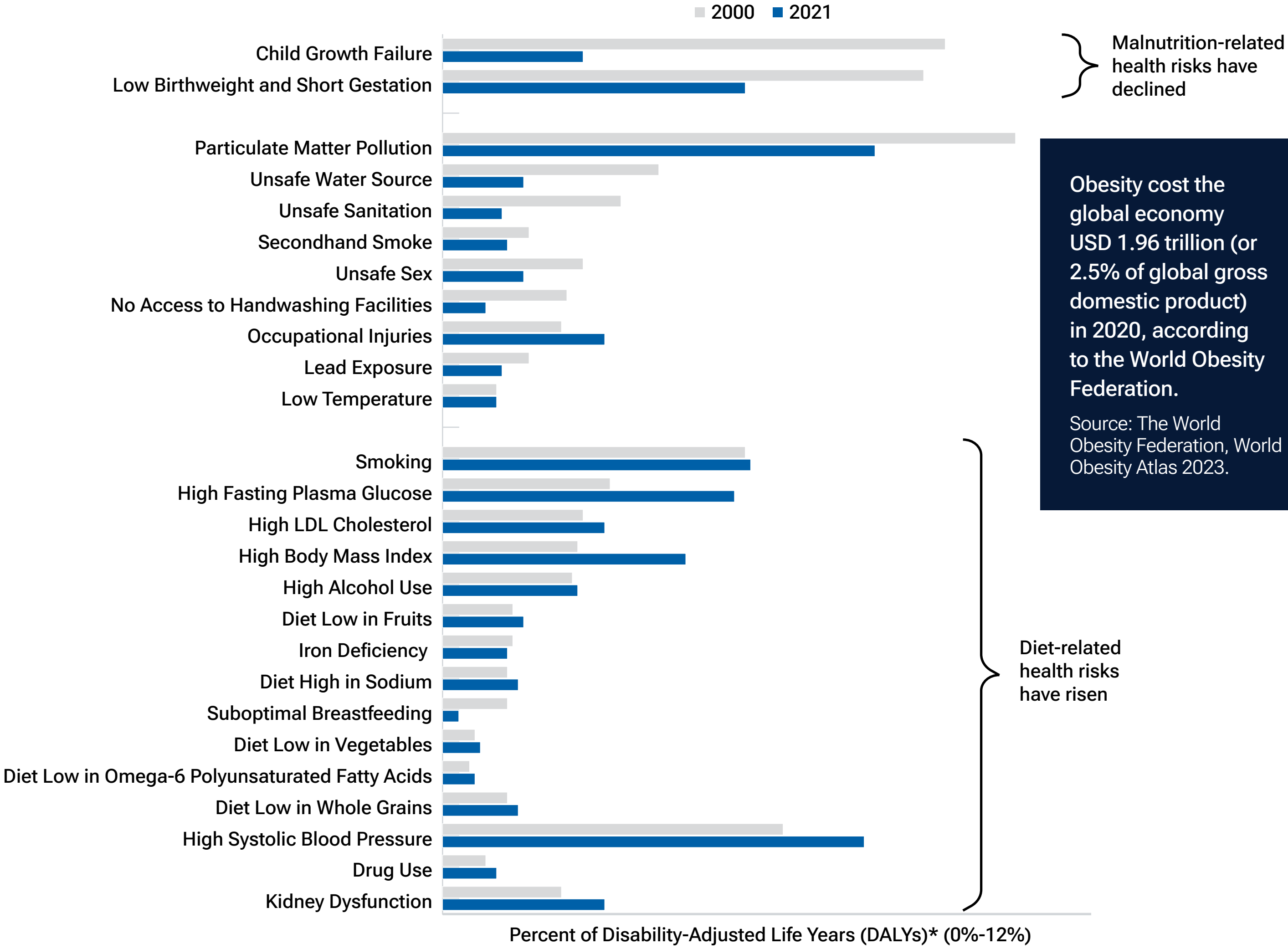
[1] The other two planetary boundaries not featured in this graphic are Atmospheric Aerosol Loading and Stratospheric Ozone Depletion.
[2] Food and Agriculture Organization of the United Nations (FAO), 2020.
[3] Source: United Nations environment, FRONTIERS 2018/19—Emerging Issues of Environmental Concern, March, 2019.
[4] Intergovernmental Panel on Climate Change (IPCC), 2021.
[5] IPCC, 2019.
[6] FAO, 2020.
[7] Freshwater withdrawal refers to freshwater taken from ground or surface water sources.
[8] United Nations Environment Programme, 2021.
[9] FAO, 2021.

The rising costs of diet-related diseases

Obesity is an increasingly common byproduct of the food system in almost all countries. In contrast to the outdated view of Western economies with "too much" food and emerging market economies with "not enough" food, obesity is now dominant in almost all countries. According to the World Health Organization (WHO), 1 in 8 people in the world are obese.[3] With the societal burden of obesity increasing so dramatically in the last four decades, the number of disability-adjusted life years (DALYs) lost due to excess body mass index (BMI) has doubled, representing a greater increase than any other leading health risk.[4] Obesity and other metabolic risk factors are now the dominant drivers of disease globally.

Global diet-related health risks on the rise while malnutrition-related health risks have declined

(Fig. 3) Change in profile of leading health risks (2000 vs. 2021)



Obesity cost the global economy USD 1.96 trillion (or 2.5% of global gross domestic product) in 2020, according to the World Obesity Federation.

Source: The World Obesity Federation, World Obesity Atlas 2023.

*DALYs: DALYs are the sum of years of life lost due to premature death and years lived with disability due to health conditions or diseases that affect a particular population. One DALY represents the equivalent of one year of healthy life lost due to premature death and disability.
Note: The 0%-12% of DALYs on the x-axis refers to the percent of the estimated global burden of disease, measured in disability adjusted life years, attributable to a given risk factor identified in the chart. The bars illustrated in this chart do not add to 100 as they show only the 25 most significant health risk factors.
Source: Global burden and strength of evidence for 88 risk factors in 204 countries and 811 subnational locations, 1990–2021: a systematic analysis for the Global Burden of Disease Study 2021. *The Lancet* (2024).

[3] Obesity and Overweight fact sheet, as of 2022, World Health Organization, March 1, 2024.
[4] Global burden and strength of evidence for 88 risk factors in 204 countries and 811 subnational locations, 1990–2021: a systematic analysis for the Global Burden of Disease Study 2021. *The Lancet* (2024).

> “We expect that anti-obesity medications (AOMs) such as GLP-1s will play an unquestionable long-term role in balancing the food trilemma....
>
> – Maria Elena Drew
> Director of Research, Responsible Investing

Alongside the general increase in obesity prevalence in almost all countries, the prevalence of severe obesity (BMI ≥ 40 per the Centers for Disease Control and Prevention (CDC) definition) greatly increases the cost of obesity. At a BMI of 30–35, median survival is reduced by two to four years, but at a BMI of 40–45, median survival is reduced by eight to 10 years (comparable to the effects of smoking).[5,6] From an economic perspective, while obese patients accrue around 30% higher direct medical costs on average, severe obesity results in significantly more direct expense. In the U.S., the CDC relies on an estimate of USD 173 billion in obesity-related medical costs. Over 30 units of BMI, each additional unit of BMI resulted in additional cost of USD 253 per person.[7] This has contributed to a more than doubling of medical spending in the U.S. on obesity in the last 20 years.[8]

We expect that anti-obesity medications (AOMs) such as GLP-1s will play an unquestionable long-term role in balancing the food trilemma by directly addressing obesity as a key health pressure point and a dominant outcome of food systems. However, we also believe that their uptake, alongside other factors such as scrutiny of ultra-processed food, could have much broader implications for public attitudes toward food and obesity.

GLP-1s are amplifying the narrative that obesity is not a failure of individual willpower, but a byproduct of the food system and a disease. The advent of GLP-1s, alongside scrutiny of ultra-processed food, could therefore increase public awareness of the science of food reward and health costs of contemporary diets. This raises the question of what (if any) measures will different societies take to address the underlying food system drivers of obesity.

Data suggest that GLP-1 treatment reduces food cravings and alters the types of food consumed.[9,10] Rather than simply reducing the quantity of food consumed, patients substitute unhealthy food like sugary drinks, chocolate, and salty snacks with fresh produce, poultry, and fish.

While some patients are able to sustain weight loss by continuing healthier eating habits and other lifestyle changes, with currently available therapies, many patients regain weight after ceasing treatment.[11,12] This reflects an underlying issue with food environments that promote weight gain. There are clearly several components to this, but a shift in diets toward ultra-processed food—especially in the U.S. and the UK—is a key driver. Ultra-processed food consumption is also accelerating in emerging markets.

The science of food reward

In addition to physiological energy needs, food intake is driven by pathways involved in reward processing and reward-motivated behaviors. The palatability of food is a crucial determinant of the decision to eat; food today is often explicitly engineered to be hyper-palatable and create the visual cues associated with increased craving that can trigger food intake in the absence of physiological energy needs.

Obesity traditionally has been perceived as a failure of individual willpower, but this neglects both the physiology of excess BMI and how the food system contributes to its prevalence. The food system itself is designed in such a way that in many countries, energy-dense foods composed of refined grains, added sugars, or fats often represent the lowest-cost option for consumers.[13]

[5] “Body-mass index and cause-specific mortality in 900 000 adults: collaborative analyses of 57 prospective studies,” *The Lancet,* March 18, 2009.
[6] “Body-Mass Index and Mortality among 1.46 Million White Adults,” *The New England Journal of Medicine*, December 2, 2010.
[7] Ward, ZJ; Bleich, SN; Long, MW; Gortmaker, SL, “Association of body mass index with health care expenditures in the United States by age and sex,” 2021, PLOS ONE 16(3): e0247307. Costs are reported in USD 2019.
[8] “Direct medical costs of obesity in the United States and the most populous states,” *Journal of Managed Care & Specialty Pharmacy*, January 20, 2021.
[9] “Effects of once-weekly semaglutide on appetite, energy intake, control of eating, food preference and body weight in subjects with obesity,” *Diabetes, Obesity and Metabolism*, May 5, 2017.
[10] “Could Obesity Drugs Take a Bite Out of the Food Industry?,” Morgan Stanley, September 5, 2023.
[11] ”Weight regain and cardiometabolic effects after withdrawal of semaglutide: The STEP 1 trial extension,” *Diabetes, Obesity and Metabolism*, May 19 2022.
[12] Louis J. Aronne, MD; Naveed Sattar, MD; Deborah B. Horn, DO, MPH; et al, “Continued Treatment With Tirzepatide for Maintenance of Weight Reduction in Adults With Obesity: The SURMOUNT-4 Randomized Clinical Trial,” *JAMA*, December 11, 2023.
[13] Adam Drewnowski and SE Specter, “Poverty and obesity: the role of energy density and energy costs,” *The American Journal of Clinical Nutrition*, Volume 79, Issue 1, 2004, Pages 6–16, ISSN 0002-9165. January, 2004.

More scrutiny of food companies?

It is increasingly likely that food companies could face potentially more stringent regulatory regimes in individual markets due to closer scrutiny of their role in public health. On a much longer-term time horizon, the scale of obesity as a global health issue also raises the (albeit now seemingly slim) prospect of international multilateral efforts to combat its spread. While both the United Nation's 2000–2015 Millennium Development Goals and 2015–2030 Sustainable Development Goals have focused on hunger, perhaps the next round of goals could more specifically focus on reducing obesity.

At first glance, this draws similarities with tobacco—growing public awareness of health harms, stricter national regulation, and global initiatives (e.g., the WHO Framework on Tobacco Control treaty) also characterized efforts to combat the societal cost of smoking. However, we do not believe the food and tobacco sectors are directly comparable. First, nutritious food is a prerequisite for health—there is not the same clear existential threat from health concerns for food companies as those posed to cigarette smoking. Second, food companies can reformulate products to address health concerns, and health-focused product offerings are a significant strategic opportunity.

Environmental, social and governance (ESG) considerations such as the food trilemma form part of our overall investment decision-making process alongside other factors to identify investment opportunities and manage investment risk. At T. Rowe Price this is known as ESG integration. ESG investors may adopt a more nuanced, stock-specific approach versus the exclusions-oriented playbook applied to global tobacco when evaluating food and beverage companies. This would still be a departure from the positive ESG view of many food and beverage companies today. This approach may involve scrutinizing the nutrition characteristics of food portfolios, product labelling, advertising, and lobbying/influence in public health more than seen historically.

> “ESG investors may adopt a more nuanced, stock-specific approach versus the exclusions-oriented playbook applied to global tobacco....
>
> – Daniel Ryan
> Analyst, Responsible Investing

How say-on-pay voting is shaping trends in executive compensation

Key Insights

- It has been more than 15 years since regulators in major markets began requiring companies to seek shareholder approval of their executive compensation plans via so-called say-on-pay votes.
- Recently, a shift of power has been evident in the U.S. and UK markets, with company compensation committees more willing to make decisions they know will be unpopular in the say-on-pay vote.
- In assessing compensation matters, we place high expectations on companies in our portfolios to maintain a strong connection between pay and performance, understanding there may be nuances and exceptions along the way.

Donna Anderson
Head of Corporate Governance, TRPA

Jocelyn Brown
Head of Governance, EMEA and APAC, TRPA

More than 15 years have passed since regulators in major markets began requiring companies to seek shareholder approval of their executive compensation arrangements. These votes, which take various forms, are referred to as say-on-pay votes. In most markets where say-on-pay votes exist, the analysis of executive pay has an annual cadence. This short-term focus creates a structure for investors to remain informed about the pay-related decisions that these corporations' compensation committees make on our behalf each year.

However, it is also important to step back periodically and examine the long-term trends evident within the executive incentive landscape. Accordingly, the purpose of this paper is to assess the compensation environment in two major markets—the U.S. and the UK—some 15+ years after say-on-pay voting was introduced.

> "...the purpose of this paper is to assess the compensation environment in two major markets—the U.S. and the UK—some 15+ years after say-on-pay voting was introduced.
>
> – Jocelyn Brown,
> Head of Governance, EMEA and APAC, TRPA

Say-on-Pay

ADVANTAGES

Since its introduction, it is reasonable to suggest that the say-on-pay movement has delivered mixed results. Some of the positive advantages for investors we would highlight include:

An effective and broad level of engagement between investors and companies. This engagement aspect has clearly gained traction as a result of pay-related discussions. Prior to the advent of say-on-pay, dialogue on governance matters between companies and their major shareholders was occasionally practiced in the UK, but rarely so in the U.S. Discussions about executive pay opened a door, and such engagement is now a frequent and important component of how investment managers practice stewardship over the assets entrusted to them.

Raising the bar for basic, sound compensation practices. While there is robust debate about many aspects of incentivizing executive teams, the transparency into pay practices brought about by say-on-pay voting has unquestionably resulted in certain misaligned practices of the past being phased out. Examples include extravagant personal perquisites for executives, certain expensive and inefficient tax reimbursement benefits, contractual terms that were poorly aligned with shareholder interests, and unusual pay decisions that were not explained by the board.

DISADVANTAGES

On the other hand, say-on-pay voting has not solved many of the core challenges involved in establishing appropriate incentives for corporate leaders. Indeed, in several respects, it has made things worse, as highlighted in the following examples.

Increased disclosure requirements for issuers. With the introduction of say-on-pay voting, regulators understood that they could not ask investors to approve complex executive pay programs without also providing an adequate level of detail to properly assess the plans. Inevitably, shareholders are not the only ones putting this increased transparency to use. Internal visibility of pay details within companies, particularly in the early years, caused some level of disruption as employees gained new insight into what their executive leaders earned.

Perhaps the main cost of providing more detailed compensation data, however, has been its use by each company's competitors. Detailed public disclosure on the composition of executive compensation packages has driven executive pay levels steadily higher, as each party has visibility on what peers are doing.

Increased complexity of executive compensation. This is a clear trend within the large UK and U.S. markets, one that can be tied directly to the advent of say-on-pay. As companies have sought investor support for their compensation programs each year and investor-issuer engagement has become commonplace, companies are receiving much more feedback on pay than they ever had before—in terms of both volume and variety.

Shareholders do not have uniform views on the optimal approach to incentives; in fact, there is surprisingly wide variation in perspectives about topics such as the use of options; the validity of performance-based awards; the appropriate level of pay in absolute terms; what constitutes a long-term program; which perks are appropriate; the use of environmental, social, and governance (ESG) metrics in variable compensation; and much more. In an effort to accommodate investors' wide-ranging perspectives, many companies have layered in mechanisms to demonstrate responsiveness to this feedback. For example, adding or amending the key performance indicators that drive the compensation plan or replacing stock options with performance-based restricted stock. Indeed, new twists are being added every year. After more than 15 years in this cycle, corporate pay programs in the U.S. and the UK have never been more complex than they are today.

We believe that the combination of these positive and negative after-effects of say-on-pay has seen a new dynamic emerge in investor-issuer dialogue on compensation—namely, resistance. We observe a nascent shifting of power taking place in these key markets, with frustrated compensation committee members more willing to make decisions they know will prove unpopular in the say-on-pay vote but that are, from their perspective, necessary to further the interests of the company. While the drivers of this trend are similar, the effects are playing out differently in the UK and the U.S. Given these different impacts, each environment warrants more detailed exploration.

UK

The UK market has both triennial forward-looking binding remuneration policy votes and annual backward-looking advisory votes on a company's remuneration report. Companies seeking to increase the size of the pay envelope must get advance support through the remuneration policy vote. Investors expect that companies will consult in advance on any significant change to the remuneration policy, leading to robust dialogue between the chair of the remuneration committee and the company's top investors before the meeting materials are published. This allows investors the opportunity to provide input to the company's proposals, which the company hopes will lead its investors to support what is ultimately proposed at the annual meeting of shareholders.

The degree of consultation in the UK market is unusual compared with other markets. In recent years, this mechanism has allowed asset managers to encourage companies to show restraint in setting executive pay. UK policymakers and asset owners have also added weight to this push for restraint, given that they see social inequality as a growing systemic problem.

However, for the last 18 months, there has been a rising clamor from the corporate sector, questioning whether this focus on compensation restraint is inhibiting the global competitiveness of UK companies. Concerns have been raised by certain board chairs regarding the ability of UK companies to attract top talent from the U.S., which is a particular impediment if the company is UK incorporated but the bulk of its operations, customers, and revenues are U.S.-based. The concerns relate to total pay quantum as well as framework design. Much of the criticism, for example,

Two of the highest profile pay votes in the UK 2024 annual general meeting (AGM) season were at AstraZeneca plc and Smith & Nephew plc. Both companies were seeking shareholder approval for a new remuneration policy: the proposals passed but with significant dissent. TRPA's voting took a case-by-case approach reflecting the company's specific situation, including performance.

AstraZeneca plc

At the April 11, 2024, shareholder meeting, TRPA's investment strategies[1] voted FOR the executive remuneration program. The proxy research we received from ISS had recommended AGAINST the remuneration policy and a resolution to amend the company's performance share plan. The company sought to increase the maximum long-term incentive plan grant from 650% of salary to 850% at the same time as increasing the maximum bonus grant from 250% to 300%.

We were consulted on the proposal in the off season in 2023 and recognized that this was a very large compensation package in the UK context. However, we felt that the increase was reasonable given a sustained share price performance[2] under the current chief executive officer (CEO) and the need for the company to have an attractive offer, especially given the majority of its peer set is U.S.-based. At the April 11, 2024, shareholder meeting, TRPA's investment strategies[1] voted FOR the executive remuneration program, along with 64% of shareholders.

Smith & Nephew plc

Smith & Nephew has had four CEOs in a five-year period, one of who allegedly left because the company could not match his pay expectations. Over half of the company's revenue is generated in the U.S., and the CEO is also based in the U.S. but paid according to UK norms. The company sought to introduce a new restricted share plan for U.S.-based executive directors and executive leaders only.

During the off season remuneration consultation in 2023, our view was that the company should hold off on the uplift until share price performance had improved. We were also unconvinced by the proposal to exclude UK functional leadership from the restricted shares plan, and so voted AGAINST the remuneration policy along with 43% of shareholders and the restricted share plan at the May 1, 2024, annual general meeting.

[1] Excluding TRPA's Impact strategies.
[2] **Past performance is not a reliable indicator of future performance.**
The securities identified and described are intended to illustrate the case-by-case approach of say-on-pay votes. They do not represent all of the securities that may be purchased or sold by T. Rowe Price Associates, Inc. No assumptions should be made that the securities mentioned were or will be profitable. This is not a recommendation to buy or sell any security. The views and opinions above are subject to change, are those of the authors and may differ from those of other associates/and or T. Rowe Price Group companies.
While this section is part of our 2023 ESG Annual Report, the votes took place in 2024 as part of the 2024 UK AGM. However, the off season meetings described took place in 2023.

centers on the outsized role that proxy advisors are thought to play in determining the vote outcome. However, a 2023 report from the UK Financial Reporting Council,[1] the regulator that oversees the UK Stewardship Code, sought to build an evidence base on this contentious topic. It found that a vote of 20% or more against a resolution relating to director elections or remuneration occurred in only half of the cases where one or both of Institutional Shareholder Services (ISS) or Glass Lewis, the two largest proxy advisors, had made such a recommendation in 2022, although this increased to 77% of cases when both did so.

The debate on UK competitiveness is not restricted to pay. Other concerns expressed by company chairs include whether the UK Stewardship Code's focus on reporting outcomes has fostered an adversarial tone to investor-company dialogue. And whether the UK corporate governance framework, which for a long time has been seen as an international gold standard, is overly restrictive to the point that it may be discouraging companies from listing in London. These concerns influenced the outcome of the revision to the UK listing rules announced in July 2024, and we will see how these perspectives are reflected in the forthcoming revision to the UK Stewardship Code.

TRPA casts proxy votes with the objective of best supporting the long-term success of our investee companies. We take account of accepted UK good practice, but we are also open to supporting non-standard plans offering a compelling rationale. To inform our case-by-case assessment of nonstandard pay practices, we expect to be consulted in advance by the companies where we have a significant holding.

U.S.

In the U.S., say-on-pay votes are generally held annually. They are backward-looking and advisory in nature. In essence, they serve as a shareholder referendum on the compensation committee's decisions over the past year. Although they are non-binding, our experience over the past 15 years has been that most companies that have not received strong support (generally, more than 80%) for their pay votes have been genuinely interested in seeking subsequent feedback directly from their largest shareholders. If the weak level of support indicated a serious concern with the terms or structure of the underlying plan, boards have generally been willing to address these in advance of the next vote.

However, we began to observe a shift in this stance after the outbreak of the coronavirus pandemic in 2020. In the two years that followed, the already complex environment for compensation design became, in many cases, unmanageable. Several economic sectors saw dramatic declines in market capitalization as investors predicted a prolonged period of consumer spending headwinds. The volatility in their stock process caused many companies' performance-based awards to become worthless (or at least their vesting became highly improbable) due to factors clearly outside the control of management teams. Faced with the unprecedented circumstances, and a pressing need to retain stability in key leadership positions, many U.S. compensation committees elected to implement stopgap measures. These included special retention awards and/or a resetting of the terms of executives' original performance-based awards.

> **"Currently, however, it seems U.S. compensation committees have little fear of say-on-pay backlash and will readily implement special awards if they deem them necessary.**
>
> **– Donna Anderson**
> **Head of Corporate Governance, TRPA**

Given the uncertainty of the time, we observed considerable tolerance on the part of investors during the 2020 proxy voting season as companies put these stopgap measures into place. However, that same degree of flexibility from investors was extended to far fewer companies in the following two years. Nevertheless, the use of "special retention grants" suddenly became a common way for compensation committees to replace previous equity awards that lapsed unvested due to the pandemic or other factors. We have observed a distinct change in tone from companies using such awards over this time. In the past, companies were quite hesitant to make use of awards that they knew would be opposed by many of their shareholders. Currently, however, it seems U.S. compensation committees have little fear of say-on-pay backlash and will readily implement special awards if they deem them necessary.

Moving forward

Overall, our conclusion is that the current state of issuer-investor engagement on compensation matters is less constructive than originally hoped. While a general shift has been evident among issuers in recent years, leading to a deterioration in alignment with investors, issuers also argue that:

- Some investors are unnecessarily rigid in their expectations of pay programs and do not take company-specific circumstances into account

[1] "The influence of proxy advisors and ESG rating agencies on the actions and reporting of FTSE350 companies and investor voting," The Financial Reporting Council Limited, published July 2023.

- Investors are overly focused on the absolute amount of executive pay and do not appreciate the intensity of competition for top executive talent
- Investors rely too much on the advice of proxy advisors on pay matters, although the Financial Reporting Council's (FRC) research also found that 75% of investors who responded to the FRC's questionnaire requested voting research based on the investor's own in-house, customized, voting policies rather than a proxy advisor's standard policies
- Investors are not forthcoming with their feedback and may oppose pay programs without any advance notice to the company, undercutting the spirit of engagement

We agree that some 15 years after the arrival of say-on-pay votes, there is still much room for improvement in executive pay practices, investors' understanding of them, and overall alignment of executives' and investors' interests. However, we find the criticism coming from some issuers on this point is not fully supported by the facts, as highlighted in the FRC study cited above. Our engagement on compensation matters is continually aimed at reducing these areas of friction.

A particular area of focus for us in the U.S. this year is the use of performance-contingent equity. Performance stock units (PSUs) were designed expressly for the purpose of linking executive pay with specific performance goals. In theory, they should have improved the alignment of interests with investors. However, after a period of rapid adoption of PSU-based plans, frequent redesigns of the terms of the awards, and constant pressure from proxy advisors and compensation consultants to build incentive programs around PSU awards, our conclusion is that they are not working as originally intended.

Through engagement with many U.S. companies, we are encouraging compensation committees to take a more bespoke approach to plan design—one that meets the company's specific challenges. In short, our observation is that PSUs are not the only way (or the best way) to construct a performance-based approach to pay.

Conclusion

Remuneration is only one topic within the array of corporate governance issues we follow at TRPA. However, it is a topic of heightened importance to corporate executives, board members, asset managers, and our clients. Incentives are clearly significant drivers of behavior and outcomes, which is why this subject area merits our time and focus.

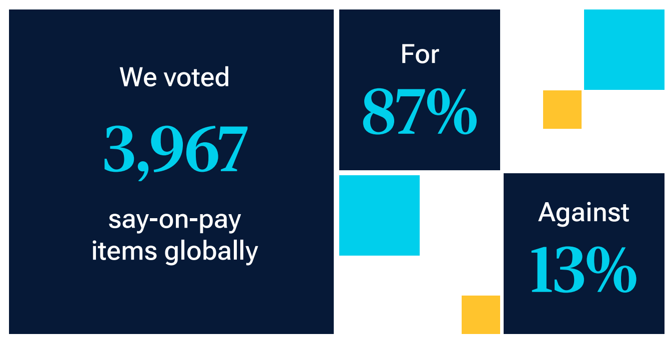
We are proud of our pragmatic, investment-centered, and independent approach to compensation assessment of companies at TRPA. We do not rely on outside advisors for this analysis, and we do not outsource decision-making. We look at the context within which each company makes its pay decisions: its industry, life-cycle stage, performance, competitive environment, and need for talent. We place high expectations on the companies in our portfolios to maintain a strong connection between pay and outcomes delivered to investors, but we also understand that exceptions and nuance may be necessary along the way.

TRPA Say-on-Pay Voting

(Fig. 1) Our approach is pragmatic, investment-centered, and independent.

2023 Proxy Year

2022 Proxy Year



2021 Proxy Year

Source: T. Rowe Price Associates, Inc.

CORPORATE ENGAGEMENT

T. Rowe Price Associates, Inc. (TRPA) 2023 Corporate engagement activity

Key Insights

- The T. Rowe Price Associates, Inc. (TRPA) 2023 Corporate Engagement Activity report provides a summary of all ESG-related engagement activity for the year.
- Our ESG-related engagement with companies and other non-corporate fixed income issuers focuses on the environmental practices, corporate governance, or social issues, affecting their businesses.
- ESG engagement is conducted by our dedicated ESG specialists, with portfolio managers and analysts from our equity and fixed income teams also participating, as required.

Donna Anderson
Head of Corporate Governance, TRPA

Maria Elena Drew
Director of Research, Responsible Investing, TRPA

Here at T. Rowe Price, we are fortunate to manage USD 1.45 trillion of assets for our clients,[1] predominantly in actively managed portfolios. Engagement with issuers on environmental, social and governance (ESG) matters is an important pillar of our overall stewardship program. Speaking with issuers directly on these matters allows us to enhance our understanding of a particular challenge, inform an investment or proxy voting decision, or adjust our assessment of the risk profile of a particular investment.

Our active investment approach affords us perspective. 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 may have no choice but to hold an investment despite any evidence of business practice or disclosure concerns.

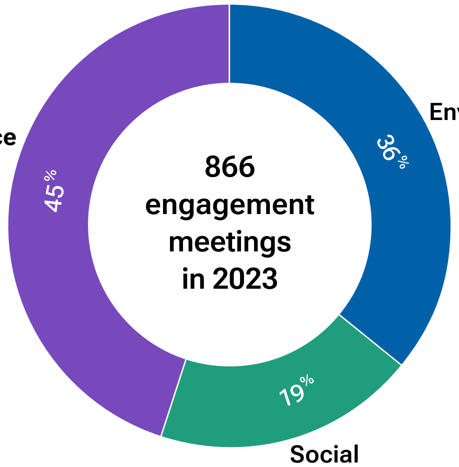
Our investment-driven engagement program frequently identifies engagement targets through our proprietary Responsible Investing Indicator Model (RIIM) analysis, governance screening, and analysts' fundamental research. ESG engagement meetings are conducted by our dedicated ESG specialists, with portfolio managers and analysts from our equity and fixed income teams, also participating, as required. While we engage with companies in a variety of investment contexts, ESG engagement focuses on exchanging perspectives on the environmental practices, social issues, or corporate governance affecting their businesses.

The engagement figures provided here, and the full list of corporate engagements during 2023, are specific to the TRPA-advised range of strategies. Engagements for TRPIM-advised strategies are maintained separately and are detailed in a separate report.

[1] As of December 31, 2023. Firmwide assets under management include assets managed by T. Rowe Price Associates, Inc. and its investment advisory affiliates, including T. Rowe Price Investment Management, Inc. (TRPIM), and Oak Hill Advisors, L.P.

TRPA engagements by category

Total engagement meetings in 2023



Top 5 engagement topics by category

Environment

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

Social

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

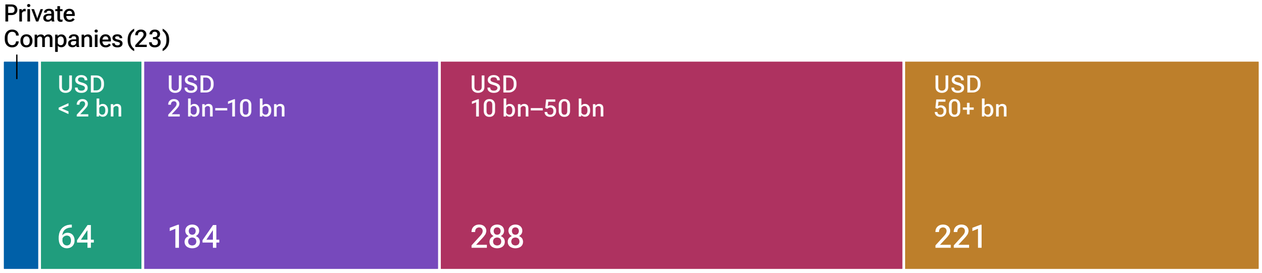
Governance

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

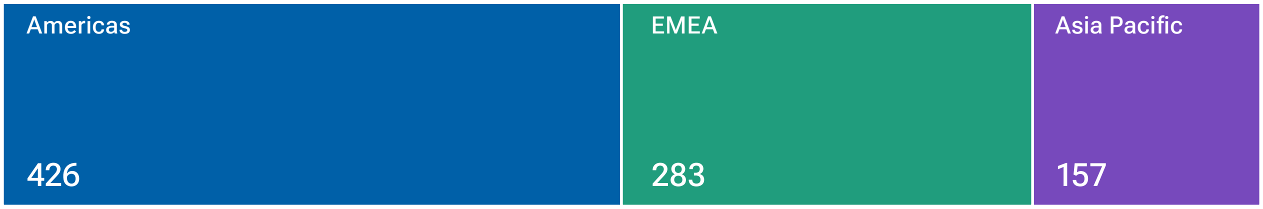
[1] Includes GHG reduction/net zero targets and financed emissions. Net zero means achieving a balance between the greenhouse gases put into the atmosphere and those taken out. This state is also referred to as carbon neutral.
[2] Includes board independence and board diversity.
[3] Includes both executive and board succession.

TRPA engagements—Numbers by category

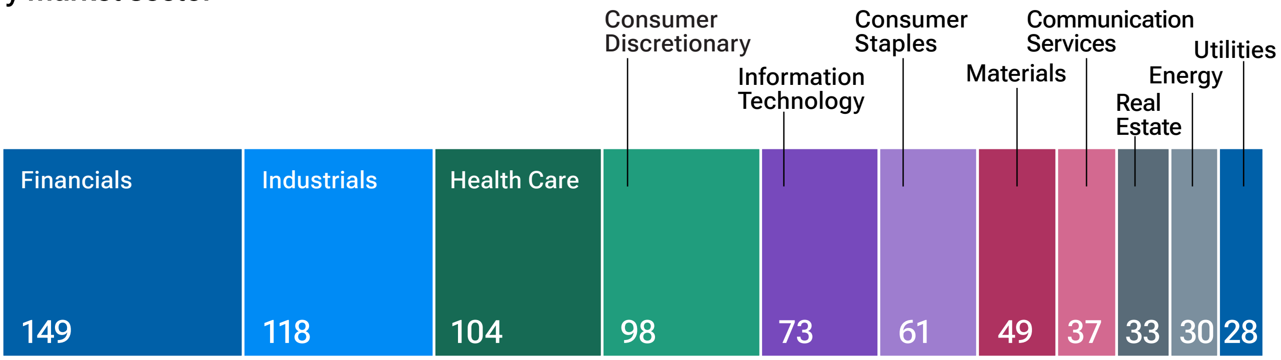
By market capitalization[1]



By region



By market sector[1]



By asset category

As of December 31, 2023.
[1] Breakdown is representative of corporate engagements only as this is not applicable for fixed income entities (SSAs, municipals, and securitized).
[2] Sovereign, Supranational, and Agency.

PROXY VOTING

2023 Proxy voting activity

Key Insights

- In 2023, there was a marked increase in activity within the U.S. by advocacy groups known to be critical of using environmental, social, and governance (ESG) considerations in corporate decision-making.
- In Japan we saw an increasing number of companies reach 30% female representation on their Boards.
- The 2023 annual general meeting (AGM) season in Europe saw considerable focus on the topic of virtual AGMs.

Donna Anderson
Head of Corporate Governance, TRPA

Jocelyn Brown
Head of Governance, EMEA and APAC, TRPA

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 specialists in governance and responsible investment and the investment professionals who follow the companies closely.

73,067
Proposals voted at TRPA

45.8%
Americas

24.2%
EMEA

30.0%
APAC

76
Countries

For the year ended December 31, 2023.

TRPA voted on 73,067 proposals in 2023. The data in the following tables highlight the top five most common voting issues in each category for TRPA in each region.

2023 Proxy Voting Activity at TRPA

Table 1

Americas | 33,445 Management and Shareholder Proposals

Management Proposals	# of Proposals	% Voted With Mgmt.
Elect Directors (Uncontested)	22,819	86.0%
Management Compensation: Say on Pay and Equity Plans	4,081	82.1%
Appoint Auditors/Approve Auditor Fees	3,304	99.5%
Routine Business and Operational Matters	1,059	75.3%
Capital Structure Items	933	75.6%
Other	447	94.2%
Total	**32,643**	

Shareholder Proposals	# of Proposals	% Voted With Mgmt.
Social, Political, or Environmental Matters	404	95.5%
Elect Directors (Contested)	199	77.9%
Related to Compensation Policies	76	96.1%
Adopt or Amend Shareholder Rights	66	74.2%
Other	30	83.3%
Related to Auditors Policies	27	100.0%
Total	**802**	

Americas: Rising volume of shareholder proposals sees decline in overall quality

In 2023, there was a marked increase in activity within the U.S. by advocacy groups known to be critical of using ESG considerations in corporate decision-making. Previously, these ESG counter-resolutions were rare, but in 2023, we voted on dozens of these shareholder resolutions across companies within our portfolios.

The other key trend related to shareholder resolutions more broadly. Over the past two years, issues such as racial justice, income inequality, worker safety, and climate change had been on prominent display within the corporate sector due to a confluence of events, including the coronavirus pandemic. Shareholder resolutions addressing such issues received notably higher-than-average support in 2021 from certain investors and higher visibility when compared with previous years, although these support levels began to subside in 2022.

In this most recent proxy voting season, investor support for such resolutions was relatively low. There are multiple reasons for this outcome. It began when the U.S. Securities and Exchange Commission decided to allow more proposals across a wider range of environmental and social topics to move forward. Since that time, the number of environmental and social resolutions voted on at companies within the S&P 1500 Index rose 74%, from 170 in the 2021 season to 296 this year. The traction that so many of these resolutions gained in 2021 seemed to not only attract a new set of proponents in the subsequent two years, but also inspired experienced proponents to expand their topics of advocacy. 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, more poorly targeted resolutions, and more proposals addressing non-core issues. In addition, we observed a marked increase in the level of prescriptive requests. Proponents moved swiftly from disclosure-based requests seeking additional reporting on environmental, social, and governance matters to action-based requests seeking specific commitments, capital investments, or structural changes from the targeted companies. Our view on these prescriptive proposals is that they usurp management's responsibility to make operational decisions and the Board's responsibility to guide and oversee such decisions.

2023 Proxy Voting Activity at TRPA (continued)

Table 2

APAC | 21,920 Management and Shareholder Proposals

Management Proposals	# of Proposals	% Voted With Mgmt.
Elect Directors (Uncontested)	8,157	90.0%
Routine Business and Operational Matters	4,741	87.8%
Capital Structure Items	3,520	94.3%
Management Compensation: Say on Pay and Equity Plans	1,888	78.9%
Mergers and Acquisitions	1,941	80.8%
Other	793	98.6%
Total	**21,040**	

Shareholder Proposals	# of Proposals	% Voted With Mgmt.
Elect Directors (Contested)	512	91.6%
Related to Routine Business and Operational Matters	154	90.3%
Related to Auditors	142	97.9%
Social, Political, or Environmental Matters	38	86.8%
Related to Compensation Policies	23	34.8%
Other	11	63.6%
Total	**880**	

Say on climate voting limited across Asia

In the Asia Pacific region, our priority areas for Japan remained unchanged from 2022: Board independence, diversity, and cross-shareholdings. We were pleased to see an increasing number of companies reach 30% female representation on their Boards.

In China, we revised our voting guideline on the approval of changes to the Articles of Association that relate to the Chinese Communist Party Committee. The new guideline recognizes the variation in practice between companies by setting a default recommendation to abstain.

In markets where the say-on-climate[1] voting concept has not gained traction—notably Japan—the spotlight remains on a small number of high-profile environmental resolutions brought by shareholders. In other markets such as Australia, the so-called say-on-climate concept is better accepted, although Australia did see a number of significant climate-related shareholder resolutions in 2023.

[1] Say-on-climate votes are voluntary, management-sponsored climate resolutions.

2023 Proxy Voting Activity at TRPA (continued)

Table 3

EMEA | 17,702 Management and Shareholder Proposals

Management Proposals	# of Proposals	% Voted With Mgmt.
Elect Directors (Uncontested)	7,082	90.0%
Routine Business and Operational Matters	3,277	87.4%
Management Compensation: Say on Pay and Equity Plans	2,935	84.5%
Capital Structure Items	2,766	92.3%
Appoint Auditors.Approve Auditor Fees	904	91.4%
Other	508	90.7%
Total	**17,472**	

Shareholder Proposals	# of Proposals	% Voted With Mgmt.
Elect Directors (Contested)	97	68.0%
Related to Routine Business and Operational Matters	65	96.9%
Social, Political, or Environmental Matters	37	78.4%
Related to Auditors	20	100.0%
Related to Compensation Policies	11	90.9%
Other	–	–
Total	**230**	

EMEA: Post-pandemic virtual AGMs remain controversial

The 2023 AGM season in Europe saw considerable focus on the topic of virtual AGMs. The coronavirus (COVID-19) pandemic disrupted physical attendance at shareholder meetings, and virtual AGMs became a necessary mechanism to maintain the dialogue between companies and their shareholders. Traditionally, investors have been wary of virtual AGMs—with concerns that the physical absence of investors in the room during an AGM could be managed to inhibit investors holding the Board to account. Another key focus area for the 2023 AGM season in Europe was encouraging companies to improve their variable pay disclosure.

Shareholder proposals in focus

In 2023, portfolios managed by T. Rowe Price Associates voted on 1,921 shareholder resolutions across all markets. Of those, 1,031 were situations where shareholders were nominating directors to a company's Board. Another 363 were resolutions asking companies to adopt specific corporate governance practices, and 527 were social and environmental resolutions.

We approach shareholder resolutions by assessing the materiality of the issue raised by the proposal, as well as the general suitability of each resolution. Our analysis considers company-specific circumstances, including the current level of disclosure. We are unlikely to support resolutions that are excessively prescriptive or where we think the company is already taking action to address the stated concerns. There are also cases where we disagree in principle with what the proponent puts forward.

Our support for shareholder resolutions in the environmental category dropped from 21% in 2022 to 8% in 2023. During the same time period, our support for social resolutions fell from 11% to 2%, while our support for political and lobbying proposals dropped from 32% to 4%. The reasons for the decline in support related to the lower-quality nature of many resolutions are detailed earlier in the Americas section.

Proposals of this type are highly concentrated by geography due to regulations in many markets that prohibit such activities. Of the resolutions in this analysis, 81.6% were brought in the Americas region, specifically the U.S. and Canada. The APAC region represented 10.2% of the volume, and EMEA represented 8.2%.

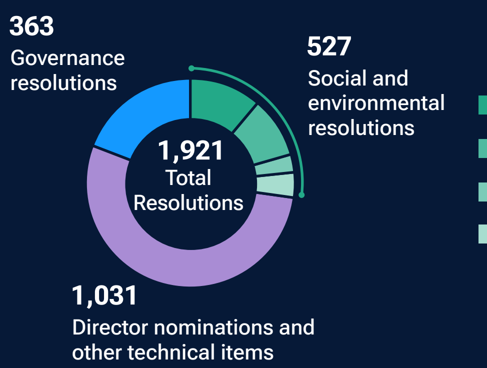
ESG counterproposals proliferate

ESG counterproposals continued to proliferate in 2023. In the U.S. market, the requirements for submitting a shareholder proposal for consideration by a company's investors are low, while the cultural divide on ESG matters is high. The combination of these factors resulted in a record number of shareholder proposals put to a vote in 2023 that we have characterized as ESG counterproposals. In 2021, we voted on only nine such proposals across all T. Rowe Price portfolios. That figure rose to 46 in 2022 and 77 in 2023, representing almost 15%[2] of the total volume of shareholder-sponsored resolutions overall. We do not support proposals of this nature because we disagree with the fundamental objective of the proponents. These resolutions represent the appropriation of the shareholder proposal process to address a narrow and non-economically-based agenda.

[2] This represents the volume of just the E&S shareholder-sponsored resolutions (i.e., 77/527=15%), and not the total universe of shareholder-sponsored resolutions, which was 1,921.

Shareholder resolutions voted on in 2023

(Fig. 1) Digging deeper into environmental and social resolutions



	Resolutions	Supported (%)	Opposed (%)	Elected not to vote[1] (%)
Social	217	2	97	1
Environmental	181	8	86	6
Political	52	4	96	0
ESG Counterproposals	77	0	100	0

Chart shows the number of shareholder resolutions we voted on in 2023 by proposal topic. For "Social and environmental resolutions," we classify the proposals into 4 distinct categories.

[1] 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. There are two reasons we elect not to vote a certain resolution. The first is a technical requirement when voting in contested elections, where we vote on the proxy card of one side, but we enter "DO NOT VOTE" instructions on the other card. The second is due to share blocking.

For the year ended December, 31, 2023.

Source: T. Rowe Price Associates.

ESG AT TRPIM

ESG at T. Rowe Price Investment Management, Inc.

Key Insights

- In 2023, T. Rowe Price Investment Management, Inc. (TRPIM) continued to broaden both its corporate engagement as well as its proxy voting activity.
- In this report, we provide a summary of all TRPIM company engagements in 2023–focusing on the environmental practices, corporate governance, or social issues affecting each issuer.
- We also provide analysis of TRPIM proxy voting activity in 2023, highlighting the key management and shareholder proposal topics, and how we voted on each issue.

Chris Whitehouse
Head of ESG, TRPIM

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

In this paper, we provide detailed analysis of TRPIM's corporate engagement and proxy voting activity during 2023.

- **Team** In 2023, we continued to expand both our team and our capabilities. In January, we welcomed a new ESG associate analyst to TRPIM who specializes in the consumer sector. With a background as a quantitative analyst, the new addition also supports our extensive data analysis work.
- **Capabilities** We continued to actively build upon our research capabilities with the introduction of the TRPIM Net Zero Module,[1] which categorizes individual holdings according to their net zero journey. We also established a dedicated net zero engagement program that focuses particularly on companies within sectors that are high emitters of greenhouse gas (GHG) emissions.
- **Philosophy and process** The ESG team at TRPIM is responsible for proxy voting recommendations, with individual portfolio managers maintaining the ultimate responsibility for voting decisions for companies in their portfolios. The guiding principle of every vote is "what is in the best long-term interests of the company" as viewed through the lens of shareholders. Our philosophy at TRPIM is to embed ESG considerations into a research-led, active management approach supported by dedicated ESG research resources and proprietary tools and processes. ESG considerations form part of our overall

[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).
This section is not applicable to T. Rowe Price Associates, Inc. ("TRPA") and its investment advisory affiliates including Oak Hill Advisors, L.P. ("OHA"), a T. Rowe Price company since December 31, 2021. TRPIM votes proxies independently from the other T. Rowe Price-related investment advisers and has adopted its own proxy voting guidelines.

investment decision making process alongside other factors to identify investment opportunities and manage investment risk. At T. Rowe Price this is known as ESG integration. Moreover, we built our TRPIM Responsible Investing Indicator Model (RIIM),[2] an ESG research tool, using a consistent approach and framework that builds an ESG profile for companies within our investment universe. The TRPIM RIIM covers equities and corporate bonds.

TRPIM analysts and portfolio managers integrate ESG factors alongside other financial inputs into their fundamental investment analysis, informing investment theses, company or credit ratings, and, where relevant, price targets and position sizes as appropriate to their respective mandates.

> 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.

[2] RIIM is a proprietary ESG rating system. It rates companies in a traffic light system, measuring their environmental, social, and governance profile and flagging companies with elevated risks.

TRPIM responsible investing indicator framework

Impact pillar
Measures impact opportunity, as opposed to ESG risk.[1] Data are derived from proportion of revenue aligned to company's sustainable activity

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

Materiality
Most relevant ESG factors and datasets analyzed to inform investment case

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

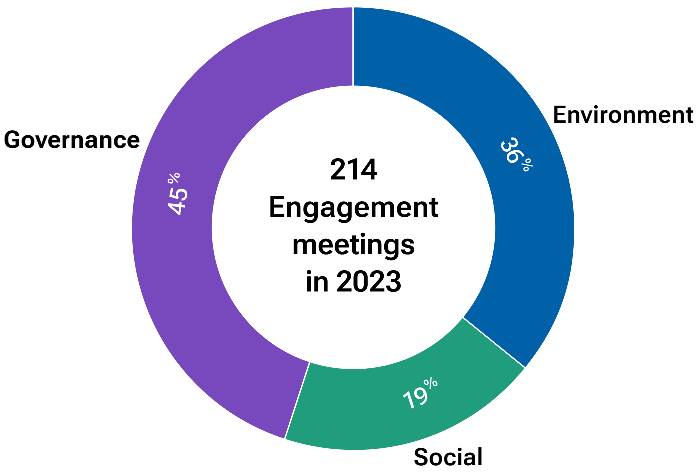
Integration
Investment analysts and portfolio managers integrate analysis into investment thinking

[1] ESG risk is measured elsewhere in the model.

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.

TRPIM engagements

Engagements by category



Top 5 engagement topics by category

Environment

1. Greenhouse gas (GHG) emissions[1]
2. Net zero
3. ESG disclosure (environment)
4. Product sustainability
5. Renewable energy

Social

1. Diversity
2. Employee safety and treatment
3. ESG disclosure (social)
4. Supply chain
5. Society and community relations

Governance

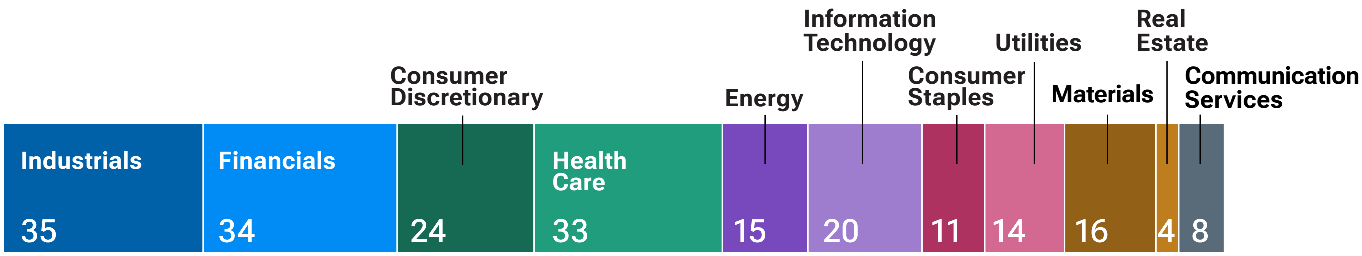
1. Governance structure/oversight
2. Executive compensation
3. Proxy voting
4. Board diversity
5. Shareholder rights

As of December 31, 2023.
[1] Includes GHG reduction/net zero targets and financed emissions.
Numbers may not total 100% due to rounding.
Source: T. Rowe Price Investment Management.

TRPIM engagements—Numbers by category

By market capitalization

By sector



As of December 31, 2023.
Source: T. Rowe Price Investment Management.

TRPIM 2023 proxy voting activity

5,703 management and shareholder proposals

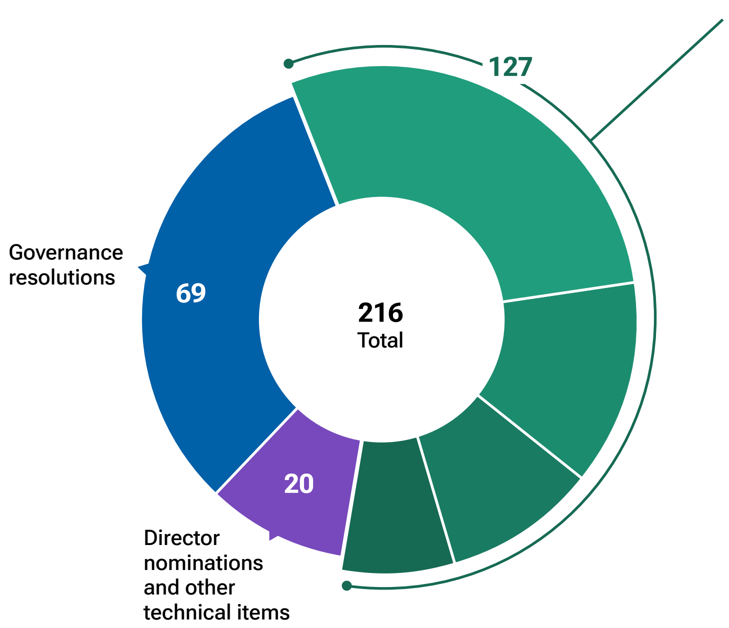
Management Proposals	# of Proposals	% Voted With Mgmt.
Elect Directors (Uncontested)	3,962	90.8%
Management Compensation: Say on Pay and Equity Plans	689	90.1%
Appoint Auditors/Approve Auditor Fees	575	96.2%
Routine Business and Operational Matters	123	83.7%
Capital Structure Items	74	93.2%
Other	64	96.9%
Total	**5,487**	

Shareholder Proposals	# of Proposals	% Voted With Mgmt.
Social, Political, or Environmental Matters	125	81.6%
Elect Directors (Contested)	49	46.9%
Related to Compensation Policies	18	100.0%
Adopt or Amend Shareholder Rights	14	78.6%
Routine Business and Operational Matters	6	83.3%
Other	4	50.0%
Total	**216**	

TRPIM shareholder proposals

During the 12 months ended December 31, 2023, portfolios managed by TRPIM voted on 216 shareholder resolutions. Of those, 49 proposals were instances where shareholders sought to nominate directors to the board of 20 of our company holdings. Another 69 were resolutions asking companies to adopt specific corporate governance practices, and 127 were social and environmental resolutions.

As we observed in 2022, following the U.S. Securities and Exchange Commission adapting its eligibility criteria, allowing more proposals to move forward, we continued to see more poorly targeted and prescriptive shareholder proposals in 2023. This only reinforced our case-by-case voting philosophy, where we consider individual company factors, disclosure levels, and ESG performance. We vote according to what we believe is in the best long-term interests of the company; this is part of our investment management responsibilities to clients.



Social and environmental resolutions

	Resolutions	Supported	Opposed	Elected Not to Vote[1]
Social	62	13%	87%	0%
Political	28	39%	61%	0%
Environmental	21	19%	81%	0%
Anti-ESG	16	0%	100%	0%

[1] 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.

Environmental shareholder proposals Environmental-related shareholder proposals continued to expand from calls to increase disclosure of emissions to calls on companies to adopt targets (typically science-based) to reduce emissions. A number of these types of proposals in 2023 imposed too short and unrealistic time frames to allow companies to properly evaluate and assess the size and appropriateness of targets, and in these cases, we did not support the proposal. As with all proposals, we assess climate-related proposals taking into consideration the company's business model, competitive landscape, and performance in this area. When considering environmental proposals, we supported management 81% of the time.

Social shareholder proposals Within shareholder proposals of a social nature, we continued to see a significant number calling for third-party racial audits; transparency around fair treatment of workers when collectively organizing; and, following the U.S. Supreme Court's Dobbs ruling in 2022, proposals around reproductive rights. In 2023, we selectively supported the few proposals that we deemed to have merit. Our framework here is to identify whether the proposal addresses a material issue of relevance to the company. With this in mind, we examine company disclosure and look at whether the company has a track record of controversies. Where these coincident factors were present, especially if we were not satisfied with the company's response to engagement efforts, we supported the proposal. In 2023, we supported 13% of shareholder proposals that dealt with social issues.

Political/lobbying activity shareholder proposals We witnessed a higher number of proposals asking for companies, or in some cases a third party, to report on values alignment between corporate policies and political expenditure. We were more sympathetic to those proposals that focused on how lobbying and election spending aligns with corporate policy, coupled with disclosure deficiencies or evidence of controversies at the company in question. We would also note that disclosure in this area for Russell 3000 companies lags that of the S&P 500. Consequently, we supported 39% of this type of proposal.

ADVOCACY AND ENGAGEMENT

Initiatives promoting advocacy and engagement

Global initiatives/standards

Principles for Responsible Investment (PRI)
Signatory since 2010

International Corporate Governance Network (ICGN)
Member since 2021

International Capital Market Association (ICMA)
Member since 2017; member of the ICMA Principles since 2022: Green Bond Principles (GBP), Social Bond Principles (SBP), Sustainability Bond Guidelines (SBG), and Sustainability-Linked Bond Principles (SLBP); member of the ICMA Advisory Council since 2023

United Nations Global Compact
2021 signatory

International Financial Reporting Standards (IFRS) Sustainability Alliance (formerly the SASB Alliance)
Member since 2021

Regional initiatives/standards

UK	**Stewardship Code** Signatory since 2020 **Pensions and Lifetime Savings Association (PLSA)** Stewardship advisory group member since 2020 **30% Club Investor Group** UK chapter member since 2021 **UK Investor Forum** Founding member since 2017
U.S.	**Council of Institutional Investors (CII)** Associate member since 1989 **Investor Stewardship Group (ISG)** Founding member since 2017
Asia	**Japan Stewardship Code** Signatory since 2014 **Asian Corporate Governance Association (ACGA)** Member since 2016 **Japan Stewardship Initiative** Founding member since 2017
EM	**Associação de Investidores no Mercado de Capitais (AMEC)** Member since 2015 **Emerging Markets Investors Alliance** Founding member since 2020

As of December 31, 2023, at least one T. Rowe Price entity is a signatory, founder, or member of the following groups committed to change. T. Rowe Price may be a member of other initiatives, standards, principles, working groups, or other organizations not listed. Additionally, individual T. Rowe Price associates may be members of working groups not listed.

Climate related

Task Force on Climate-Related Financial Disclosures (TCFD)
Supporter since 2020

TCFD Consortium (Japan)
Member since 2021

Institutional Investors Group on Climate Change (IIGCC)
Member since 2020

Net Zero Asset Managers initiative
Signatory since 2022

Working groups

Investment Association Climate Change Working Group
Member since 2020

Japan Working Group of the Asian Corporate Governance Association (ACGA)
Member since 2020

30% Club UK Investor Group Race Equity Working Group
Member since 2021

Investment Management Education Alliance (IMEA) ESG Committee
Member since 2021

China Working Group of the Asian Corporate Governance Association (ACGA)
Member since 2022

ICMA (Impact Reporting; Social Bonds; Climate Transition Finance; Sustainability-Linked Bonds)
Member since 2022

Taskforce on Nature-related Financial Disclosures (TNFD)
Forum member since 2022

IIGCC (Sovereign Bonds and Country Pathways Working Group; Derivatives and Hedge Funds Working Group)
Member since 2023

GC100 and Investor Group—Directors' Remuneration Reporting Guidance
Member since 2023

Thematic engagement

Farm Animal Investment Risk & Return (FAIRR)
Member since 2020

Access to Medicine Foundation
Signatory since 2020

Access to Nutrition Initiative
Signatory since 2022

Impact investing

Global Impact Investing Network (GIIN)
Member since 2021

Responsible Investment Association Australasia (RIAA)
Member since 2020

Japan Impact-Driven Financing Initiative
Signatory since 2022

As of December 31, 2023, at least one T. Rowe Price entity is a signatory, founder, or member of the following groups committed to change. T. Rowe Price may be a member of other initiatives, standards, principles, working groups, or other organizations not listed. Additionally, individual T. Rowe Price associates may be members of working groups not listed.

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 Walker
Analyst (Hong Kong)

Daniel Ryan
Analyst (London)

Duncan Scott
Analyst (London)

Suha Read[2]
General Manager (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)

Yijiang Wang
Governance Analyst (London)

[1] As of June 30, 2024.
[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
Sector Portfolio Manager, Fixed Income, ESG (London)

Ellen O'Doherty
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 Investment Specialist (Sydney)

Brian Horr
ESG Portfolio Analyst (Baltimore)

Global Proxy Operations[3]

Amanda Falasco
Supervisor (Baltimore)

[3] Part of the 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
Analyst (Washington)

Allie Hidalgo
Associate Analyst (Washington)

Thearra Su
Associate Analyst (Washington)

TRPIM Regulatory Research

Gil Fortgang
Associate Analyst (Washington)

*Not pictured—Jack Williams, Lead Business Manager (Baltimore).

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

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

Davis Collins
Credit Analyst

Vincent DeAugustino
Portfolio Manager, US Mid-Cap Value Equity

Anna Driggs[1]
Managing Legal Counsel

Amanda Falasco[1]
Supervisor, Global Proxy Operations

Ryan Hedrick
Associate Portfolio Manager, US Large-Cap Equity

Arif Husain
Head of Global Fixed Income and CIO

Tongai Kunorubwe
Head of ESG, Fixed Income

Michael Lambe
Director of Research, Credit Research

Matt Lawton
Portfolio Manager, Global Impact Credit and Global Impact Short Duration

Yoram Lustig[1]
Head of Multi-Asset Solutions, EMEA

Ryan Nolan[1]
Senior Legal Counsel

Ken Orchard
Head of International Fixed Income

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

Preeta Ragavan Srinivasan
Equity Investment Analyst

David Rowlett
Portfolio Manager, US Impact Equity

Justin Thomson
Head of International Equity and CIO

Willem Visser
Fixed Income ESG Associate Portfolio Manager

Ernest Yeung
Portfolio Manager, Emerging Markets Discovery Equity

[1] These individuals attend in an advisory capacity and, although they are not classified as restricted investment personnel,must adhere to the strict information barrier policy and guidelines.
As of June 30, 2024.

TRPIM ESG Investing Committee

Chris Whitehouse
Chair, Head of ESG, TRPIM

Paul Cho
Research Analyst

David Giroux
Portfolio Manager, 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
Quantitative Team Leader, TRPIM

Thomas Watson, CFA
Director of Research

David Wagner
Lead Portfolio Manager, US Small-Cap Value

Ashley Woodruff
Associate Portfolio Manager, US Mid-Cap Growth

Doug Zinser
Research Analyst

[1] This individual attends in an advisory capacity and, although they are not classified as restricted investment personnel, must adhere to the strict information barrier policy and guidelines.
[2] Not part of TRPIM.
As of June 30, 2024.

ENGAGEMENT DATA

2023 TRPA Engagements

Environmental (E), social (S), and governance (G) classifications of all company engagements.

Issuer	Quarter	E	S	G
Corporates				
A O Smith Corp	1Q23	●		
ABB Ltd	1Q23		●	●
AbbVie Inc	2Q23		●	●
	4Q23		●	
	4Q23	●	●	●
Abcam PLC	2Q23			●
	2Q23			●
	2Q23			●
	2Q23			●
	2Q23			●
Abertis Infraestructuras SA	4Q23	●		
ACADIA Pharmaceuticals Inc	2Q23			●
Acadia Realty Trust	4Q23	●	●	●
Accenture PLC	3Q23		●	
ACEN Corp	2Q23	●		
Adaptive Biotechnologies Corp	1Q23			●
Adobe Inc	3Q23	●		
Advanced Drainage Systems Inc	1Q23	●		
	3Q23	●		
	3Q23	●		
Adyen NV	1Q23			●
Affirm Holdings Inc	3Q23	●		●
Agilent Technologies Inc	1Q23			●
Agios Pharmaceuticals Inc	2Q23			●
AIB Group PLC	1Q23	●	●	
Airbus SE	1Q23	●	●	●
	4Q23	●		●
Al Rajhi Bank	1Q23	●		●
Alamos Gold Inc	4Q23	●		
Alcon Inc	4Q23	●		●
Alibaba Group Holding Ltd	3Q23			●
Allstate Corp	3Q23			●
Alphabet Inc	2Q23		●	●
ALS Ltd	3Q23			●
Alstom SA	1Q23	●	●	
Altice Financing SA	3Q23	●	●	
Aluflexpack AG	1Q23			●

Issuer	Quarter	E	S	G
Amadeus IT Group SA	2Q23			●
	4Q23			●
Amaggi Luxembourg International Sarl	3Q23	●		
Amazon.com Inc	1Q23	●	●	
	2Q23			●
	3Q23	●	●	
	4Q23	●	●	
Ambarella Inc	1Q23	●		
Ambev SA	1Q23	●		
Amcor PLC	3Q23	●	●	●
Ameren Corp	1Q23	●		●
American Express Co	2Q23			●
	3Q23	●	●	
	4Q23			●
American International Group Inc	2Q23			●
	4Q23			●
Amgen Inc	4Q23		●	●
Amplifon SpA	2Q23			●
Analog Devices Inc	3Q23	●		
ANTA Sports Products Ltd	2Q23	●	●	
Antofagasta PLC	4Q23			●
Apartment Investment and Management Co	3Q23	●		
APM Human Services International Ltd	4Q23	●	●	
Apollo Global Management Inc	3Q23			●
Apple Inc	1Q23			●
	3Q23		●	●
Applied Materials Inc	4Q23	●		●
Arabian Internet & Communications Services Co	2Q23			●
ArcelorMittal SA	4Q23		●	
	4Q23	●	●	
Arch Capital Group Ltd	2Q23	●		●
Argenx SE	3Q23		●	●
Arista Networks Inc	2Q23			●
Ariston Holding NV	2Q23			●
Armstrong World Industries Inc	4Q23	●	●	●
Arrow Global Group Ltd	2Q23	●	●	
Asahi Kasei Corp	4Q23	●	●	●

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Issuer	Quarter	E	S	G
Ascendis Pharma A/S	4Q23	●		●
Ashtead Group PLC	4Q23	●		
	4Q23			●
Asia Commercial Bank JSC	4Q23		●	
ASML Holding NV	1Q23			●
	4Q23	●		
ASOS PLC	1Q23			●
Assa Abloy AB	2Q23			●
Assurant Inc	4Q23		●	●
AstraZeneca PLC	3Q23	●	●	●
	4Q23			●
athenahealth Inc	3Q23	●		●
Attijariwafa Bank	3Q23	●	●	●
Auction Technology Group PLC	4Q23			●
Auto1 Group SE	2Q23			●
Autodesk Inc	3Q23	●		
Autoliv Inc	2Q23	●	●	
Automatic Data Processing Inc	3Q23	●	●	●
AutoZone Inc	3Q23	●		●
Avery Dennison Corp	4Q23	●	●	●
Axis Bank Ltd	1Q23	●		
Badger Meter Inc	3Q23	●	●	
Baker Hughes Co	4Q23	●		
Baltic Classifieds Group PLC	3Q23			●
Banca Mediolanum SpA	2Q23			●
Banca Transilvania SA	3Q23	●		●
Banco de Sabadell SA	4Q23	●	●	
Banco Santander Chile	2Q23	●	●	
Bangkok Bank PCL	2Q23	●		
	4Q23	●	●	
Bank Negara Indonesia Persero Tbk PT	4Q23	●	●	
Bank of America Corp	2Q23	●	●	●
	4Q23	●		●
Barclays PLC	1Q23		●	●
	2Q23		●	●
	2Q23	●		
	2Q23	●		
Barry Callebaut AG	4Q23			●
Bath & Body Works Inc	4Q23	●		●
BAWAG Group AG	1Q23			●
	3Q23		●	●
	4Q23			●
	4Q23	●	●	
Bayer AG	1Q23			●
BMW AG	1Q23	●	●	
BDO Unibank Inc	3Q23	●	●	
Becton Dickinson & Co	3Q23	●	●	●
BeiGene Ltd	2Q23	●	●	●

Issuer	Quarter	E	S	G
Best Buy Co Inc	4Q23	●	●	●
BFF Bank SpA	2Q23			●
	3Q23			●
	3Q23			●
	4Q23			●
BHP Group Ltd	1Q23	●		
	2Q23	●	●	●
	2Q23	●		
	3Q23	●	●	●
	4Q23	●	●	●
	4Q23	●	●	
BILL Holdings Inc	3Q23			●
Biogen Inc	2Q23			●
	4Q23			●
Bio-Techne Corp	4Q23			●
BNP Paribas SA	2Q23			●
	2Q23	●		
Booking Holdings Inc	2Q23			●
Boston Properties Inc	3Q23	●		
BP PLC	2Q23	●		●
Brenntag SE	2Q23			●
BRF SA	4Q23		●	
Britvic PLC	3Q23	●	●	
Broadcom Inc	1Q23			●
	3Q23			●
Budweiser Brewing Co APAC Ltd	4Q23	●	●	
Bunzl PLC	4Q23			●
Burlington Stores Inc	1Q23	●	●	●
Cairn Homes PLC	3Q23			●
CaixaBank SA	4Q23	●		
Camden Property Trust	3Q23	●		
Canacol Energy Ltd	3Q23	●		●
Canadian National Railway Co	4Q23	●		
Capital One Financial Corp	1Q23		●	
Capitec Bank Holdings Ltd	1Q23	●	●	●
Capricorn Metals Ltd	4Q23			●
CAR Group Ltd	4Q23	●		●
Cardinal Health Inc	3Q23	●	●	●
Carel Industries SpA	2Q23			●
Carlsberg AS	2Q23	●	●	
Carlyle Group Inc	2Q23			●
Carrier Global Corp	1Q23	●		
Cboe Global Markets Inc	4Q23	●		●
Cellnex Telecom SA	2Q23			●
Cenovus Energy Inc	4Q23	●		
CenterPoint Energy Inc	4Q23	●		
Ceridian HCM Holding Inc	2Q23			●
	4Q23			●

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Issuer	Quarter	E	S	G
CF Industries Holdings Inc	1Q23	●		
Challenger Ltd	3Q23	●		●
Chevron Corp	4Q23	●	●	
China Mengniu Dairy Co Ltd	4Q23	●		
China National Building Material Co Ltd	3Q23	●		●
China Resources Beer Holdings Co Ltd	1Q23	●		
Chipotle Mexican Grill Inc	1Q23	●	●	●
	2Q23		●	●
	4Q23	●	●	●
Chubb Ltd	4Q23	●		●
Chubu Electric Power Co Inc	2Q23	●		
Cia de Minas Buenaventura SAA	2Q23	●	●	
CIE Automotive SA	2Q23			●
Cisco Systems Inc	2Q23	●	●	
	4Q23			●
Citigroup Inc	2Q23		●	●
	4Q23	●	●	●
CJ CheilJedang Corp	4Q23	●		
CK Hutchison Holdings Ltd	3Q23			●
CME Group Inc	4Q23			●
Coca-Cola Femsa SAB de CV	1Q23	●		
Commonwealth Bank of Australia	3Q23	●		●
Conagra Brands Inc	4Q23		●	
ConocoPhillips	4Q23	●	●	●
Constellation Brands Inc	1Q23	●	●	
	1Q23			●
Constellation Energy Corp	4Q23	●	●	●
Core & Main Inc	1Q23	●		
Coterra Energy Inc	2Q23			●
Coupang Inc	2Q23		●	
Coursera Inc	1Q23	●	●	
Covestro AG	4Q23			●
Credit Agricole SA	2Q23	●	●	
	4Q23	●		
Credit Suisse Group AG	1Q23			●
CRISPR Therapeutics AG	2Q23			●
Crowdstrike Holdings Inc	1Q23			●
CSX Corp	2Q23			●
Cummins Inc	4Q23	●		
	4Q23			●
CVS Health Corp	1Q23	●	●	●
	4Q23	●	●	
Daimler Truck Holding AG	1Q23			●
Dana Inc	3Q23	●		
Danaher Corp	2Q23			●
	4Q23	●	●	●
Darling Ingredients Inc	4Q23			●
	4Q23	●		

Issuer	Quarter	E	S	G
Dave & Buster's Entertainment Inc	4Q23	●	●	
Davide Campari-Milano NV	1Q23			●
Davies & Metcalfe	4Q23			●
Deliveroo PLC	2Q23		●	
Delivery Hero SE	1Q23		●	●
Derwent London PLC	2Q23			●
Diageo PLC	4Q23			●
Diamondback Energy Inc	4Q23	●	●	●
Direct Line Insurance Group PLC	1Q23			●
Dixon Technologies India Ltd	4Q23	●	●	
DocuSign Inc	4Q23			●
Dollar General Corp	2Q23		●	●
	4Q23		●	●
Dominion Energy Inc	2Q23			●
Douglas Emmett Inc	2Q23			●
Dover Corp	4Q23	●	●	●
Downer EDI Ltd	1Q23			●
	4Q23			●
DSM-Firmenich AG	4Q23	●	●	
DTE Energy Co	2Q23			●
eBay Inc	1Q23	●		
	3Q23	●		
EDP - Energias de Portugal SA	1Q23	●	●	
Elanco Animal Health Inc	4Q23	●		
	4Q23			●
Electric Power Development Co Ltd	2Q23	●		
Elevance Health Inc	4Q23		●	●
Eli Lilly & Co	2Q23			●
	2Q23	●	●	
	4Q23		●	●
Emirates NBD Bank PJSC	2Q23	●	●	
	3Q23	●		
Endava PLC	1Q23			●
	2Q23			●
Enel Chile SA	3Q23	●		
Enel SpA	1Q23	●		●
	2Q23			●
	2Q23			●
	2Q23			●
Engie SA	2Q23	●		●
Entegris Inc	4Q23	●	●	
Entergy Corp	1Q23	●	●	●
EOG Resources Inc	3Q23	●		
EQT AB	2Q23	●		
EQT Corp	4Q23	●		
Equifax Inc	2Q23		●	●
	4Q23			●

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Issuer	Quarter	E	S	G
Equinix Inc	1Q23	●		
	2Q23			●
Equitable Holdings Inc	2Q23			●
	4Q23	●		●
Equity Residential	1Q23	●	●	
ERO Copper Corp	1Q23	●		●
EssilorLuxottica SA	1Q23		●	●
	2Q23		●	●
Estee Lauder Cos Inc	4Q23	●	●	
Eversource Energy	4Q23	●		
Evotec SE	1Q23	●	●	●
	2Q23			●
Exelixis Inc	4Q23	●	●	●
Expedia Group Inc	2Q23			●
Experian PLC	4Q23			●
Exxon Mobil Corp	1Q23	●		●
	2Q23	●		●
	4Q23	●		●
Ferguson PLC	1Q23	●	●	
FibroGen Inc	2Q23			●
Filtration Group Corp	4Q23	●		
First Abu Dhabi Bank PJSC	1Q23	●		
	2Q23	●		
	2Q23	●		
FirstRand Ltd	3Q23			●
	3Q23	●		
	4Q23			●
Fiserv Inc	4Q23		●	●
Fisher & Paykel Healthcare Corp Ltd	4Q23			●
flatexDEGIRO AG	2Q23			●
FleetCor Technologies Inc	2Q23			●
	4Q23			●
Floor & Decor Holdings Inc	4Q23	●	●	●
FMC Corp	1Q23	●		●
Fortinet Inc	1Q23	●	●	●
Forvia SE	1Q23			●
Foshan Haitian Flavouring & Food Co Ltd	1Q23	●	●	●
Freeport-McMoRan Inc	4Q23	●	●	●
Fresenius SE & Co KGaA	4Q23			●
FSN E-Commerce Ventures Ltd	3Q23			●
Fujitec Co Ltd	1Q23			●
	1Q23			●
	1Q23			●
Funding Circle Holdings PLC	4Q23			●
Games Workshop Group PLC	3Q23	●	●	
GE HealthCare Technologies Inc	1Q23	●	●	
	4Q23	●		●

Issuer	Quarter	E	S	G
GEA Group AG	1Q23			●
	1Q23	●		
General Electric Co	2Q23	●		●
	4Q23	●		●
General Mills Inc	2Q23	●	●	
Genus PLC	4Q23	●		●
Georgia Capital PLC	3Q23			●
	3Q23			●
Glencore PLC	2Q23	●		●
GoDaddy Inc	4Q23		●	
Godrej Consumer Products Ltd	3Q23	●	●	
Golden Goose SpA	4Q23	●		
Goldman Sachs Group Inc	2Q23	●	●	●
Great Portland Estates PLC	1Q23			●
	1Q23			●
Greggs PLC	3Q23	●	●	
GS Caltex Corp	4Q23	●		●
GSK PLC	3Q23	●	●	
	4Q23			●
H & M Hennes & Mauritz AB	2Q23		●	
H World Group Ltd	1Q23	●		●
H&R Block Inc	1Q23	●	●	
	1Q23		●	
	1Q23		●	
	3Q23	●	●	
Haleon PLC	3Q23	●	●	
Halliburton Co	4Q23	●		●
Hang Lung Properties Ltd	2Q23	●		
Hartford Financial Services Group Inc	4Q23	●		●
HCA Healthcare Inc	1Q23	●	●	●
HDFC Bank Ltd	4Q23	●		
	4Q23	●	●	
Heathrow Funding Ltd	4Q23	●		
Helios Towers PLC	2Q23			●
Hexagon AB	4Q23	●		
Holcim AG	1Q23			●
Hologic Inc	4Q23	●		●
Hon Hai Precision Industry Co Ltd	4Q23		●	
	4Q23		●	
Honeywell International Inc	2Q23			●
	4Q23	●		●
Hongfa Technology Co Ltd	1Q23	●		
Host Hotels & Resorts Inc	3Q23	●		
Howmet Aerospace Inc	2Q23			●
	4Q23	●		●
HSBC Holdings PLC	2Q23			●
	2Q23			●

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Issuer	Quarter	E	S	G
Hubbell Inc	1Q23	●	●	●
	2Q23	●	●	
HubSpot Inc	4Q23			●
Humana Inc	3Q23	●		●
Hyundai Motor Co	1Q23			●
	2Q23		●	●
Iberdrola SA	1Q23		●	●
	2Q23	●		
Illinois Tool Works Inc	2Q23			●
Illumina Inc	2Q23			●
	4Q23			●
Imperial Brands PLC	3Q23			●
Indofood CBP Sukses Makmur Tbk PT	1Q23	●	●	
	2Q23		●	
Info Edge India Ltd	1Q23			●
Informa PLC	1Q23			●
	1Q23			●
	4Q23			●
ING Groep NV	1Q23	●		
	4Q23			●
Ingersoll Rand Inc	2Q23			●
Insurance Australia Group Ltd	3Q23	●		●
Interchile SA	3Q23	●		
InterContinental Hotels Group PLC	1Q23			●
	2Q23			●
	2Q23	●		
	4Q23			●
International Container Terminal Services Inc	3Q23	●	●	
International Paper Co	1Q23		●	●
Intesa Sanpaolo SpA	1Q23	●		
Intuit Inc	4Q23	●		●
Ionis Pharmaceuticals Inc	2Q23			●
Ipoteka-Bank ATIB	3Q23	●	●	
IQE PLC	3Q23			●
	4Q23			●
Itau Unibanco Holding SA	3Q23	●		
IVERIC bio Inc	1Q23			●
Jackson Financial Inc	4Q23	●		●
Jaguar Land Rover Automotive PLC	3Q23	●	●	
Jiumaojiu International Holdings Ltd	4Q23	●	●	
Johnson & Johnson	2Q23		●	●
	3Q23		●	●
	4Q23		●	●
Jollibee Foods Corp	1Q23	●	●	
JPMorgan Chase & Co	2Q23		●	●
	4Q23	●		●
Julius Baer Group Ltd	4Q23			●

Issuer	Quarter	E	S	G
Karuna Therapeutics Inc	4Q23			●
Kemper Corp	1Q23			●
	2Q23			●
Kenvue Inc	4Q23	●	●	●
Keros Therapeutics Inc	4Q23			●
Keyence Corp	3Q23	●		
Keywords Studios PLC	2Q23			●
	4Q23			●
Kimberly-Clark Corp	4Q23	●		●
Kinder Morgan Inc	3Q23	●		●
KION Group AG	2Q23			●
	4Q23			●
KLA Corp	3Q23	●		
Klabin SA	4Q23	●		
Kohl’s Corp	4Q23			●
Koninklijke Philips NV	2Q23		●	●
	4Q23			●
Korea Gas Corp	1Q23	●		
Kraft Heinz Co	1Q23		●	
	2Q23	●	●	●
	3Q23	●	●	●
KT Corp	1Q23		●	●
	1Q23			●
	1Q23			●
	2Q23			●
	2Q23			●
	3Q23			●
Kumba Iron Ore Ltd	2Q23			●
Kyoritsu Maintenance Co Ltd	3Q23	●	●	
Lam Research Corp	3Q23	●		●
Larsen & Toubro Ltd	1Q23			●
Lasertec Corp	3Q23	●	●	
Lattice Semiconductor Corp	4Q23	●	●	●
Legal & General Group PLC	3Q23			●
Lenovo Group Ltd	1Q23	●	●	
Leonardo SpA	2Q23			●
	2Q23			●
Li Ning Co Ltd	2Q23	●	●	
Linde PLC	2Q23	●		
Lloyds Banking Group PLC	1Q23	●		
	4Q23			●
Localiza Rent a Car SA	1Q23			●
London Stock Exchange Group PLC	4Q23			●
Lotte Chemical Corp	1Q23			●
Lululemon Athletica Inc	2Q23			●
Macquarie Group Ltd	3Q23			●
Magnolia Oil & Gas Corp	1Q23	●		
Majid Al Futtaim Holding LLC	2Q23	●	●	●

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Issuer	Quarter	E	S	G
Marsh & McLennan Cos Inc	2Q23			●
	4Q23			●
Marvell Technology Inc	1Q23			●
Match Group Inc	1Q23		●	
	4Q23			●
Mattel Inc	4Q23	●		●
McDonald's Corp	1Q23	●	●	●
McKesson Corp	3Q23			●
	4Q23		●	●
Mediobanca Banca di Credito Finanziario SpA	4Q23	●		●
	4Q23			●
Medline Borrower LP	3Q23	●	●	
Meituan	4Q23	●	●	
Melrose Industries PLC	2Q23			●
Mercedes-Benz Group AG	1Q23	●	●	
Merck & Co Inc	2Q23		●	●
	4Q23	●	●	●
Meta Platforms Inc	2Q23		●	●
	4Q23		●	
Microchip Technology Inc	3Q23		●	●
Micron Technology Inc	3Q23	●		●
Microsoft Corp	4Q23	●	●	
Middleby Corp	1Q23	●		
Millicom International Cellular SA	1Q23			●
Minerva SA/Brazil	4Q23	●	●	
Minsur SA	2Q23	●		
Mitsubishi Corp	2Q23	●		
	2Q23	●		
Mitsubishi Electric Corp	1Q23		●	●
	1Q23	●		
	2Q23			●
Mitsubishi UFJ Financial Group Inc	2Q23	●		●
	2Q23	●		●
	2Q23	●		
	3Q23			●
Mitsui Fudosan Co Ltd	1Q23			●
Mobico Group PLC	1Q23			●
Moderna Inc	3Q23	●	●	
	4Q23			●
Mondelez International Inc	2Q23		●	●
	4Q23	●	●	
MongoDB Inc	4Q23	●	●	●
Monolithic Power Systems Inc	4Q23	●		
Montana Aerospace AG	2Q23			●
Morgan Stanley	3Q23	●		
Morphic Holding Inc	2Q23			●
Mr Price Group Ltd	4Q23	●	●	
Mueller Water Products Inc	3Q23	●		

Issuer	Quarter	E	S	G
Munich Re	3Q23	●		
National Australia Bank Ltd	4Q23	●		●
National Bank of Kuwait SAKP	1Q23	●	●	
Natura & Co Holding SA	1Q23	●		
NatWest Group PLC	4Q23	●	●	
Nedbank Group Ltd	2Q23	●		●
Network International Holdings PLC	1Q23			●
Newmed Energy LP	1Q23	●	●	●
	4Q23	●		
News Corp	1Q23			●
	4Q23			●
Nexa Resources SA	2Q23	●		
Nexity SA	1Q23	●		●
	2Q23			●
Next PLC	3Q23			●
NIKE Inc	3Q23		●	●
NIO Inc	2Q23	●		
Nippon Sanso Holdings Corp	4Q23	●		●
Nitori Holdings Co Ltd	3Q23	●		●
NN Group NV	1Q23	●	●	
Nongfu Spring Co Ltd	3Q23	●		
Norfolk Southern Corp	2Q23			●
	3Q23	●	●	●
Northrop Grumman Corp	1Q23	●	●	●
	2Q23		●	●
Norva24 Group AB	2Q23			●
Norwegian Cruise Line Holdings Ltd	2Q23	●		
Nova Ljubljanska Banka dd	3Q23	●		●
	4Q23			●
Novartis AG	4Q23	●	●	●
Novo Nordisk A/S	3Q23	●	●	
NTPC Ltd	2Q23	●	●	●
Nutrien Ltd	4Q23	●		
NVIDIA Corp	4Q23	●		
NXP Semiconductors NV	1Q23	●		
	4Q23		●	●
Ocado Group PLC	2Q23			●
	4Q23			●
Omnicom Group Inc	4Q23		●	●
OMV AG	4Q23	●		
On Holding AG	2Q23			●
One 97 Communications Ltd	3Q23			●
oOh!media Ltd	4Q23	●	●	
Ooredoo QPSC	2Q23	●	●	●
Option Care Health Inc	4Q23		●	●
O'Reilly Automotive Inc	1Q23	●	●	●
ORIX Corp	4Q23			●
OTP Bank Nyrt	3Q23	●		

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Issuer	Quarter	E	S	G
OUTsurance Group Ltd	4Q23			●
Owens Corning	3Q23	●		
PACCAR Inc	2Q23		●	●
Page Industries Ltd	4Q23	●	●	
Palomar Holdings Inc	4Q23	●	●	●
Paycom Software Inc	2Q23			●
	4Q23			●
Pearson PLC	2Q23			●
PepsiCo Inc	2Q23		●	
Persimmon PLC	1Q23	●		●
	1Q23		●	●
PetSmart LLC	1Q23	●	●	
PEXA Group Ltd	4Q23			●
Pfizer Inc	2Q23		●	●
	3Q23		●	
PG&E Corp	1Q23	●		
Philippine Seven Corp	4Q23	●	●	●
PNC Financial Services Group Inc	4Q23			●
Poly Property Services Co Ltd	4Q23	●	●	
PolyPeptide Group AG	1Q23			●
Popular Inc	1Q23	●	●	●
PRADA SpA	2Q23	●	●	
Predictive Discovery Ltd	4Q23			●
Primerica Inc	4Q23			●
Privia Health Group Inc	4Q23			●
Procter & Gamble Co	4Q23		●	●
Prologis Inc	2Q23			●
Prosus NV	3Q23			●
Prysmian SpA	1Q23			●
Puma SE	2Q23			●
	4Q23			●
QUALCOMM Inc	4Q23	●	●	
Quest Diagnostics Inc	4Q23	●		●
Range Resources Corp	4Q23	●		
Rayonier Inc	1Q23	●		●
RBC Bearings Inc	3Q23			●
Realty Income Corp	3Q23	●		●
Recruit Holdings Co Ltd	3Q23	●	●	●
Redwood Materials Inc	1Q23			●
Remy Cointreau SA	4Q23	●		●
Renishaw PLC	4Q23			●
Rentokil Initial PLC	2Q23			●
	2Q23	●		
	4Q23			●
Rio Tinto PLC	1Q23			●
	3Q23			●
	4Q23			●

Issuer	Quarter	E	S	G
Rockwell Automation Inc	1Q23			●
	3Q23	●		●
ROCKWOOL A/S	4Q23	●	●	
RPM International Inc	4Q23			●
S&P Global Inc	3Q23			●
Sage Group PLC	2Q23		●	
Sage Therapeutics Inc	4Q23			●
Salesforce Inc	1Q23			●
	2Q23			●
Sampo Oyj	2Q23			●
Samsung Biologics Co Ltd	4Q23		●	●
Samsung Electronics Co Ltd	1Q23			●
	3Q23	●	●	●
	4Q23			●
Sanofi SA	2Q23			●
Sarepta Therapeutics Inc	4Q23			●
Sartorius AG	3Q23			●
SBA Communications Corp	4Q23	●		●
Schlumberger NV	4Q23	●		
Schneider Electric SE	2Q23	●		●
Schoeller-Bleckmann Oilfield Equipment AG	4Q23			●
Schrodinger Inc/United States	4Q23	●	●	
Sempra	4Q23	●		●
ServiceNow Inc	2Q23			●
	4Q23			●
Seven & i Holdings Co Ltd	1Q23			●
	2Q23			●
Shell PLC	2Q23	●		●
SHIFT Inc	4Q23			●
Shimadzu Corp	4Q23	●	●	●
Shoals Technologies Group Inc	3Q23			●
Shoprite Holdings Ltd	4Q23	●	●	
Siemens AG	4Q23	●		●
Siemens Healthineers AG	1Q23	●	●	●
	1Q23	●	●	
Simon Property Group Inc	2Q23			●
	4Q23			●
SiteOne Landscape Supply Inc	4Q23	●		
SK Hynix Inc	4Q23	●	●	
Skandinaviska Enskilda Banken AB	1Q23	●		
SL Green Realty Corp	4Q23			●
SM Investments Corp	1Q23	●	●	
	1Q23	●		
SMC Corp	3Q23	●		●
Smith & Nephew PLC	2Q23			●
	3Q23			●
	4Q23			●

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Issuer	Quarter	E	S	G
Smurfit Kappa Group PLC	2Q23	●	●	
Sociedad de Transmision Austral SA	4Q23	●		
Sony Group Corp	2Q23	●	●	
South32 Ltd	4Q23	●	●	●
	4Q23	●	●	●
Southern Co	2Q23			●
	4Q23	●		
Spirit AeroSystems Holdings Inc	2Q23			●
Spotify Technology SA	3Q23		●	
Srisawad Corp PCL	3Q23	●	●	
St James's Place PLC	4Q23			●
Stanley Black & Decker Inc	3Q23	●	●	●
Starbucks Corp	1Q23	●	●	
State Street Corp	2Q23		●	●
	4Q23	●		●
Steel Dynamics Inc	4Q23	●	●	●
Sumber Alfaria Trijaya Tbk PT	1Q23	●		
Sumitomo Corp	4Q23	●		
Sumitomo Densetsu Co Ltd	1Q23			●
Sumitomo Mitsui Trust Holdings Inc	1Q23	●		●
Suncor Energy Inc	4Q23	●		
Synopsys Inc	3Q23	●		
Sysco Corp	2Q23	●		●
TC Energy Corp	4Q23	●		
TE Connectivity Ltd	3Q23	●		
TechnipFMC PLC	1Q23	●		●
Telefonaktiebolaget LM Ericsson	1Q23			●
	4Q23		●	●
Telefonica Deutschland Holding AG	1Q23	●		
Telefonica SA	2Q23	●	●	
Teleperformance SE	1Q23	●		●
Tesla Inc	2Q23			●
Texas Instruments Inc	1Q23	●		
	3Q23	●	●	●
Texas Roadhouse Inc	2Q23	●		●
Thales SA	1Q23			●
Thermo Fisher Scientific Inc	2Q23		●	
	4Q23		●	●
Tingyi Cayman Islands Holding Corp	1Q23	●	●	
Tokyo Electron Ltd	1Q23	●	●	
TOMRA Systems ASA	4Q23	●		
Toro Co	1Q23			●
TotalEnergies SE	2Q23	●		
Toyota Industries Corp	4Q23		●	●
Toyota Motor Corp	2Q23			●
	2Q23	●		
	3Q23	●	●	●
Tradeweb Markets Inc	4Q23	●		

Issuer	Quarter	E	S	G
Trainline PLC	1Q23			●
Transaction Capital Ltd	1Q23	●	●	●
TransDigm Group Inc	1Q23			●
	3Q23			●
Travelers Cos Inc	1Q23	●	●	●
Treasury Wine Estates Ltd	4Q23			●
Turkiye Garanti Bankasi AS	3Q23	●	●	
Turkiye Is Bankasi AS	2Q23	●		
	4Q23	●		
Ubisoft Entertainment SA	3Q23			●
	4Q23			●
UniCredit SpA	1Q23			●
Unilever PLC	1Q23			●
	2Q23			●
	3Q23	●	●	
	3Q23			●
	4Q23			●
	4Q23	●		
United Group BV	4Q23	●	●	●
United Overseas Bank Ltd	2Q23	●	●	
United Rentals Inc	1Q23	●		
	1Q23	●		
UnitedHealth Group Inc	2Q23		●	●
	4Q23		●	
Universal Music Group NV	2Q23			●
Universal Robina Corp	1Q23	●		
US Bancorp	4Q23	●	●	
Valero Energy Corp	3Q23	●		●
Valmet Oyj	1Q23			●
Van Lanschot Kempen NV	4Q23			●
Veeva Systems Inc	2Q23		●	
Ventas Inc	2Q23			●
	4Q23		●	●
Verallia SA	1Q23			●
	2Q23			●
Verisk Analytics Inc	4Q23	●		
Vertex Pharmaceuticals Inc	4Q23	●	●	
VF Corp	4Q23	●	●	
Viatris Inc	3Q23			●
Victrex PLC	1Q23			●
Vietnam Technological & Commercial Joint Stock Bank	2Q23			●
Visa Inc	4Q23			●
Vnet Group Inc	2Q23	●		●
Vodafone Group PLC	3Q23			●
Volkswagen AG	4Q23		●	●
Vonovia SE	4Q23	●	●	

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Issuer	Quarter	E	S	G
Vornado Realty Trust	1Q23	●		
	2Q23			●
	3Q23			●
Vulcan Materials Co	1Q23	●	●	●
Wal-Mart de Mexico SAB de CV	3Q23	●	●	
	4Q23	●	●	
Walmart Inc	1Q23		●	●
Walt Disney Co	4Q23			●
Waste Connections Inc	2Q23	●		
Wells Fargo & Co	2Q23	●	●	●
	4Q23	●	●	
Wendel SE	1Q23	●		●
	2Q23			●
Wendy's Co	4Q23		●	
Western Digital Corp	2Q23			●
	4Q23			●
Westinghouse Air Brake Technologies Corp	4Q23	●		●
Westrock Co	3Q23	●		
WHA Corp PCL	4Q23	●	●	
Williams Cos Inc	1Q23	●	●	
Wizz Air Holdings PLC	3Q23	●	●	●
Woolworths Holdings Ltd/South Africa	4Q23	●	●	
Worley Ltd	1Q23	●		
	4Q23			●
WPP PLC	4Q23			●
Wuxi Biologics Cayman Inc	2Q23			●
Wynn Resorts Ltd	2Q23			●
Xcel Energy Inc	1Q23	●	●	●
Xero Ltd	3Q23			●
Yangzijiang Shipbuilding Holdings Ltd	4Q23	●		
YouGov PLC	3Q23			●
Yum China Holdings Inc	2Q23	●	●	
	4Q23			●
Yunda Holding Co Ltd	1Q23	●	●	●
Zai Lab Ltd	4Q23			●
Zalando SE	1Q23			●
Zentalis Pharmaceuticals Inc	2Q23			●
Zimmer Biomet Holdings Inc	2Q23			●
	4Q23	●	●	●
Zomato Ltd	4Q23		●	
Zurich Insurance Group AG	1Q23			●
	4Q23	●		●
SSA, Securitized, and Municipal Engagements				
Agence Francaise de Developpement EPIC	2Q23	●	●	
Alaska Housing Finance Corporation	3Q23		●	
Ally Auto Receivables Trust	1Q23	●		

Issuer	Quarter	E	S	G
Angel Oak Mortgage Trust	1Q23		●	
Arch Mortgage Insurance Co	1Q23	●		
	2Q23		●	
Asian Infrastructure Investment Bank	3Q23	●		
Avis Budget Rental Car Funding AESOP LLC	1Q23	●		
Baden-Wurttemberg (German Sovereign)	1Q23	●	●	
Blackstone Holdings Finance Co LLC	1Q23	●	●	
	1Q23	●	●	
Brazil	1Q23	●		
	3Q23	●	●	
CarMax Auto Owner Trust	1Q23	●		
Carvana Auto Receivables Trust	1Q23	●	●	
CIFC Asset Management LLC	1Q23	●	●	
City of Detroit	1Q23		●	
City of Los Angeles Department of Airports	1Q23	●		
CNH Equipment Trust	1Q23	●	●	
County of Fairfax, VA	3Q23	●		
CSCDA Community Improvement Authority	3Q23		●	●
Dallas Fort Worth International Airport	2Q23	●		
	4Q23	●	●	
Dell Equipment Finance Trust	1Q23	●	●	
Dubai Aerospace Enterprise DAE Ltd	1Q23	●		
European Bank for Reconstruction & Development	2Q23		●	●
European Investment Bank	2Q23	●		
European Union	2Q23	●		
Exeter Automobile Receivables Trust	1Q23	●		●
Export-Import Bank of India	3Q23	●		
Federal Home Loan Mortgage Corp	1Q23	●	●	
Federal National Mortgage Association	1Q23	●	●	
	1Q23		●	
	4Q23	●	●	
FirstKey Mortgage LLC	1Q23		●	
Ford Credit Auto Lease Trust	1Q23	●		
France	2Q23	●		
French Community of Belgium	2Q23	●		
General Motors Financial Co Inc	1Q23	●	●	
Germany	2Q23	●		
Goodleap LLC	1Q23	●		
Government of Hong Kong	1Q23	●		
Great Lakes Water Authority	4Q23	●		
Hyundai Auto Receivables Trust	1Q23	●		
International Bank for Reconstruction & Development	2Q23	●	●	
	2Q23	●	●	

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Issuer	Quarter	E	S	G
International Finance Corp	1Q23	●	●	
	2Q23	●	●	
	4Q23	●	●	
Israel	1Q23	●		
	1Q23	●		
Italy	2Q23	●		
Japan	4Q23	●		
Japan Bank for International Corporation	2Q23	●	●	
JEA Electric System Revenue	2Q23	●	●	
JP Morgan Mortgage Trust	1Q23	●	●	
Kingdom of Belgium	1Q23	●		
Kingdom of Saudi Arabia	1Q23	●		
	3Q23	●		
Kubota Credit Owner Trust	1Q23	●	●	
Lower Colorado River Authority	2Q23	●		
Metropolitan Transportation Authority	3Q23	●		
Missouri Joint Municipal Electric Utility Commission	2Q23	●		
Mosaic Solar Lens LLC	1Q23	●	●	
Navient Private Education Refi Loan Trust	1Q23		●	
Netherlands	2Q23	●		

Issuer	Quarter	E	S	G
New York Power Authority	2Q23	●	●	
OneMain Financial Inc	1Q23		●	
Prudential Financial Inc	1Q23	●	●	
Republic of South Africa	3Q23	●		
Republic of the Philippines	1Q23	●		
	1Q23	●		
	1Q23	●		
Republic of Turkey	2Q23	●	●	
Rocket Mortgage LLC	1Q23	●		
Santander Drive Auto Receivables Trust	1Q23	●		
Sierra Timeshare Receivables Funding LLC	1Q23	●		
South Carolina Public Service Authority	2Q23	●	●	
Synchrony Card Funding LLC	1Q23		●	
T-Mobile US Trust	1Q23		●	
Toyota Auto Receivables Owner Trust	1Q23	●		
United Arab Emirates	1Q23	●		
United Kingdom	2Q23	●	●	
	4Q23	●		
Verizon Owner Trust	1Q23	●	●	
Washington State Convention Center Public Facilities District	4Q23	●		

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2023 TRPIM Engagements

Environmental (E), social (S), and governance (G) classifications of all company engagements

Issuer	Quarter	E	S	G
Acadia Healthcare Co Inc	1Q23		●	●
	2Q23			●
Agilent Technologies Inc	4Q23			●
Air Lease Corp	1Q23	●	●	
	2Q23			●
Alcon Inc	1Q23	●	●	●
	4Q23		●	●
Allegiant Travel Co	3Q23	●	●	●
AMC Networks Inc	2Q23			●
American Airlines Group Inc	1Q23	●	●	●
Apple Inc	3Q23	●	●	●
Applied Materials Inc	3Q23	●	●	●
Ardagh Metal Packaging SA	3Q23	●	●	
Assurant Inc	4Q23	●	●	●
Attindas Hygiene Partners Inc	3Q23	●		●
Avery Dennison Corp	4Q23	●		●
Axis Capital Holdings Ltd	4Q23	●		●
Becton Dickinson & Co	3Q23	●	●	●
Bentley Systems Inc	3Q23	●	●	●
Black Knight Inc	3Q23			●
Blueprint Medicines Corp	1Q23	●		●
	2Q23			●
Boston Beer Co Inc	2Q23			●
	4Q23	●	●	●
Braze Inc	2Q23	●	●	●
Bruker Corp	4Q23			●
Burlington Stores Inc	1Q23	●	●	●
BWX Technologies Inc	1Q23	●	●	●
Cadence Bank	4Q23	●	●	●
Caesars Entertainment Inc	2Q23		●	●
California Resources Corp	3Q23	●		●
California Water Service Group	2Q23	●		●
Capitol Federal Financial Inc	3Q23	●	●	●
Carnival Corp	1Q23	●	●	●
Carpenter Technology Corp	1Q23	●		●
Casey's General Stores Inc	3Q23	●		●
Cava Group Inc	2Q23			●
Cboe Global Markets Inc	4Q23	●	●	●
Chesapeake Energy Corp	4Q23	●		●
Clearway Energy Inc	1Q23			●
Cognex Corp	1Q23	●	●	●
Community Health Systems Inc	3Q23	●	●	●
Consolidated Communications Holdings Inc	3Q23	●	●	●
Constellium SE	2Q23	●	●	●
Coterra Energy Inc	2Q23			●
Credo Technology Group Holding Ltd	2Q23	●	●	●
Darling Ingredients Inc	3Q23	●	●	
Devon Energy Corp	3Q23	●		●
Diamondback Energy Inc	4Q23	●		
Dollar General Corp	2Q23		●	●
	4Q23	●	●	●
Dollar Tree Inc	2Q23		●	●
	4Q23	●	●	●
DTE Energy Co	2Q23	●	●	●
	4Q23	●	●	●
Elanco Animal Health Inc	4Q23			●
Element Solutions Inc	1Q23	●	●	●
Embecta Corp	3Q23	●	●	●
Equifax Inc	2Q23			●
	4Q23	●	●	●
Equitrans Midstream Corp	1Q23	●	●	
ERO Copper Corp	2Q23	●		
ESCO Technologies Inc	1Q23		●	●
Essential Utilities Inc	4Q23	●	●	
Exelon Corp	4Q23	●	●	●
Figs Inc	2Q23			●
Five Below Inc	1Q23	●	●	●
Five9 Inc	2Q23			●
FleetCor Technologies Inc	2Q23			●
	4Q23	●	●	●
Ford Motor Co	2Q23	●	●	●
Fortinet Inc	1Q23	●	●	
Fortive Corp	2Q23			●
	4Q23	●	●	●
GE HealthCare Technologies Inc	2Q23	●		●
General Electric Co	2Q23	●		●
	3Q23	●		
	4Q23	●		●
Glacier Bancorp Inc	1Q23	●	●	●
Green Dot Corp	2Q23			●
	2Q23	●	●	●
Gulfport Energy Corp	2Q23		●	●
Harvest Midstream Co	1Q23	●	●	●
Haynes International Inc	4Q23	●		

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Issuer	Quarter	E	S	G
HB Fuller Co	1Q23	●		●
Helios Technologies Inc	1Q23			●
	2Q23			●
Hibbett Inc	1Q23	●	●	●
Hilton Worldwide Holdings Inc	1Q23	●	●	●
Icosavax Inc	4Q23			●
Ingersoll Rand Inc	2Q23	●		
Installed Building Products Inc	2Q23	●	●	
Intercontinental Exchange Inc	1Q23	●	●	●
	4Q23	●	●	●
Ionis Pharmaceuticals Inc	1Q23	●	●	●
Jaguar Land Rover Automotive PLC	1Q23	●	●	●
John Bean Technologies Corp	4Q23	●	●	●
Karuna Therapeutics Inc	4Q23			●
Kenvue Inc	4Q23	●	●	●
Keysight Technologies Inc	3Q23	●		●
Kohl's Corp	4Q23	●	●	●
Lattice Semiconductor Corp	4Q23	●		●
LGI Homes Inc	4Q23	●	●	●
Life Time Group Holdings Inc	1Q23	●		●
Live Oak Bancshares Inc	1Q23	●	●	●
	2Q23			●
Lululemon Athletica Inc	2Q23	●	●	●
MACOM Technology Solutions Holdings Inc	2Q23			●
MacroGenics Inc	2Q23	●	●	●
Magnolia Oil & Gas Corp	1Q23	●		
	4Q23	●	●	
Manhattan Associates Inc	2Q23	●	●	●
Marsh & McLennan Cos Inc	2Q23	●		●
	4Q23	●	●	●
Martin Marietta Materials Inc	2Q23	●		●
	4Q23	●	●	●
Marvell Technology Inc	1Q23			●
Mastercard Inc	2Q23		●	●
Matador Resources Co	1Q23	●	●	●
Match Group Inc	2Q23			●
	4Q23			●
Matson Inc	4Q23	●		●
Meritage Homes Corp	3Q23	●		●
MGE Energy Inc	3Q23	●	●	●
ModivCare Inc	2Q23			●
MongoDB Inc	2Q23	●	●	●
National Bank Holdings Corp	1Q23	●	●	●
Neogen Corp	2Q23			●
NeoGenomics Inc	1Q23	●	●	●
NexTier Oilfield Solutions Inc	2Q23	●		●
Northwestern Energy Group Inc	3Q23	●	●	
NRG Energy Inc	3Q23	●	●	●
NXP Semiconductors NV	4Q23	●	●	●
ONE Gas Inc	3Q23	●	●	●
Opendoor Technologies Inc	2Q23			●
Option Care Health Inc	1Q23	●		●
Orion SA	2Q23			●
	4Q23	●		●
Osaic Holdings Inc	2Q23		●	●
OTC Markets Group Inc	2Q23			●
Outfront Media Inc	3Q23	●	●	●
Outset Medical Inc	1Q23	●	●	●
P10 Inc	1Q23	●	●	●
Pacific Biosciences of California Inc	1Q23			●
Pacific Premier Bancorp Inc	3Q23	●	●	●
Paycom Software Inc	2Q23			●
	4Q23			●
PennyMac Financial Services Inc	2Q23			●
	3Q23	●	●	●
Petco Health & Wellness Co Inc	3Q23	●	●	●
Pinnacle Financial Partners Inc	2Q23		●	●
	4Q23	●	●	●
PNM Resources Inc	3Q23	●		●
Privia Health Group Inc	1Q23	●	●	●
Provident Bancorp Inc	2Q23			●
	4Q23	●	●	●
Public Service Enterprise Group Inc	1Q23	●	●	●
Quaker Chemical Corp	1Q23			●
QuidelOrtho Corp	1Q23	●	●	●
Ranger Energy Services Inc	2Q23	●	●	●
Raymond James Financial Inc	1Q23	●	●	●
RBC Bearings Inc	3Q23			●
Revvity Inc	4Q23	●	●	●
RPM International Inc	1Q23	●		●
Rush Enterprises Inc	2Q23	●		●
Salesforce Inc	1Q23	●	●	●
	3Q23	●	●	●
SBA Communications Corp	4Q23	●		●
Sealed Air Corp	4Q23	●		
Select Medical Holdings Corp	1Q23			●
Shoals Technologies Group Inc	3Q23	●	●	●
Sinclair Inc	1Q23	●	●	●
SiteOne Landscape Supply Inc	4Q23	●		●
Skyline Champion Corp	1Q23			●
SM Energy Co	4Q23	●	●	●
Sotera Health Co	2Q23	●	●	●
	4Q23	●	●	●
SouthState Corp	2Q23	●	●	●
	2Q23	●	●	
Southwest Airlines Co	3Q23	●	●	●

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Issuer	Quarter	E	S	G
Spotify Technology SA	3Q23		●	●
SPX Technologies Inc	1Q23	●		●
SS&C Technologies Holdings Inc	2Q23	●	●	●
Starbucks Corp	1Q23		●	●
	3Q23		●	●
Stericycle Inc	4Q23	●	●	●
Strategic Education Inc	3Q23	●	●	●
Synopsys Inc	3Q23	●	●	●
TechnipFMC PLC	1Q23	●		●
TEGNA Inc	4Q23	●	●	●
Teleflex Inc	1Q23			●
Texas Capital Bancshares Inc	4Q23	●	●	●
Textron Inc	3Q23	●	●	
TransDigm Group Inc	1Q23		●	●
TreeHouse Foods Inc	4Q23	●	●	●
Tricon Residential Inc	2Q23			●
United Rentals Inc	3Q23	●		

Issuer	Quarter	E	S	G
Upfield BV	1Q23	●	●	●
Upwork Inc	2Q23			●
US Physical Therapy Inc	1Q23	●	●	●
Vimeo Inc	2Q23			●
Virtus Investment Partners Inc	1Q23	●	●	●
Vishay Intertechnology Inc	4Q23			●
Vizio Holding Corp	1Q23	●	●	●
Vulcan Materials Co	1Q23	●	●	●
Waste Connections Inc	1Q23	●	●	●
	4Q23	●	●	
White Mountains Insurance Group Ltd	4Q23	●	●	●
Xcel Energy Inc	1Q23	●	●	●
	4Q23	●	●	●
Yum! Brands Inc	2Q23	●		●
	3Q23	●	●	●
Zentalis Pharmaceuticals Inc	2Q23			●
Zurn Elkay Water Solutions Corp	4Q23	●		●

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