

T.RowePrice®

SUSTAINABLE INVESTING

Environmental, Social, and Governance

ESG

2018 Report



INVEST WITH CONFIDENCE®

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Our mission is to help our clients reach their long-term financial goals.

Consistent with that objective, we have an obligation to understand the long-term sustainability of the companies in which we invest.

Which is why environmental, social, and governance (ESG) factors are key considerations in our investment approach.

Visit our website or contact T. Rowe Price for our complete range of ESG resources including insights, white papers, voting records, and engagement and responsible investing policies.

www.troweprice.com/ESGpolicy/



ESG has become an important consideration for investors globally. However, the term has myriad interpretations across the asset management industry. Let me define what we mean when we talk about ESG and how we approach it at T. Rowe Price.

We view ESG integration as a capability, not a product.

We believe investment decisions across our product range are better informed when we consider environmental, social, and governance factors alongside financial, industry-related, macroeconomic, and other indicators. Thinking of ESG integration as a capability—considering environmental, social, and governance factors to enhance investment decisions—means it can be applied across all portfolios, with fiduciary responsibility remaining the top priority.

Over the past year, we have continued to invest in our ESG integration capabilities. Our staff of dedicated ESG specialists has grown with the addition of a responsible investing team. We have also built a proprietary model that evaluates the environmental, social, and ethical profile of our existing and prospective investments.

We have remained attentive shareholders, as evidenced by our engagement program and proxy voting diligence. Shareholder activism continues to impact all investors—not just the parties involved in a dispute—and we felt compelled in June 2018 to make a public statement on our perspective on such campaigns.

Regulation is another important focus for investors. Regulators around the world are proposing, and in some cases enacting, new ESG-related regulations. The nature of the proposals varies, with some focused on ESG-labeled products, others on ESG disclosure by companies and/or asset managers, and yet others on incorporating ESG considerations, such as climate change, into the investment process.

Our reaction to these proposals is equally varied. While we believe that some clarity on ESG-labeled products would be helpful, we are concerned about overly prescriptive attempts to embed sustainability factors into the investment process. We believe that sustainability factors must be balanced with financial, economic, and other considerations in any investment decision. Exactly how and where that balance is achieved is specific to each investment and should be left to the discretion of T. Rowe Price and other individual investment managers.

An area where we see the need for improvement is corporate disclosure of ESG data—specifically, environmental and social data. We would like to see increased and more standardized levels of disclosure.

Integrating ESG factors into our investment process has always been important to us, but we have not always done a great job explaining exactly how we do it. This inaugural ESG Annual Report is a decisive step in improving transparency on our ESG integration process, ESG engagement program, and proxy voting policies.

FOREWORD



A handwritten signature in black ink, appearing to read "Robert M. Sharps".

ROB SHARPS
Head of Investments and
Group Chief Investment Officer

PROGRESS OVERVIEW



Maria Elena Drew

MARIA ELENA DREW
Director of Research,
Responsible Investing

RESPONSIBLE INVESTING

When T. Rowe Price decided to bolster its ESG capabilities to add greater focus on environmental and social analysis, I was lucky to be asked to lead that effort.

ESG integration was not new to the firm when I joined in 2017. Our Governance team, led by Donna Anderson, had been in place since 2007, serving as a valued resource for our analysts and portfolio managers evaluating how governance factors can impact performance. In addition, our analysts and portfolio managers were already considering environmental and social factors with the help of Sustainalytics, which has been embedded within our in-house research platform since 2014.

However, there was room to do more on the environmental and social side of the equation.

Our first initiative was to set up a comprehensive, systematic, and proactive process for evaluating environmental, social, and ethical factors across corporate investments. To this end, we built our proprietary Responsible Investing Indicator Model (RIIM). This new tool has proven to be a useful framework that helps our analysts and portfolio managers better integrate environmental, social, and ethical factors into their investment decisions.

We think RIIM is a unique tool that complements our deep, fundamental investment research. It builds an environmental, social, and ethical profile of corporate entities largely using nonfinancial data and incident history—data not traditionally used in mainstream investing.

Our RIIM framework uses multiple data sets, covering approximately 12,000 corporate entities, making it scalable across our equity and fixed income credit franchises. It can also be populated with our own fundamental analysis. This comes in handy when we need to evaluate a pre-initial public offering (IPO) or smaller bond issuers.

In addition to company-specific research provided through our RIIM analysis, the Responsible Investing team also publishes thematic research on environmental and social factors that can influence our investments. Some of our latest insights into plastic packaging and the water-energy-food nexus are introduced in this report.

As we progress through 2019, we will continue to deepen our ESG research capabilities across T. Rowe Price's investment research platform. Among our key initiatives is building new research tools for analysts and portfolio managers to leverage across more asset classes.

GOVERNANCE

Our governance and stewardship function has continued to build on a solid foundation established over many years.

Improving the transparency of our investment stewardship program was our primary focus in 2018. When T. Rowe Price publicly shares its perspectives on certain investments, governance decisions or ESG issues, it leads to multiple positive outcomes.

Most importantly, this transparency helps our clients better understand the thought process behind the decisions we make on their behalf.

Increasingly, transparency also benefits our investment process. Companies we invest in gain insights into how we perceive their governance practices, how we use their ESG disclosures, and how we intend to vote at their next shareholders' meeting.

In 2018, this positive ripple effect was exemplified by the ESG Spotlight report we published in June—T. Rowe Price's Investment Philosophy on Shareholder Activism. The report conveyed our views on how shareholder activism around the world is affecting markets where we invest and how we execute our stewardship responsibilities.

Intended for the companies that may become targets of activists, the report also addressed other investors including activist shareholders. This is because an activism campaign involves more than the two parties with a dispute. Ultimately, every company investor plays a role in these campaigns, particularly those that culminate in a contested shareholder vote.

Our first ESG Annual Report is another product of our focus on improving transparency. Together with Maria Elena Drew and the invaluable support of our teams, we aim to illustrate how the T. Rowe Price investment stewardship program works on a practical level to support our principal objective: understanding the long-term sustainability of the companies in which we invest.

We feature information on a range of day-to-day stewardship activities, including qualitative and quantitative analysis, thought leadership, engagement activity, proxy voting, reporting, and topical research.

As we progress into 2019, advocacy is the primary focus of our governance function. In key markets around the world, we are concerned about a weakening of important shareholder rights and investor protections. To this end, we are collaborating with other investors to persuade stock exchanges and regulators that reasonable disclosure requirements and strong investor protection are essential ingredients for open, liquid, and resilient capital markets.

PROGRESS OVERVIEW



Donna F. Anderson

DONNA F. ANDERSON
Head of Corporate
Governance

THE T. ROWE PRICE APPROACH

**Our ESG philosophy is governed by three core principles—
integration, collaboration, and materiality.**

INTEGRATION

We believe environmental, social, and governance factors are critical components of investment decision-making and must be integrated into our investment process. Responsibility for integrating ESG factors lies with our research analysts and portfolio managers.

Integrating ESG factors into the investment process means they are considered in tandem with traditional criteria such as financial, valuation, macroeconomic, industry-related, and other factors when making investment decisions.

This approach improves the potential of the insights that ESG factor analysis can generate. For example, environmental and social factors can inform financial calculations such as forward estimates on revenues or costs or the rate applied in a discounted cash flow model.

To achieve seamless integration, it is imperative that ESG analysis is a core feature of our investment analysts' and portfolio managers' wider decision-making toolkit.

COLLABORATION

Our in-house ESG specialist teams have developed proprietary tools to help identify ESG factors that could impact an investment case. In addition, our dedicated ESG and legislative affairs specialists provide subject matter expertise on ESG issues. They publish investment research on ESG themes and work alongside the analysts and portfolio managers on issues relevant to an investment.

Aligning resources and ensuring collaboration between teams helps our analysts and portfolio managers effectively integrate ESG data into their investment processes.

MATERIALITY

When assessing ESG factors, we focus on those considered most likely to have a material impact on the performance of the investments in our clients' portfolios.

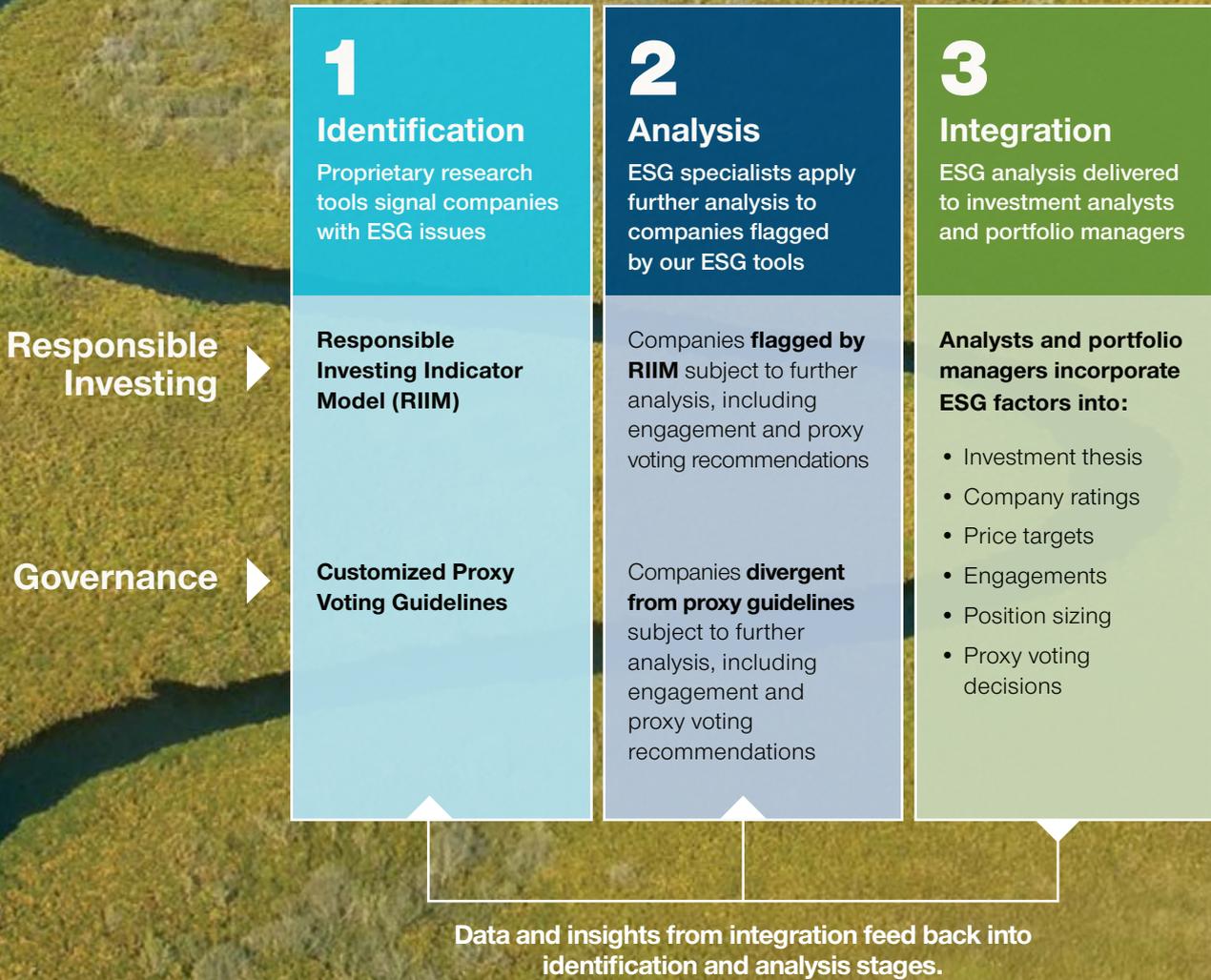
To improve our analysis, we mapped materiality for 37 ESG categories and across 158 subindustries.

This approach alerts our analysts and portfolio managers to any company that does not address ESG issues important to its business model. It helps identify ESG risks embedded in an existing or prospective investment, as well as companies with embedded ESG opportunities or tailwinds.

ESG INTEGRATION

Three-Stage Process Allows for Proactive, Systematic ESG Integration

Our in-house ESG resource comprises two teams: Responsible Investing (RI), which covers environmental and social factors, and Governance. Together, these teams help our investors identify, analyze, and integrate the ESG factors most likely to have a material impact on the long-term performance of an investment.



Broad ESG Capabilities

Responsible Investing

- ESG research from Sustainalytics embedded in research management systems since 2014
- In-house dedicated Responsible Investing resources in place since 2017
- Conducts analysis on environmental and social profiles of individual securities as well as the wider portfolio
- Assists with company engagement

Governance

- In-house dedicated governance resources in place since 2007
- Assesses governance issues among existing and potential investments, providing insights for analysts and portfolio managers
- Assists with company engagement and facilitates proxy voting
- Participates in leading industry initiatives on governance issues

Responsible Investing Indicator Model (RIIM)

We have built a proprietary model that systematically and proactively screens the responsible investing (RI) profile of an investment. It is called the Responsible Investing Indicator Model (RIIM) and uses data from T. Rowe Price databases, company reports and select third-party vendors.

RIIM covers approximately 12,000 corporate entities. For investments that fall outside that universe, the Responsible Investing team screens for environmental, social, and ethical controversies using a third-party provider and—where enough information is available—conducts fundamental research to build a RIIM profile for the company.

An illustration of the RIIM model is provided below. The model builds an overall risk profile of an investment and flags both elevated responsible investing risks (orange/red) and positive responsible investing characteristics (green).

	 R.I. Risk Indicator	 Environment	 Social	 Ethics
Environment 	Operations	Supply chain (environment)		
		Raw materials		
		Energy and emissions		
		Land use		
		Water use		
		Waste		
		General operations		
	End Product	Product sustainability		
		Products and services environmental incidents		
	Social 	Human Capital	Supply chain (social)	
Employee safety and treatment				
Evidence of meritocracy				
Society		Society and community relations		
End Product		Product sustainability		
		Product impact on human health and society		
Ethics 		Business ethics		
		Bribery and corruption		
		Lobbying and public policy		
		Accounting and taxation		
		Board and management conduct		
		ESG accountability		
Data Incidents		Data privacy incidents		

ESG Accountability

The T. Rowe Price Board of Directors oversees ESG and receives an annual update on ESG activity. The Management Committee oversees ESG integration, with the Chief Investment Officer Rob Sharps acting as lead. Leaders of our dedicated, in-house ESG team, which is part of our investment division, report directly to senior management.

The directors of research (DOR) for equity and fixed income have oversight over investment analysts and how they implement ESG factors in their investment process, which is a component of each analyst's annual performance review. In assessing an analyst's implementation of ESG factors, the director of research will receive input from the DOR, Responsible Investing, and the Head of Governance.

Portfolio managers also have an ESG component to their year-end evaluations. Each portfolio manager is accountable for incorporating ESG factors into their investment process as appropriate to the portfolio's mandate.



Confronting Climate Change

Climate change is a complex issue to address from an investment perspective. In some cases, its impact will be revealed through a gradual shift that may play out over many decades. In others, it will be a binary event. But this global challenge will touch virtually our entire investment universe—equities and corporate, sovereign, and municipal bonds—and we believe the impact on financial markets is still only in its very early stages. In almost every country, the policies put in place to manage for climate change lag national targets. Even then, those targets are further behind scientific recommendations.

Bridging the Gap Between Science and Policy

In 2018, the United Nations Intergovernmental Panel on Climate Change's (IPCC) Special Report on Global Warming found that keeping the global temperature rise to below 1.5°C would require a 45% reduction in net emissions by 2030 and net zero emissions by 2050. Furthermore, at the current pace of warming, the Earth is expected to breach the 1.5°C limit by 2040.

This profound mismatch between science and policy means that regulation will likely tighten and the opportunity set for affordable, technological solutions may be enormous.

Assessing Climate Impacts—The Pull and Push Dynamics

Our investment professionals capture the impact of climate change through our investment process. In some cases, considering the impact of climate change on an investment can be relatively straightforward. For example, a company can be a net beneficiary of climate change because it sells a “solutions” product. Conversely, a company can also be a net loser from climate change due to the nature of its end product—e.g. coal and fossil fuels.

However, in most cases, the impact of climate change on a specific investment requires deeper evaluation. Most companies will feel a pull and push effect from climate change factors through different aspects of their business model. For example, a food company may benefit from consumer demand for organic products but suffer when a drought impacts its agricultural supply chain. Semiconductor manufacturers benefit from digitization, a notable portion of which is driven by energy efficiency, but then face an operational risk based on power and water supplies.

In these cases, it is about understanding how a company is managing its climate change exposure and the adaptability of its business model to a lower carbon world. Countries and municipalities face this same pull and push from climate change—some will be in a better position to handle the effects and others may have to work much harder. Whatever the case, our analysts and portfolio managers must be able to understand these dynamics.

Climate Change as a Long-Term Issue

Our analysts and portfolio managers are evaluated on performance figures ranging from one to 10 years. These are short in the context of the multi-decade impact of climate change but ultimately help to avoid “short-termism” in our investment approach.

While our actively managed investment strategies have a long-term time horizon, they are not required to hold an investment if the risks become unmanageable. We believe this flexibility is an advantage for active investors as the risk of climate change begins to manifest itself in asset prices over time.

Climate in the RIIM—Looking Beyond Carbon

In addition to our investment analysts' fundamental research, climate change factors are systematically identified in our Responsible Investor Indicator Model. The model helps our analysts and portfolio managers identify climate change-related issues not detected by traditional financial analysis (such as water supply within a local community or migration issues). RIIM helps keep climate change considerations on their radar.

RIIM is particularly useful as it systematically identifies climate change considerations beyond greenhouse gas emissions. While carbon is the focus of public debate and data are widely available, we believe limiting analysis to this factor is short-sighted. Many other climate change factors — such as water availability, local pollution, and waste management — are more likely to be catalysts for regulatory change that can impact company and industry performance.

Our proprietary RIIM model considers a range of climate change factors as illustrated below. Note this is not an exhaustive list.

		R.I. Risk Indicator	Environment	Social	Ethics	
Environment	Operations	Supply chain (environment)	Medium			← Scope and quality of supply chain management
		Raw materials	High			← Raw material procurement standards and statistics
		Energy and emissions	Medium			← Scope and quality of energy management systems; carbon intensity and trends
		Land use	High			← Biodiversity programs
		Water use	Medium			← Water intensity and trends
		Waste	No/Few			← Hazardous waste management
		General operations	No/Few			← General environmental management standards; history of environmental incidents
	End Product	Product sustainability	High			← Environmental sustainability of end product
		Products and services environmental incidents	High			← Environmental incidents associated with end product
Social	Human Capital	Supply chain (social)	High			
		Employee safety and treatment	High			
		Evidence of meritocracy	No/Few			
	Society	Society and community relations	No/Few			← Environmental impact on local communities
	End Product	Product sustainability	No/Few			
		Product impact on human health and society	High			← Contribution to local pollution
Product quality and customer incidents		No/Few				
Ethics	Business ethics	Medium				
	Bribery and corruption	No/Few				
	Lobbying and public policy	Medium				
	Accounting and taxation	High				
	Board and management conduct	No/Few				
	ESG accountability	High				← ESG reporting and accountability
Data Incidents	Data privacy incidents	High				



ENVIRONMENT

PAPREC

ESG INTEGRATION IN ACTION



DIVYA GOPAL
Global High Yield Analyst

Beyond The Numbers—Leading the Charge in France’s Recycling Sector

Divya Gopal, global high yield analyst, researched how changes in regulation in France are driving new opportunities in that country’s recycling sector.

Company Description

Paprec is a diversified waste services specialist operating in France. It provides waste processing, sorting, and recycling services, as well as waste collection and landfill management.

Investment Case

- High retention rates across its portfolio of private sector and municipal clients.
- The sector has high barriers to entry and the business is difficult to replicate as it is particularly capital intensive.
- New environmental regulations in France that seek to improve waste management practices could bolster demand for recycling services.**

ESG in Depth

- French regulators are calling for 60% of nonhazardous waste to be recycled by 2025 (currently only 23%), as well as significant reductions in waste going to landfills.
- French companies are charged lower tax rates on waste recycling compared with landfill or incineration, which should drive higher recycling volumes.
- Paprec is at the forefront of waste management and the number one recycler of paper and plastic in France.

Changes in the industry are being driven by aggressive waste reduction targets set by regulators to address environmental concerns. Incumbents like Paprec can benefit from these trends in France.

The security identified and described is intended to illustrate the security evaluation process of T. Rowe Price investment professionals and does not necessarily represent securities purchased or sold by T. Rowe Price. No assumptions should be made that the security analyzed, or other securities analyzed, purchased, or sold, was or will be profitable. The views and opinions above are as of February 28, 2019.

Beyond The Numbers—Adapting to Demands for Stronger Data Privacy

Miso Park, global investment-grade corporate analyst, explains how heightened awareness of cybersecurity risks and evolving data protection legislation are influencing strategy and performance in the credit data sector.

Company Description

Experian is the world's leading credit information provider. It offers data and analytical tools to clients to help manage credit risk, prevent fraud, and automate decision-making.

Investment Case

- ⑤ The firm has a highly defensive business model and is well diversified in terms of products, geographies, and end markets.
- ⑤ It operates in an attractive industry characterized by high barriers to entry, profitability, cash generation, and good structural growth prospects.
- ⑤ **Experian possesses strong data security infrastructure and has demonstrated a good track record of adapting to regulatory change.**

ESG in Depth

- Data security breaches pose the biggest risk to the company, after a major data breach impacted another consumer credit reporting agency (Equifax) in 2017. Regulatory changes are also demanding improved data security.
- Experian has created a new role of chief information officer and hired 280 people to strengthen its data protection capabilities.
- A stress test revealed that Experian would be able to sustain its current credit rating if it were to encounter costs like those experienced by Equifax in 2017.

The threat of cyberattacks is ever growing and evolving. It's crucial for businesses like this to have the infrastructure in place needed to protect their clients' data.



MISO PARK
Global Investment-Grade
Corporate Analyst

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GOVERNANCE

DUAL-CLASS STOCK

Background

In 2018, investors around the world engaged in a robust debate about the costs and benefits of dual-class stock with differential voting rights. Typically, these companies have both Class A common stock carrying one vote per share and Class B shares carrying 10 votes each.

The debate arose in 2017 following the high-profile IPO of Snap, Inc., which issued only non-voting shares to investors. Some major index providers sought to assess whether a company with no voting rights for public investors should even be eligible for inclusion in major benchmarks. Meanwhile, exchanges outside the U.S. began to allow dual-class structures for the first time.

Our Perspective and Voting Approach

We believe "one share, one vote" is a bedrock principle of effective corporate governance, accountability—and fairness. Academic evidence also suggests that any value inherent in the dual-class controlling mechanism fades after the first several years of the company's post-IPO life and soon becomes a liability. However, some founder-led companies contend that separating economic and voting control allows them to maintain a long-term orientation in the face of many short-term pressures in the market. We recognize the importance of innovation to the global economy, and we appreciate the argument that some ideas need a period of insulation from short-term pressures in order to bear fruit in future years.

Our approach to this complex issue has been to participate actively in the marketwide debate, and in 2018 we took part in several consultations related to dual-class shares. At the same time, we try to use our proxy voting rights and our influence to initiate discussions with the boards of controlled, dual-class companies and to share with them why we believe these structures do not serve our clients' long-term interests. To do this, we generally oppose the re-election of the members of any board's Governance Committee where the company is controlled through dual-class shares.

However, when dual-class companies have established meaningful limits on these structures, we do not vote against directors' elections. We believe mechanisms that phase out dual-class structures or limit them to a certain period of time are constructive, reasonable solutions to our concerns about perpetual dual-class control.

One of the reasons dual-class stock is a complex issue for investors is that we generally have very little influence at companies that have a single controlling shareholder or a dominant family group. By design, these companies are insulated from shareholders' votes and usually from shareholders' voices too. Therefore, we believe the loosening of global standards on dual-class shares represents a growing risk for investors.

It is our responsibility to help uncover some fair, practical, and sensible solutions to the problem.



WATER-ENERGY-FOOD NEXUS

A Good Signal for Environmental Reforms

Water. Energy. Food. Three vital components for sustainable development. The interaction of these factors is commonly referred to as the Water-Energy-Food Nexus (WEF-Nexus).

Changes in population, urbanization, diets, and economic growth drive demand within each segment—creating complex challenges around the globe. If one WEF-Nexus component is mismanaged, the other two will ultimately feel the impact.

Understanding how the three components interact provides a platform for identifying and analyzing potential effects on companies and industries, most notably through the nature and pace of resulting regulatory reform.

The lynchpin of the WEF-Nexus is water—as a finite resource, water scarcity has a direct impact on food supply. If a local WEF-Nexus spirals out of balance, lack of water shifts from being a global sustainability concept to a more local and immediate problem. As a result, a country's water-energy-food balance can be a good indicator for the likelihood of greater environmental regulation.

Rising WEF-Nexus Pressures

Today, nearly a quarter of the world's population lives in water-scarce regions. In the next two decades, the number of people exposed to water scarcity is expected to double from 1.6 billion currently, largely due to economic growth and urban migration. Regions facing the greatest water and pollution stresses include:

- Asia (Afghanistan, China, India, Pakistan, Philippines, Sri Lanka)
- Middle East (Bahrain, Iran, Israel, Jordan, Lebanon, Oman, Qatar, Saudi Arabia, Turkey, UAE)
- Latin America (Chile, Peru, Mexico)

As the impact of climate change intensifies, more regions grapple with water scarcity and associated WEF-Nexus pressures. Key indicators of looming environmental reforms include:

- More frequent droughts and rising food prices
- Consistent overdraws on river systems and aquifers
- Agricultural inefficiency—low yields and/or tilt to non-food crops
- Impact of pollution on public health and quality of life
- Low unemployment—politicians can address ecological issues when there is less economic pressure

Insights into the Water-Energy-Food Nexus provide a valuable lens from which we can better understand the potential impact of environmental dynamics on company performance. When we observe one WEF-Nexus component fall out of balance, we can monitor the knock-on effects likely to be experienced by the other Nexus components and the companies that operate within them.

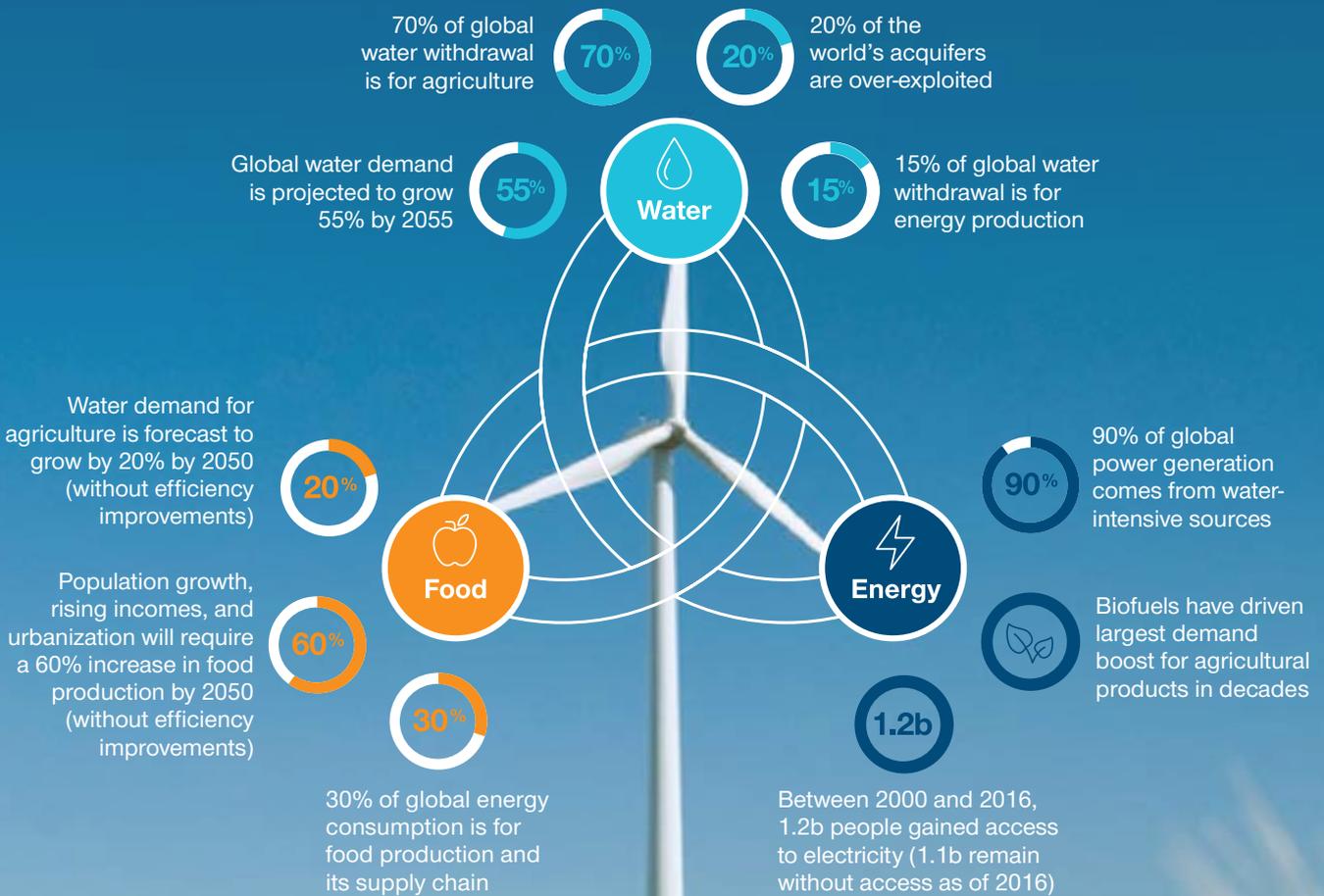
WEF-Nexus Signals in the Investment Process

From an investment standpoint, water, energy, and food are each important considerations, but the emergence of water issues is often a catalyst for swift regulatory intervention.

Water markets are relatively underdeveloped compared with energy and agricultural commodities and are far less penetrated by private industry. Consequently, price signals may not emerge until resources are significantly constrained, rendering them unreliable. The mismanagement of water resources is difficult to reverse. Since prices are a lagging indicator of scarcity, regulatory responses can be drastic once the crisis becomes apparent.

As the pull on this finite resource pushes more and more regions into water scarcity, we anticipate greater intervention from governments as they struggle to manage their water, energy and food resources. In turn, this is likely to have a knock-on effect for the energy, utility, and transportation sectors as well as other sectors that are indirectly exposed to the WEF-Nexus.

Factors Driving Change in the WEF-Nexus



AMERICAN WATER WORKS

Beyond The Numbers—Tackling Aging Water Infrastructure

Ryan Hedrick, U.S. equity analyst, has researched the impact of water management issues in the U.S. utilities sector.



RYAN HEDRICK
U.S. Equity Analyst

Company Description

American Water Works is a water utility that provides regulated water and wastewater services to customers and collects, treats, and transports recycled waste water.

Investment Case

- ① Low-risk business model levered to a durable theme.
- ① Strong management, with a disciplined strategy that focuses on customer satisfaction, technology, operational efficiency, and safety.
- ✔ **Poor water infrastructure in the U.S. has created \$1 trillion problem. American Water Works is well positioned to benefit from corresponding investment in water infrastructure.**

ESG in Depth

- The American Society of Civil Engineers grades U.S. waste water infrastructure a “D+” and drinking water a “D”, indicating urgent action is required.
- The U.S. loses over 20% (2 trillion gallons) of treated water each year through main breakages.
- There are 800,000 miles of waste water pipes that leak 900 billion gallons of untreated sewage into rivers and streams.

“ Since water is ingested, I believe there is a looming recognition that chronic underinvestment in infrastructure is not viable in the long term against a backdrop of increasing threats to water quality. American Water Works isn’t just in the utility business, it’s also in the health business. ”

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MANAGING THROUGH WEF-NEXUS PRESSURES

China Case Study

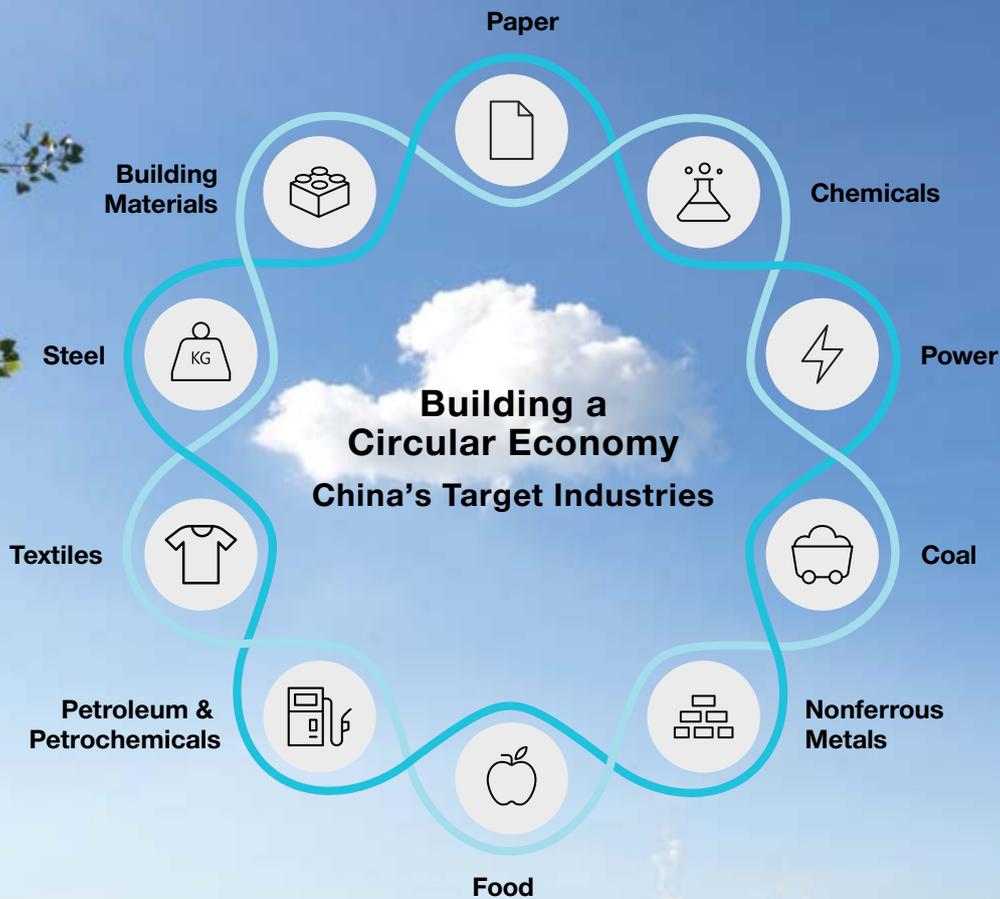
Overdependency on coal, coupled with relatively lax environmental standards for industry, has thrown China's WEF-Nexus out of balance. It faces threats to food supplies from soil and water pollution, health hazards for citizens due to poor air quality, and a multitude of risks due to water shortages.

Regulation is part of the response. At the heart of China's environmental reforms is a shift toward a circular economy, which is de-emphasizing industries that overextend China's natural resource balance without a commensurate social gain.

In 2009, the Chinese government targeted 10 industries that needed to "close the loop" and go circular: coal, power, steel, nonferrous metals, petroleum and petrochemicals, chemicals, building materials, paper, food, and textiles. The list also included industrial parks. Companies in these sectors need to reduce waste and improve energy and water efficiency through their entire production cycle as well as consider the life cycle of their products.

T. Rowe Price analysts and portfolio managers have been navigating China's changing environmental landscape for several years. For example, factory locations and modernization, access to water permits, as well as other environmental factors have been important considerations when we make investment decisions in the apparel and textiles sector.

It is early in what will likely be a multi-decade restructuring of the country's economy. As we evaluate which companies will win or lose due to wide-ranging industry reforms, we believe insights into environmental, social, and governance factors will play an important role alongside financial analysis.



PERSPECTIVES ON PLASTIC The Imperative for Better Management

Since their introduction in the early 1900s, plastics and plastic packaging have become integral to modern life.

Global demand for plastics has increased twentyfold over the past 50 years and the International Energy Agency predicts that demand will grow by a further 45% by 2040, with nearly two-thirds of that growth coming from Asia.¹

The obsession with plastic is easy to understand—cheap, lightweight, and durable, the material is beneficial to society in a multitude of ways, including:

- Reduced food waste—by extending freshness period
- Lower vehicle emissions—by making cars lighter
- Increased energy efficiency—through improved building insulation

Despite the many benefits, vast consumption of plastic is a major sustainability problem the world must solve. Most plastics have a very short life span (often less than one year), yet can take up to 450 years to break down, creating a significant environmental impact if not disposed of properly.

Accordingly, we believe the sustainability debate should center on how, not if, we use plastic and, most importantly, how we dispose of it.

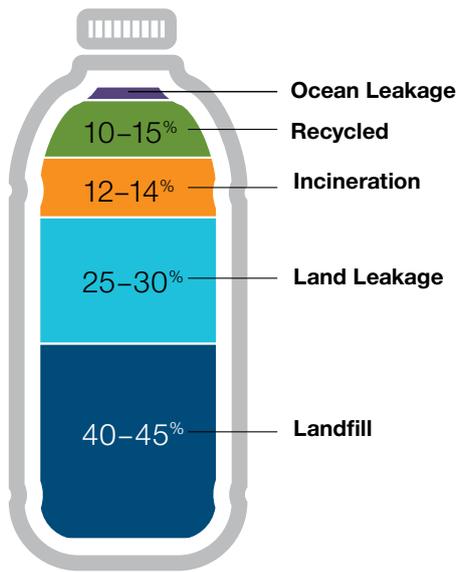
Scoping the Problem

The environmental impacts of plastic are numerous, with implications for human and animal health.

- **Ocean Leakage**—Estimates suggest that there are more than 150 million tons of plastic in the ocean, with a further 8-10 million tons leaking into oceans annually. By 2050, there could be more plastic in the oceans than fish. Plastic waste harms marine life in many ways:
 - Sea animals ingest plastic, leading to injury or death
 - Natural ecosystems vital to ocean health are polluted
 - Microplastics consumed by marine life make their way into human food chains
- **Land Leakage**—An estimated 25-30% of plastic waste is left on land as it escapes waste collection systems or is never collected.¹ As this waste breaks down, chemical byproducts seep into soil, groundwater, and waterways.
- **Landfill and Incineration**—Landfill accounts for 40-45% of plastic waste disposal.¹ In many countries, poor disposal practices lead to chemical seepage into soil and waterways. The environmental impact can be contained with proper disposal. Incineration has negative consequences as it releases carbon back into the atmosphere. However, better practices, such as high-temperature incineration, can greatly reduce the emissions impact, while the energy generated can be sold as a byproduct.
- **Bisphenol A (BPA)**—BPA is used in harder plastics for items such as food containers and drink bottles. While the science is not conclusive, there are concerns about the potential health risk for humans and animals. As such, several countries have restricted BPA usage, and the U.S. has listed it as an endocrine disrupter.

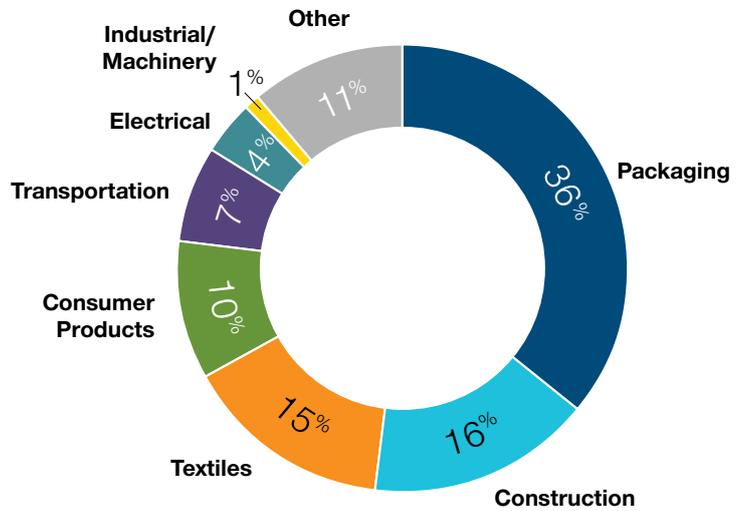
¹ The New Plastics Economy, Ellen MacArthur Foundation (2018).

Global Plastics Disposal



Source: The New Plastics Economy, Ellen MacArthur Foundation (2018).

Global Plastics End Use



Source: IEA, The Future of Petrochemicals (2018) (adapted from "Production, use and fate of all plastics ever made", Geyer, R., J.R. Jambeck, and K.L. Law (2017).

Plastic's Role in a Sustainable World

Given the magnitude of the disposal problem, we believe the plastics industry will be fundamentally reshaped in four key areas: 1) reduced usage, 2) increased recycling, 3) increased incineration (waste-to-energy), and 4) replacement by plastic alternatives and/or new biodegradable plastics.

Factoring Plastics Sustainability into T. Rowe Price's RIIM Model

Our proprietary RIIM Model incorporates a broad range of factors, varied across subindustries, against which we measure and score companies on their plastics sustainability.

The model considers a range of plastic factors as illustrated below. Note this is not an exhaustive list.

R.I. Risk Indicator	Key Plastics Factors					
	Environment	Social	Ethics			
Environment	Operations	Supply chain (environment)			Recycled material usage; Targets related to packaging materials	
		Raw materials				
		Energy and emissions				
		Land use				
		Water use				
		Waste				Waste recycled
		General operations				
	End Product	Product sustainability			Eco-design; Environmental sustainability of end product	
		Products and services environmental incidents				

BALL CORPORATION

Beyond The Numbers—The Quest for Alternatives to Plastic Packaging

Dan Hirsch, U.S. equity analyst, covers the packaging sector. His research into Ball Corporation reveals that environmental concerns over plastic disposal have become a significant driver of growth for this packaging company.



DAN HIRSCH
U.S. Equity Analyst

Company Description

Ball Corporation is a global packaging and container business and the largest global manufacturer of aluminum beverage cans.

Investment Case

- Ⓢ In our view there is potential for strong earnings and free cash flow growth over the next three to five years.
- Ⓢ Potential to improve performance due to pricing power within the sector.
- ✔ **Beverage cans are likely to make market share gains versus single-use packaging alternatives.**

ESG in Depth

- Growth is driven in part by aluminum cans taking share from other beverage packaging substrates, namely plastic.
- Aluminum is infinitely recyclable—it has the highest recycling rates of any substrate, and there is a well-defined market value for aluminum scrap.
- As anti-plastic rhetoric continues to gain momentum, Ball Corporation is a clear beneficiary as the market seeks alternatives.

“ There is clearly a place for plastic in the global economy, and in several cases, there are no viable alternatives. However, as investors, we seek to identify areas where there is a sustainable alternative to single-use plastics—beverage packaging is one such area. ”

The security identified and described is intended to illustrate the security evaluation process of T. Rowe Price investment professionals and does not necessarily represent securities purchased or sold by T. Rowe Price. No assumptions should be made that the security analyzed, or other securities analyzed, purchased, or sold, was or will be profitable. The views and opinions above are as of February 28, 2019.



ENGAGEMENT

Engagement Program Overview

We believe our responsibilities as investors do not cease with the decision to purchase a security. We maintain a regular dialogue with the management teams of companies represented across our portfolios.

Our investment-driven engagement program frequently identifies targets through our proprietary RIIM analysis, governance screening, and analysts' fundamental research.

Since we are an active manager, company management teams know that we have the option of selling our investment. That means our investment-driven engagement approach can yield meaningful outcomes.

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

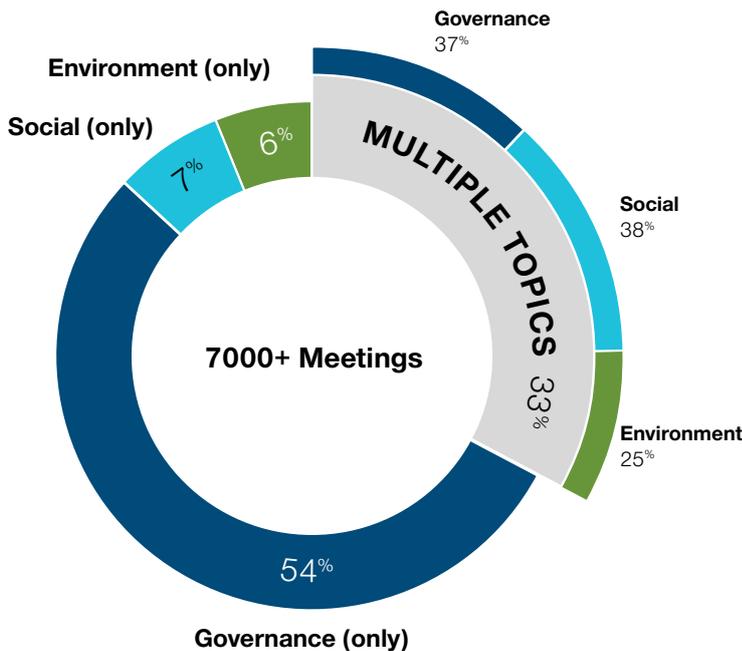
Through the course of 2018, we held over 7,000 face-to-face meetings with the managements of existing and prospective investments.

While most of these meetings include some discussion of ESG topics, 301 engagements were held with a heavy focus on ESG, meaning ESG issues were the sole items on the agenda or made up a meaningful part of the meeting. Agenda items are classified as "meaningful" when they take up a significant portion of the meeting or are a significant factor in the investment case.

Our heavy ESG engagements tend to fall into two categories:

1. Outreach on a specific topic (either by T. Rowe Price or the company)—approximately 75%;
2. Part of the investment research process—approximately 25%

2018 Engagements by Category



Top 5 Engagement Topics

ENVIRONMENT
<ol style="list-style-type: none"> 1. Sustainability of end products 2. Environmental management of operations 3. Water-related issues in operations and end product 4. Sustainability of raw materials sourcing 5. Responsible investing programs and initiatives
SOCIAL
<ol style="list-style-type: none"> 1. Diversity/evidence of meritocracy 2. Society and local community relations 3. Employee safety and treatment 4. Regulatory initiatives driven by ESG factors 5. Safety of end products
GOVERNANCE
<ol style="list-style-type: none"> 1. Governance structure, oversight, and other general issues 2. Executive compensation 3. ESG disclosure and accountability 4. Board independence 5. Succession planning

ESG Engagements by Market Capitalization



ESG Engagements by Region



ESG Engagements by Sector



Proxy Voting Program Overview

We see proxy voting as a crucial link in the chain of stewardship responsibilities we execute on behalf of our clients. From our perspective, the vote represents both the privileges and the responsibilities that come with owning a company's equity instruments. We take our responsibility to vote our clients' shares in a thoughtful, investment-centered way very seriously—taking into account both high-level principles of corporate governance and company-specific circumstances.

Our overarching objective is to cast votes in support of the path most likely to foster long-term, sustainable success for the company and its investors.

It is our view that the proxy vote is an asset belonging to the underlying clients of each T. Rowe Price investment strategy. This means that our portfolio managers are ultimately responsible for making the voting decisions within the strategies they manage. To fulfill this responsibility, they receive recommendations and support from a range of internal and external resources:

- The T. Rowe Price Proxy Voting Committee
- Our global industry analysts
- Our specialists in corporate governance and responsible investment
- ISS, our external proxy advisory firm.

Prudent use of our influence

Our proxy voting program serves as one element of our overall relationship with corporate issuers. We use our voting power in a way that complements the other aspects of our relationship with these companies.

What are the other contexts in which we may use our influence?

- Regular, ongoing investment diligence
- Engagement with management on ESG issues
- Meetings with senior management, including offering our candid feedback
- Meetings with members of the Board of Directors
- Decisions to increase or decrease the weight of an investment in a portfolio
- Decisions to initiate or eliminate an investment
- On rare occasions, public statements about a company, either to support the management team or to encourage it to change course in the long-term best interests of the company

In an environment where large institutional shareholders are often rated by outside parties based on how frequently we vote against the board's recommendations, we wish to be clear:

It is not our objective to use our vote to increase the level of conflict with the companies where our clients hold investments.

Instead, our objective is to use our influence—through the various stewardship activities listed above—to increase the probability that the company will outperform its peers, enabling our clients to achieve their investment goals.

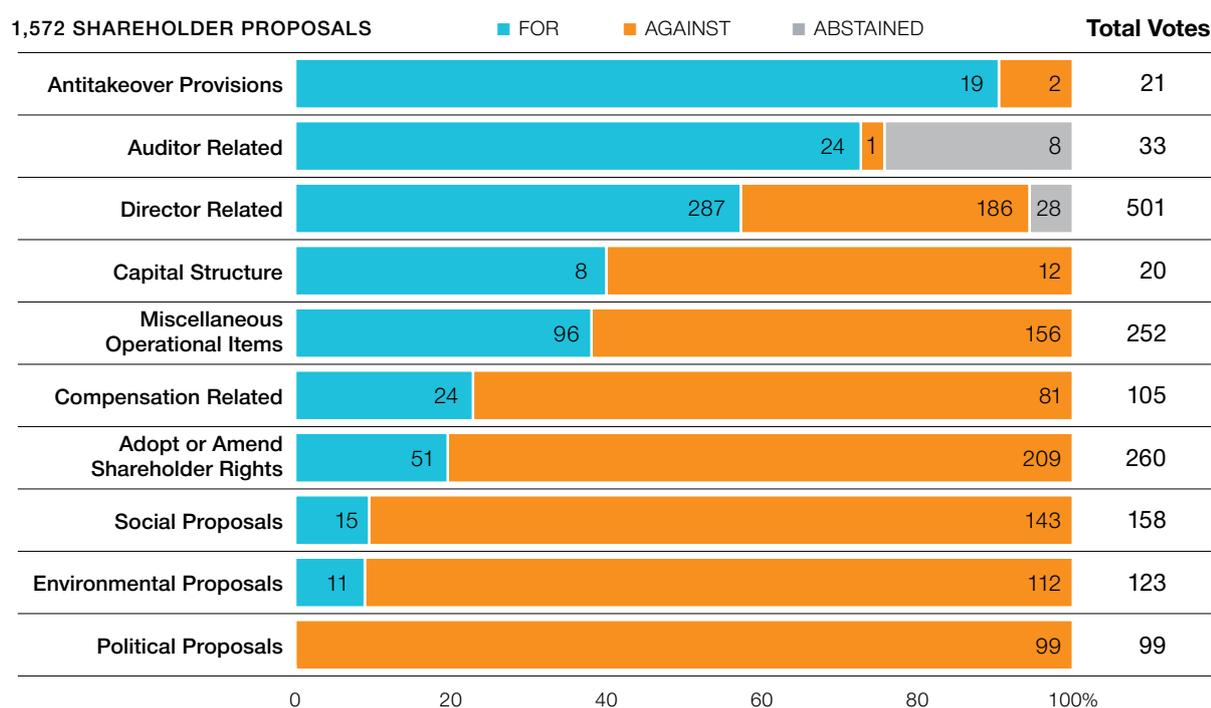
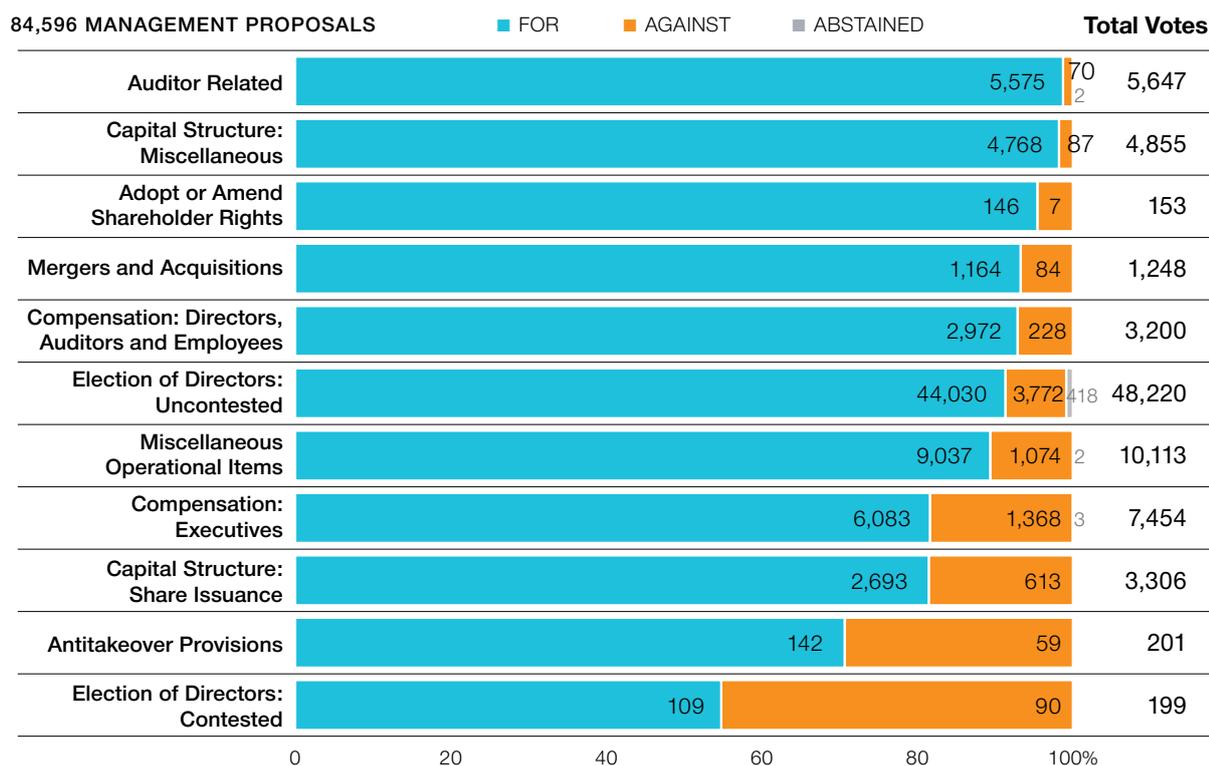
A proxy vote is an important shareholder right, but its power is limited to the one day per year when a company convenes its annual meeting. Influence—earned over time and applied thoughtfully—is a tool we use every day.

Proxy Voting Breakdown by Category

The following charts illustrate T. Rowe Price's global proxy voting activity for 2018. We voted on 86,186 proposals globally at 6,227 meetings, representing 99.2% of all meetings held.

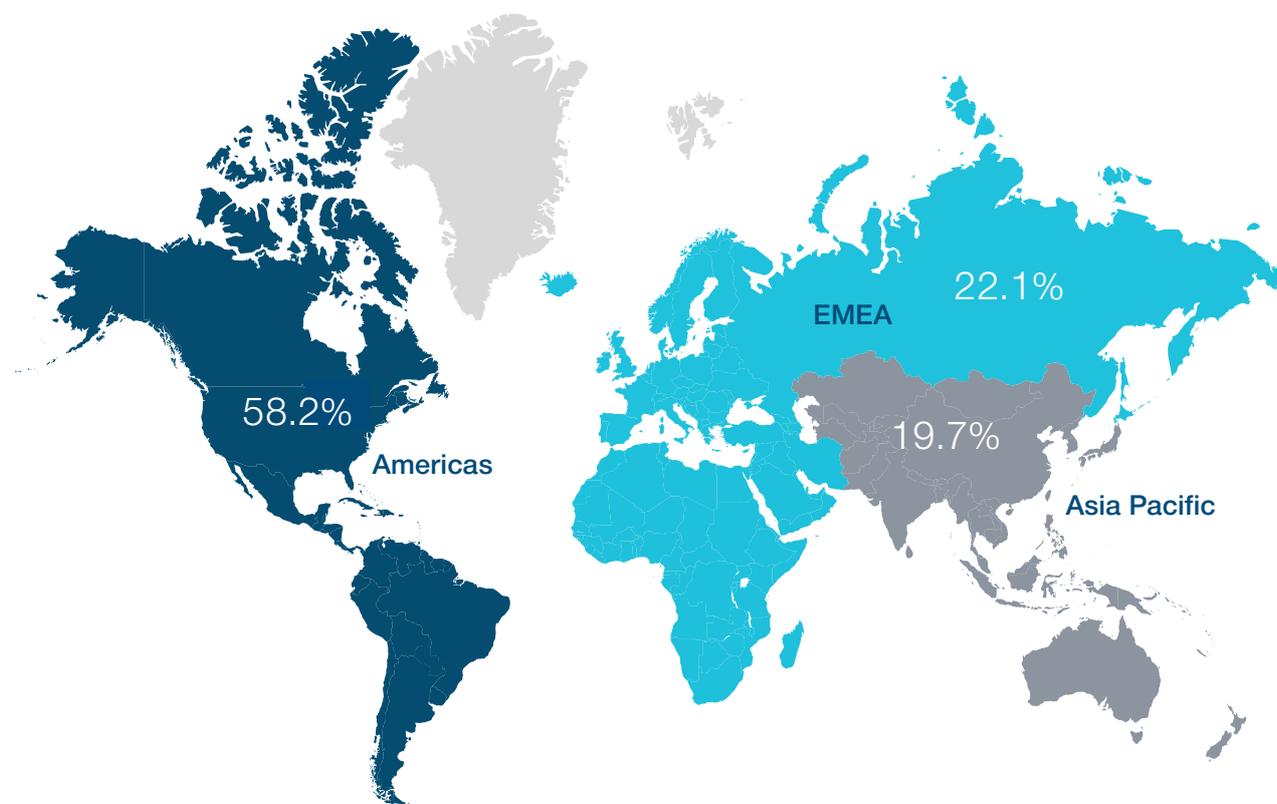
Some categories, such as the election of directors, are universal across the markets where we invest. Other voting issues are unique to select regions. For management-sponsored proposals, a vote "FOR" is a vote aligned with the board's recommendation.

In some markets, shareholders are permitted to put forth proposals to be voted by the company's investors. In our portfolios, these votes were held predominantly in the U.S. and Japan. For shareholder-sponsored proposals, a vote "FOR" is a vote contrary to the board's recommendation.



Proxy Voting Geographies

79 Countries Across 3 Regions



Percentage Voted FOR—Regional Breakdown

	Americas	EMEA	Asia Pacific
Management Proposals			
Election of Directors: Uncontested	89%	90%	93%
Miscellaneous Operational Items	69%	90%	93%
Compensation: Executives	84%	74%	85%
Auditor Related	99%	97%	98%
Capital Structure: Share Issuance	51%	92%	65%
Compensation: Directors, Auditors, and Employees	92%	92%	92%
Shareholder Proposals			
Director Related	51%	38%	65%
Adopt or Amend Shareholder Rights	21%	100%	N/A
Miscellaneous Operational Items	47%	0%	57%
Social Proposals	22%	0%	0%
Environmental Proposals	13%	0%	6%
Political Proposals	0%	N/A	N/A

As at December 31, 2018

Collaborative Engagement

We participate with other investors in industry-level initiatives aimed at improving disclosure or business practices on a marketwide level. To facilitate opportunities for collaborative engagement, T. Rowe Price has joined, or led, various initiatives that bring investors together for purposes of advocacy or engagement. The following table details our current global memberships.

Organization	Description	T. Rowe Price Status
Asia Corporate Governance Association (ACGA)	Pan-Asian association for institutional investors	Member
Associação de Investidores no Mercado de Capitais (AMEC)	Association of minority investors of Brazil	Member
Council of Institutional Investors (CII)	U.S. association of institutional investors, corporate issuers, and asset managers	Associate Member
Investor CDP	Advocacy group for better disclosure of carbon emissions	Signatory
Investor Stewardship Group (ISG)	Investors advocating for core governance principles for U.S. market participants	Founding Member
Japan Stewardship Code	Public commitment to uphold stewardship principles	Signatory
Principles for Responsible Investment	Global initiative for responsible investment	Signatory
UK Investor Forum	Collaborative engagement association for investors in UK companies	Founding Member
UK Stewardship Code	Public commitment to uphold stewardship principles	Signatory

COLLABORATIONS

Leading Change in Corporate Governance—The Investor Stewardship Group

Early in 2018, a coalition of 16 large investors came together to launch the Investor Stewardship Group (ISG). T. Rowe Price is a founding member. By year-end, ISG had grown to include 60 members representing a collective USD \$31 trillion in assets.

ISG was formed to bring investors together to address fundamental issues of corporate governance and investment stewardship. Our focus is the U.S. market, where no marketwide governance code exists.

We are excited about the potential for ISG. Together with the other members, we are committed to continuing development of the framework. In 2018, our Head of Corporate Governance was elected to chair the ISG's Governance Committee.

For more information, visit www.isgframework.org.

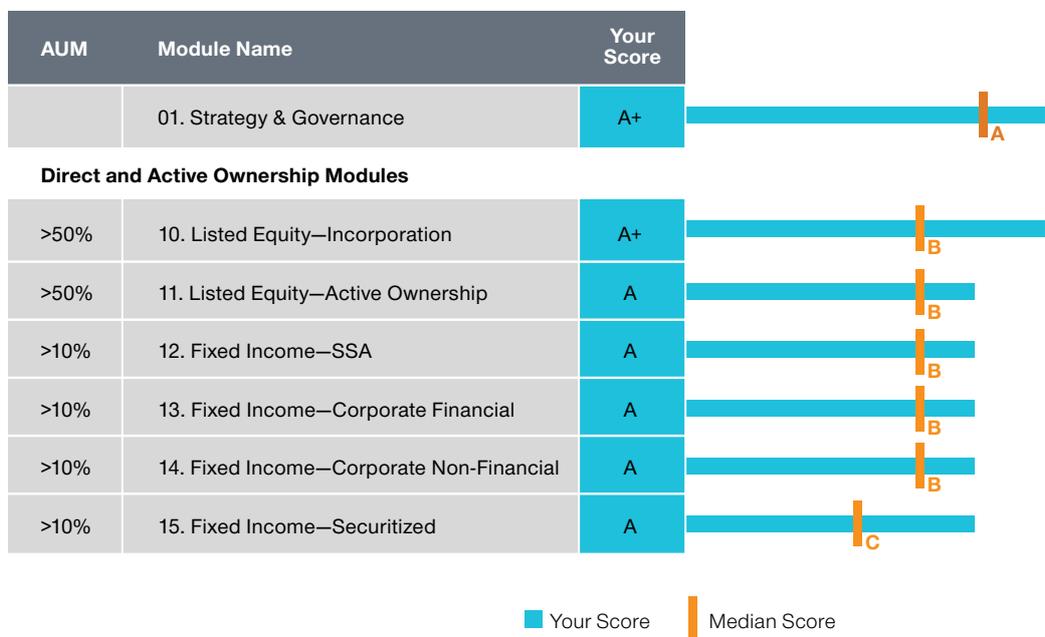
United Nations Principles for Responsible Investment (UN PRI)

T. Rowe Price became a signatory of the UN PRI in August 2010. We support the PRI framework as an effective means of encouraging dialogue among investors and better disclosure from companies globally about important responsible investing issues.

Under the UN PRI's transparency requirements, all signatories complete an annual self-assessment. T. Rowe Price's most recent Transparency Report is available via the UN PRI data portal at <https://dataportal.unpri.org>.

The UN PRI Summary Scorecard below provides an overview of our aggregate score for each module assessed and the median score. These bands range from A+ (top band) to E (lowest band). The UN PRI Assessment scoring methodology is available at <https://www.unpri.org>.

T. Rowe Price's Principles for Responsible Investment Scorecard 2018



ESG Resources

We have significant ESG resources dedicated to supporting our integrated investment approach.

GOVERNANCE

Donna F. Anderson
Head of Corporate Governance

Kara McCoy
Associate Analyst,
Corporate Governance

LEGISLATIVE AFFAIRS

Katie Deal
Associate Analyst,
Washington and
Regulatory Research

RESPONSIBLE INVESTING

Maria Elena Drew
Director of Research,
Responsible Investing

Iona Richardson
Associate Analyst,
Responsible Investing

Gabrielle Frederick
Associate Analyst,
Responsible Investing

Joe Baldwin
Associate Analyst,
Responsible Investing

PROXY VOTING

Amanda Falasco
Lead Manager,
Post-trade Services-
Proxy Voting

Aimee Weatherly
Specialist,
Post-trade Services-
Proxy Voting

Zach Duncan
Specialist,
Post-trade Services-
Proxy Voting

Gabrielle Tana
Specialist,
Post-trade Services-
Proxy Voting

PROXY VOTING COMMITTEE

Donna F. Anderson
Chair, Head of Corporate
Governance

Kamran Baig
Director of Equity Research,
EMEA and Latin America

R. Scott Berg
Portfolio Manager,
Global Growth

Brian W. Berghuis
Portfolio Manager,
US Mid-Cap Growth

Archibald Ciganer
Portfolio Manager, Japan Equity

Anna M. Dopkin
Strategic Project Manager

Maria Elena Drew
Director of Research,
Responsible Investing

Amanda Falasco
Lead Manager,
Proxy Services

LQ Huang
General Manager,
U.S. Equity

Matthew Leef
Head of U.S. Investment,
Middle Office

Ryan Nolan
Senior Legal Counsel, Legal

Gonzalo Pangaro
Portfolio Manager,
Emerging Markets Equity

Sally Patterson
General Manager,
International Equity

Preeta Ragavan
Equity Investment Analyst

Jeff Rottinghaus
Portfolio Manager,
U.S. Large-Cap Core

John C.A. Sherman
Equity Investment Analyst

Justin Thomson
Chief Investment Officer,
Portfolio Manager,
International Discovery

Mitchell Todd
Associate Head, EMEA Equity

Eric Veiel
Co-head, Global Equity

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