

Engagement and Stewardship Report



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The power of active stewardship

At Putnam, we are committed to active investing and the potential it offers to create valuable products, pursue strong performance, and steward long-term investments with care. We are focused on thoughtful, consistent, and financial materiality-based sustainability frameworks. From this foundation, we frame questions to gain deeper, actionable insights. In a period often dominated by noise at the extremes, we choose a path of sustainability substance.

As active managers, we have a unique and essential role in engaging with company management teams. Our fundamental research process involves regular dialogue regarding corporate strategy and execution. These interactions illuminate how sustainability issues are increasingly relevant for our investments. Our belief in the power of context-specific analysis is reflected in the analytical approaches to environmental, social, and governance (ESG) integration taken across our equity and fixed income organizations.

We believe our engagement is most effective when conducted directly, privately, and consistently over time. Therefore, our top engagement themes are relatively consistent from year to year, and we address them with nuance and care. We continue to support improved investment-relevant ESG disclosures, as all forms of sustainability analysis rely on robust, accurate, timely, and relevant data.

Our engagement dialogue, deliberately pursued primarily in private settings, often defies simple categorization and short-term outcomes reporting. This appropriate investment-relevant engagement enhances our value to our clients, issuers, and the broader field of practice. At the same time, we are cautious about claiming specific credit for changes, improvements, and outcomes that result from the work of many.

This report illustrates Putnam’s continued conviction in the power of investment-led stewardship and its central role in contributing to long-term financial results for our clients, ongoing progress for issuers and their governance, and a healthy global financial system.



A handwritten signature in black ink that reads "Robert L. Reynolds".

ROBERT L. REYNOLDS
President and Chief Executive Officer



A handwritten signature in black ink that reads "Jackie Vanderbrug".

JACKIE VANDERBRUG
Head of Sustainability Strategy

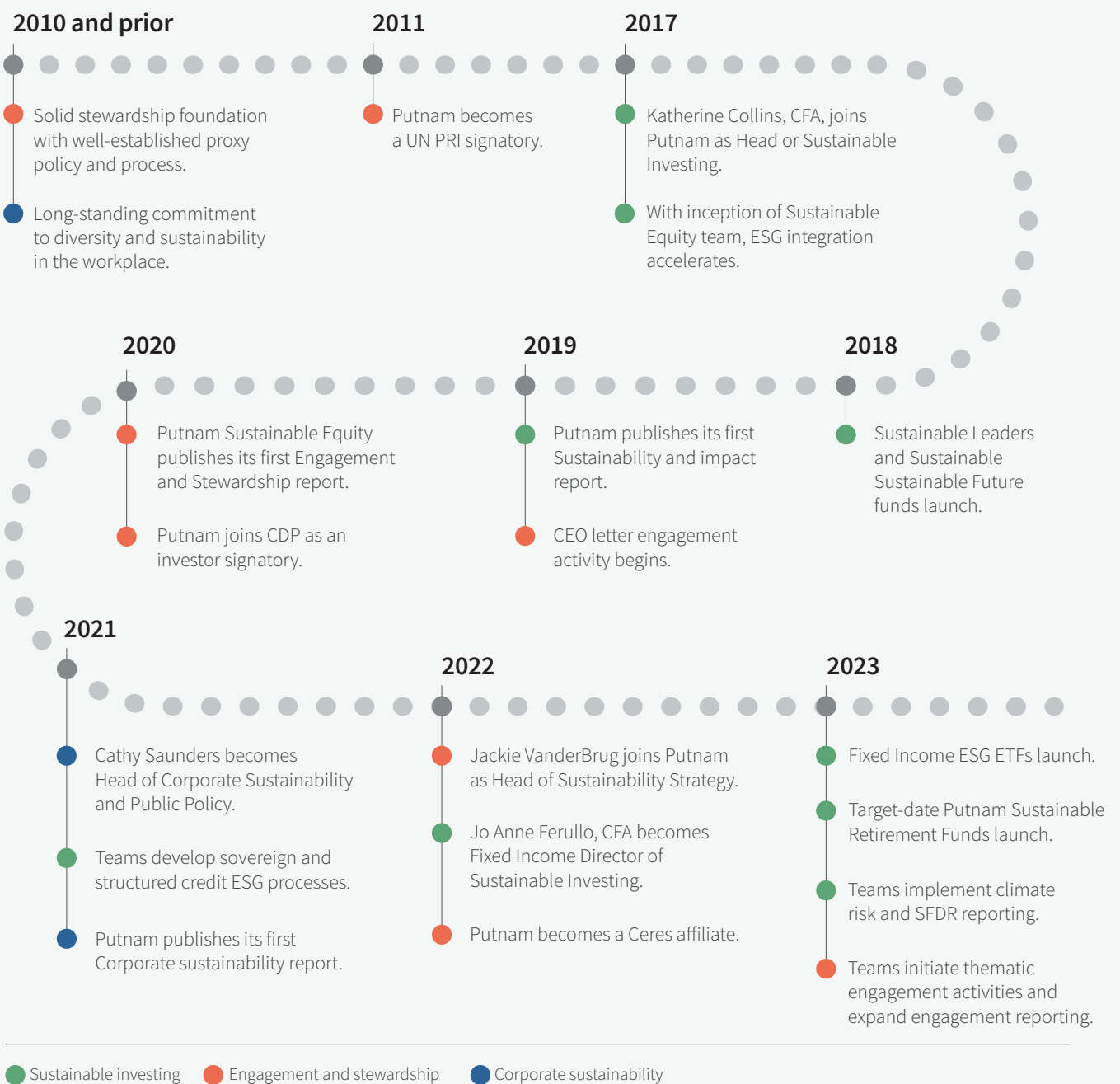
Philosophy

Our commitment to clients is the foundation of all we do.

As an asset manager, our investment stewardship aims to provide long-term value through active ownership, monitoring, and engagement with the issuers of the securities we hold in our clients' portfolios. As active managers, we are committed to conducting thorough research and to incorporating fundamental insight into all of our activities and decisions, including corporate engagement. We believe all investors benefit from effective governance practices and appropriate transparency regarding material business issues, including relevant ESG issues.

Sustainability milestones

Sustainability at Putnam is focused not only on ESG-focused investment products, but across every product and business function. We use a lens of materiality and business relevance to incorporate sustainability considerations into our research, our stewardship, and our corporate operations.



2023 in review

Whether you call it popularization or mainstreaming, politicization or polarization, ESG and sustainable investing made headlines this year. Against this backdrop, the support of global investors for engaged stewardship and sensible sustainable investment strategies remained clear and strong. Beyond the headlines, we witnessed a widespread, and welcome, refinement.

Companies became increasingly clear about their most material sustainability issues as well as their approaches to integrating these issues into their corporate strategies. This fundamental focus, the place where sustainability substance can shine through to financial performance, has been and remains the cornerstone of our approach.

While we often report progress across a set of key focus areas, the collaborative nature of our approach leads to opportunities that span our organization.



Sustainability considerations are interwoven across Putnam. We find that research ideas can lead to discussion on proxy policies, CEO letters may raise topics for broader thematic engagement, and product requirements often expand data capabilities and insights.



AARON M. COOPER, CFA
Executive Vice President
and Chief Operating Officer

Deeper and more coherent stewardship and engagement activities

Putnam's long-standing commitment to stewardship of client interest anchors all our activity. In 2023, we integrated our proxy voting policies and practices across Putnam funds and our institutional accounts. Building from the ongoing direct and collaborative engagement that is part of our investment process, we developed an approach to thematic engagement for issues that extend beyond a single issuer or asset class. Opportunities to extend our engagement work emerge from reviewing our own investment research, clients' interests, field discussions, and proxy issues. Our goal is to identify areas where added activity contributes to fulfilling our fiduciary role, addresses investment-relevant issues, furthers our understanding of risks and opportunities, and complements other engagement and research activity. This process led us to initiate research and engagement regarding water-related risk and opportunities.

We also have continued proactive engagement with top Putnam holdings by sending individually tailored letters to CEOs. Letters were written to issuers that represent approximately 50% of equity assets under management, including 100% of sustainable equity portfolio holdings, and more than 50 corporate credit holdings. The letters are written and signed by our industry analysts on the equity and corporate credit teams in collaboration with our Head of Sustainable Investing. We believe this company-specific, direct, investment-centric approach exemplifies the unique engagement active managers can pursue. During this period, we also extended engagement in fixed income beyond corporate issuers. For instance, Putnam's structured credit team held ongoing discussions with governmental and private issuers.

Expanded ESG analysis and integration across all asset classes in fixed income

We expanded our sustainable investing capabilities beyond corporate credit to include more complex sectors, including sovereign markets and securitized products. We built a proprietary framework within structured credit, which is designed to adapt as the market's disclosure and rating infrastructure develops over time. Our process is both granular and multilayered in order to tackle the complexity of structured products. We also defined a more explicit framework to guide our sovereign credit research. We incorporated a broad set of factors to evaluate ESG quality, to define a consistent scoring methodology incorporating current measures of ESG quality and progress, and to determine an appropriate weighting schema for portfolio allocation based on our analysis. For more details on our approach, see our ESG investment policy and materiality maps at [putnam.com](https://www.putnam.com).

Development and launch of innovative products to meet investor demand

We have been focused on developing innovative sustainable investing solutions that provide more choices to investors. We have also stayed focused on a rigorous, research-based approach that reflects how the "North Star" of ESG financial materiality is seen across different security types, asset classes, and investment approaches. With this research foundation in place, in the past year we launched three new actively managed ETFs for investors seeking ESG-focused fixed income investment solutions. These ETFs complement and augment existing Putnam offerings, including our sustainable equity products. The new ETFs also serve as components of our newly launched ESG-focused target-date Putnam Sustainable Retirement Funds. For more details on our sustainable products, please see our website.

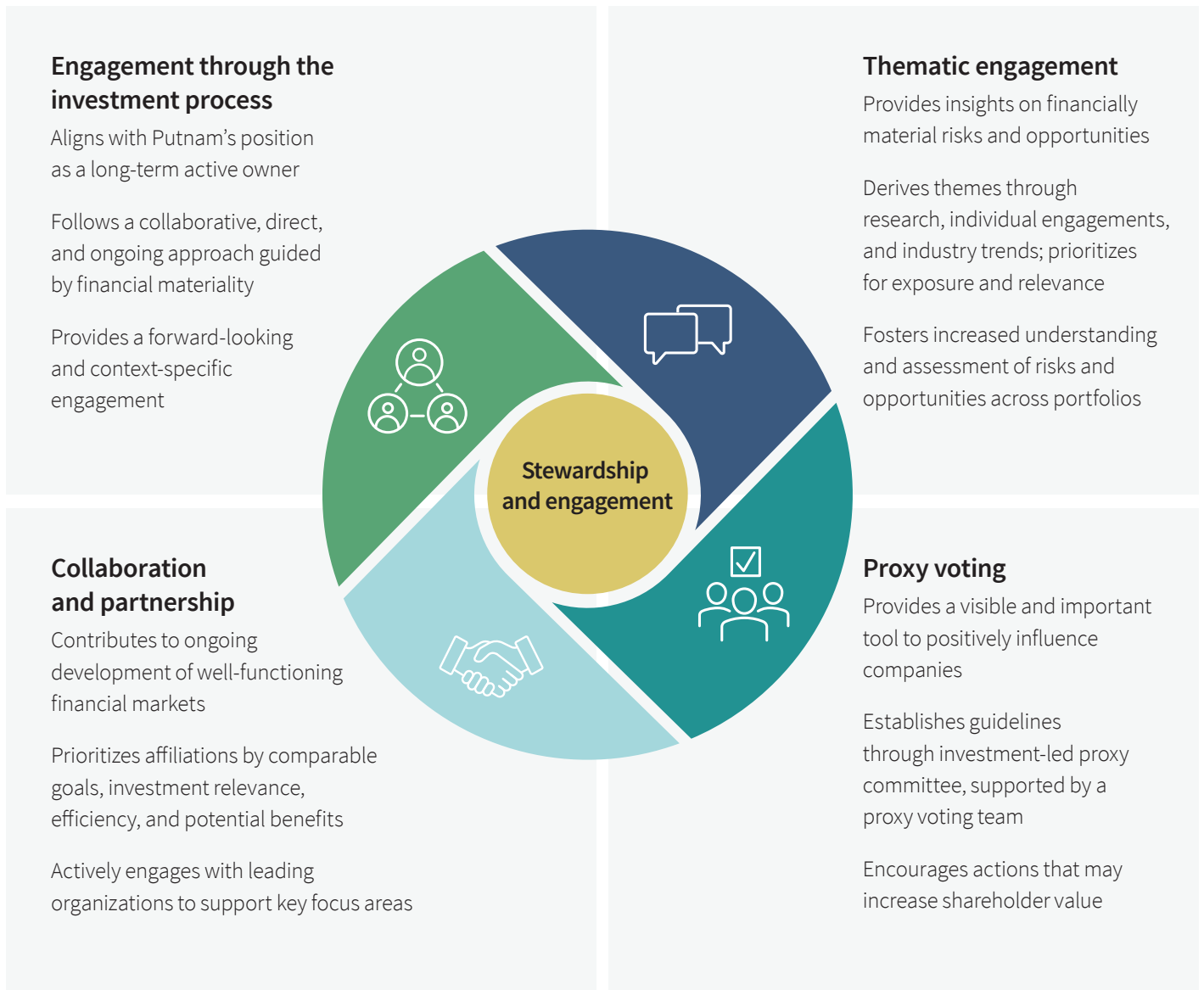
Continued development of analytics and reporting

As data needs have evolved, we continue to advance our strategy to present ESG data for investment research and compliance monitoring, and to satisfy regulatory and client-reporting needs. We refined our approach for tracking engagement activities with portfolio companies, introduced portfolio-level sustainability summary metrics reporting, implemented reporting to satisfy Sustainable Finance Disclosure Regulation (SFDR) requirements, and initiated firmwide climate risk reporting.

Engagement approach

Our engagement strategy has four components, including issuer-specific engagement that occurs in our investment process, thematic engagement, proxy voting, and participation in collaborative initiatives. All engagement activity is undertaken with the goal of benefiting our clients and shareholders through long-term financial performance.

Components of our engagement strategy



Methods of engagement

Our approach encompasses a variety of tools, including but not limited to written communications identifying focus areas for future dialogue, direct communication with issuers, and proxy voting where we have voting authority.

Prioritization

We may prioritize engagement based on the investment division's assessment of the materiality of a particular issue. We also may focus on issuers where Putnam has ownership or on issuers currently facing a controversy or other recent changes.

Escalation

We are active managers who proactively select securities for inclusion in our portfolios. As a result, we typically have ongoing direct access to issuers. The majority of engagement occurs privately and directly with issuers, including, for example, with company management and/or boards of directors. We engage to understand progress and an issuer's plans to mitigate risk and maximize opportunities. We believe engaging directly and privately leads to the most effective and candid communication. We believe it enhances our research process and information gathering and offers the greatest benefit to our clients. Because our engagement is ongoing and typically focused on long-term strategic issues, it can be difficult to draw a direct link to tangible short-term outcomes. When we do identify specific outcomes, they are often indicators of longer-term progress regarding financially material ESG or other issues. When engagement does not lead to constructive dialogue or progress, options may include further outreach, including to board members and/or senior management, appropriate collaboration with other investors or organizations, and consideration of proxy voting issues, like board composition, as well as the potential sale of the security or not buying a new bond issue.

Tracking

In 2023, Putnam's engagement-tracking process expanded to account for growing activity across asset classes. Understanding that engagement with corporate issuers, sovereign and governmental institutions, and additional counterparties and originators can take different forms, we built a framework that seeks to meet the needs of our equity, corporate credit, sovereign, and structured credit teams. Analysts and portfolio managers provided input on the engagement-tracking process as it was created, which resulted in an approach that meets the varied needs of the teams. In the coming years, our tracking process will continue to evolve in alignment with our developing engagement activity.

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As active investors, we believe our long-standing practice of engaging directly and collaboratively enhances our research process and analytical capabilities and offers the greatest benefit to our clients.

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SHEP PERKINS
CIO, Equities

Engagement through our investment process

Investment relevance guides our focus

As active managers, we are committed to conducting thorough fundamental research when pursuing investment opportunities for our clients. We conduct our research on companies in a variety of ways, including direct communication with management teams, participation in industry and customer conferences, and incorporation of relevant third-party and independent data and research. We integrate ESG analysis into our research process with a materiality-focused approach, as relevant issues vary by sector, geography, asset class, and company context.

Our belief in the power of context-specific analysis extends to the analytical approaches to ESG integration taken across our equity and fixed income organizations. This focus is evident in our equity and corporate credit materiality maps, which show that material issues vary according to business type. Also, our research and engagement activities have a forward-looking focus, with a goal of anticipating change related to relevant business issues.

We believe a forward-looking and context-specific research focus can be a key contributor to long-term investment results. Given differences in investment contexts and goals, Putnam portfolio managers, strategies, and funds take varied approaches to ESG integration. However, what unites us as an investing team is a view that thoughtful ESG analysis can serve as important input for pursuing strong returns and assessing potential risk and opportunities.

Engagement and fundamental research

Our investment engagement is an integral component of our fundamental research process and helps us assess risks and identify opportunities. The vast majority of this engagement is private and direct with company management and directors.

As active managers, we proactively decide which securities to own in our portfolios. This means that as a firm, we hold a relatively small subset of securities within an investment universe. We therefore view our engagement with companies as a collaborative process.

We bring a long-term investment perspective and an understanding of specific business context to our discussions with corporate leadership teams, including C-suite executives, corporate sustainability leaders, and board members. We engage on issues that are material and financially relevant for the specific company and industry, and we do not view our engagement as a platform for advocacy beyond these issues.

Beyond these research-focused discussions, we also frequently respond to outreach focused on corporate materiality assessments, corporate ESG disclosures, or specific governance and proxy-related issues.

Because our engagement is ongoing and typically focused on long-term strategic issues, it can be difficult and perhaps presumptuous to draw a direct link to tangible short-term outcomes. When we do identify specific outcomes, they are often indicators of longer-term progress regarding financially material ESG issues. For example, several companies in our portfolios have published inaugural sustainability reports, increased communication and disclosure of relevant ESG metrics, or made significant progress in identifying and managing material sustainability issues after working with multiple stakeholders, including our team.

Financial materiality

Given Putnam’s investment-centric philosophy, our ESG integration and engagement is grounded by our internally developed materiality maps. They are inspired and guided by the work of the Sustainability Accounting Standards Board (SASB), whose standards are now part of the IFRS Foundation and governed by its International Sustainability Standards Board (ISSB).

Putnam equity materiality map

■ Most relevant ■ Often relevant ■ Less relevant

	Consumer	Healthcare	Financials	Tech (hardware)	Comm and tech (software)	Industrials	Materials and energy	Utilities	Real Estate
GOVERNANCE	Board structure and composition	Most relevant	Most relevant	Most relevant	Most relevant	Most relevant	Most relevant	Most relevant	Most relevant
	Management incentives, ownership, and comp alignment	Most relevant	Most relevant	Most relevant	Most relevant	Most relevant	Most relevant	Most relevant	Most relevant
	Systemic risk management and leadership	Most relevant	Most relevant	Most relevant	Most relevant	Most relevant	Most relevant	Most relevant	Most relevant
	Corporate purpose, culture, and mission alignment	Most relevant	Most relevant	Most relevant	Most relevant	Most relevant	Most relevant	Most relevant	Most relevant
SOCIAL	Diversity, equity, and inclusion	Most relevant	Most relevant	Most relevant	Most relevant	Most relevant	Most relevant	Most relevant	Most relevant
	Employee well-being and development	Most relevant	Most relevant	Most relevant	Most relevant	Most relevant	Most relevant	Most relevant	Most relevant
	Product impact and customer well-being	Most relevant	Often relevant	Often relevant	Most relevant	Often relevant	Most relevant	Often relevant	Often relevant
	Supply and distribution network management	Most relevant	Most relevant	Less relevant	Most relevant	Less relevant	Often relevant	Less relevant	Often relevant
	Privacy, data security, and data use	Often relevant	Most relevant	Most relevant	Often relevant	Most relevant	Often relevant	Often relevant	Often relevant
	Marketing and selling practices	Most relevant	Most relevant	Often relevant	Often relevant	Often relevant	Often relevant	Less relevant	Less relevant
	Pricing philosophy and access	Most relevant	Most relevant	Most relevant	Less relevant	Often relevant	Less relevant	Less relevant	Most relevant
	Climate change mitigation and adaptation	Often relevant	Often relevant	Often relevant	Often relevant	Often relevant	Most relevant	Most relevant	Most relevant
	Physical climate change risk	Often relevant	Less relevant	Often relevant	Less relevant	Less relevant	Most relevant	Most relevant	Most relevant
	Greenhouse gas (GHG) emissions	Often relevant	Less relevant	Less relevant	Often relevant	Often relevant	Most relevant	Most relevant	Most relevant
ENVIRONMENTAL	Energy intensity and renewable energy use	Often relevant	Less relevant	Less relevant	Often relevant	Most relevant	Most relevant	Most relevant	Most relevant
	Materials sourcing, intensity, and lifecycle management	Most relevant	Often relevant	Less relevant	Most relevant	Less relevant	Most relevant	Most relevant	Often relevant
	Water intensity and stress	Most relevant	Less relevant	Less relevant	Often relevant	Less relevant	Most relevant	Most relevant	Often relevant
	Biodiversity and ecosystems impact	Often relevant	Less relevant	Less relevant	Less relevant	Less relevant	Often relevant	Most relevant	Often relevant

Source: Putnam, adapted from SASB Materiality Map, as of 8/31/23.

Putnam corporate credit materiality map

■ Usually relevant ■ Often relevant ■ Sometimes relevant

* Specific to corporate credit and different from equity materiality criteria.

	Consumer	Healthcare	Financials	Technology	Commu- nication	Industrials	Materials and energy	Utilities
GOVERNANCE	Board structure and composition	Usually relevant	Usually relevant	Usually relevant	Usually relevant	Usually relevant	Usually relevant	Usually relevant
	Management incentives, ownership, pay alignment	Usually relevant	Usually relevant	Usually relevant	Usually relevant	Usually relevant	Usually relevant	Usually relevant
	Systemic risk management and leadership	Usually relevant	Usually relevant	Usually relevant	Usually relevant	Usually relevant	Usually relevant	Usually relevant
	Covenant/bondholder rights*	Often relevant	Often relevant	Often relevant	Often relevant	Often relevant	Often relevant	Often relevant
	Accounting and business ethics	Usually relevant	Usually relevant	Usually relevant	Usually relevant	Usually relevant	Usually relevant	Usually relevant
SOCIAL	Employee diversity, development, and well-being	Usually relevant	Usually relevant	Usually relevant	Usually relevant	Usually relevant	Usually relevant	Usually relevant
	Safety, labor rights, equity	Usually relevant	Usually relevant	Usually relevant	Usually relevant	Usually relevant	Usually relevant	Usually relevant
	Supply chain, distribution, and marketing management	Usually relevant	Usually relevant	Sometimes relevant	Usually relevant	Sometimes relevant	Often relevant	Sometimes relevant
	Product impact and customer well-being	Usually relevant	Usually relevant	Often relevant	Often relevant	Often relevant	Often relevant*	Often relevant
	Pricing philosophy and access	Usually relevant	Usually relevant	Often relevant*	Sometimes relevant	Often relevant	Sometimes relevant	Sometimes relevant
ENVIRONMENTAL	Privacy and data security	Often relevant	Usually relevant	Usually relevant	Usually relevant	Usually relevant	Sometimes relevant	Sometimes relevant
	Climate change risk	Often relevant	Sometimes relevant	Often relevant	Sometimes relevant	Sometimes relevant	Usually relevant	Usually relevant
	Climate change mitigation and adaptation	Often relevant	Often relevant	Often relevant*	Often relevant	Often relevant	Usually relevant	Usually relevant
	GHG emissions	Often relevant	Sometimes relevant	Sometimes relevant	Often relevant	Often relevant	Usually relevant	Usually relevant
	Water intensity and stress	Usually relevant	Sometimes relevant	Sometimes relevant	Often relevant	Sometimes relevant	Usually relevant	Often relevant
	Energy intensity and renewable energy use	Often relevant	Sometimes relevant	Sometimes relevant	Often relevant	Usually relevant	Usually relevant	Usually relevant
	Materials sourcing, intensity, and lifecycle management	Usually relevant	Often relevant	Sometimes relevant	Usually relevant	Sometimes relevant	Usually relevant	Often relevant
	Recycling and reuse	Usually relevant	Sometimes relevant	Sometimes relevant	Often relevant	Sometimes relevant	Usually relevant	Often relevant
	Biodiversity and ecosystems impact	Often relevant	Sometimes relevant	Sometimes relevant	Sometimes relevant	Sometimes relevant	Often relevant	Usually relevant

Source: Putnam, adapted from SASB Materiality Map, as of 9/30/22.

2023 CEO letters

In addition to the ongoing research described above, our investment team sends annual, individually tailored letters to the CEOs of Putnam's holdings.

In 2023, we sent CEO letters to companies representing approximately 50% of all equity assets we manage, including 100% of sustainable equity mutual fund portfolio holdings, and more than 50 key corporate credit holdings.

This outreach identifies material sustainability issues specific to each company, acknowledging efforts to date and encouraging future progress.

Importantly, the inputs for this process are crafted by Putnam's analysts and portfolio managers on the equity and corporate credit teams, reflecting their context-specific understanding of each company. As with our fundamental research process, in composing these letters we reference our materiality maps to guide our focus toward the most investment-relevant issues.

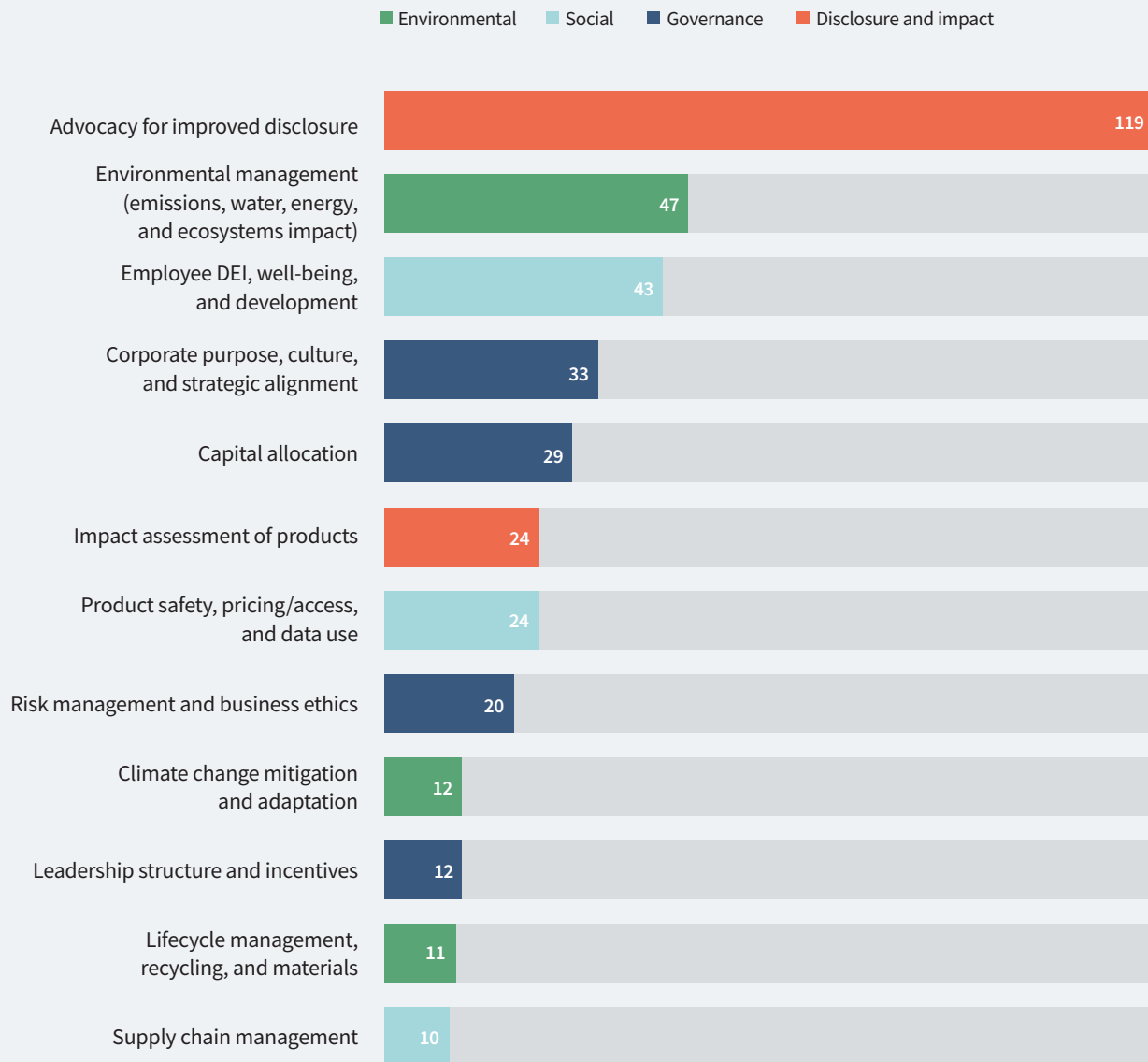
This correspondence presents an opportunity for us to document what we view as the most material ESG issues for each company, to note our interest in issues where progress or performance might not be apparent, and to provide a grounding for ongoing research and dialogue on these topics.

Over 65% of our 2023 letters received direct responses from company management teams within the first weeks after receipt. Many offered opportunities to continue our ongoing communication and deepen our understanding of the issues noted through subsequent calls and meetings.



Discussions resulting from CEO letters have further enhanced our research process, contributing to our understanding of essential long-term business issues.

2023 issues addressed in CEO letters



Source: Putnam. Represents CEO letters sent in 2023.

All letters in 2023 included advocacy for improved ESG disclosures, specifically focused on the investment-relevant frameworks of SASB/ISSB and TCFD. Each letter referenced multiple issues. The total number of issues reported does not match the total number of letters or companies involved.

Engagement highlights

Our engagement with issuers is informed by our materiality maps, focused on issues that we believe to be material and financially relevant on a company-specific basis. Beyond our widespread advocacy for improved decision-useful corporate disclosures, the most frequent themes addressed in 2023 CEO letters were environmental management; employee diversity, equity, and inclusion, well-being, and development; corporate purpose, culture, and strategic alignment; capital allocation; impact assessment of products; and product safety, pricing/access, and data use.

The composition of top themes was relatively consistent with prior years. The case study examples that follow provide further context for how key topics are addressed on an ongoing basis through our research and engagement with management teams. They also demonstrate the potential for progress and impact over time.

“ Putnam’s focus on financial materiality informs our analysis and engagement approach and highlights the connections between environmental, social, and governance issues and business fundamentals. ”



KATHERINE COLLINS, CFA, MTS
Head of Sustainable Investing

2023 top themes



Environmental

Environmental management (emissions, water, energy, and ecosystems impact)



Social

Employee DEI, well-being, and development



Governance

Corporate purpose, culture, and mission alignment



Case study examples of investment-led engagement

Case study 1 — Social metrics for mortgage lenders

One example of our investment-led engagement involves the Federal National Mortgage Association (Fannie Mae) and Federal Home Loan Mortgage Corporation (Freddie Mac). These U.S. government-sponsored enterprises (GSEs) are charged with setting underwriting standards, buying mortgages from originators, securitizing them, and selling them to investors. Our goal was to review and discuss their recent issuance of social indexes.

As significant market participants, both GSEs have a great deal of influence in the lending standards that impact the profile of eligible borrowers. Fannie Mae created a Single-Family Social Index to provide the market with more information regarding the social characteristics of its mortgage pools at issuance. This included two measures: Social Criteria Share and Social Density Score. The scores reflect characteristics of the collateral in the pool, which falls into eight categories: low-income borrower, minority borrower, first-time home buyer, manufactured home, home located in low-income area, minority tract, high-needs rural area, and designated disaster area. Shortly thereafter, Freddie Mac adopted the same index methodology.

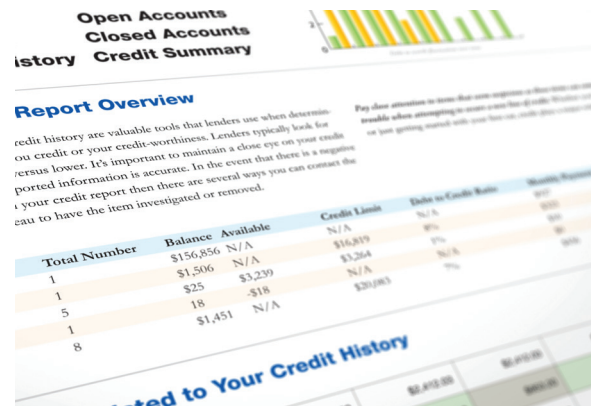
While evaluating the social index data and how it might fit into our ESG framework, it became clear the categories are broadly defined and have varied relevance. For example, it is likely a borrower may fall into more than one, especially the location-based categories. Some categories are also more relevant than others. For example, a loan underwritten to a low-income borrower is likely to offer an affordable financing option. However, a loan for a home in a low-income area may not necessarily be underwritten to a low-income borrower. We requested a breakdown of the social index data for each of the eight categories so we can better evaluate the ESG characteristics of mortgage securities backed by these agencies.

In addition to reviewing the social index, we also discussed their plans to address racial disparity concerns, and their recent efforts to switch to a new credit scoring system. We also sought to better understand their plans for upcoming environmental data releases.

Observations and outcomes

Both agencies acknowledge the need for more transparency and data disclosure for evaluating the ESG nature of mortgage pools. Their ability to provide additional clarity is subject to the difficult balancing act of highly regulated and critical borrower privacy and their recognition of the potential for market-moving impact related to any additional information they may release. By exploring their objectives as well as their dependencies and constraints, we learned more about the direction and pace of their work. Throughout our interactions, it was clear that both Fannie Mae and Freddie Mac are very conscious of their responsibilities and the requirements to protect borrower privacy. We anticipate both agencies will continue to seek to provide additional clarity and data where possible. We agreed to be part of their review process prior to forthcoming releases and look forward to providing feedback as to how the data can be most useful to investors.

Our engagements highlighted the significant value and the considerable complexity of social data structuring and disclosure.



Putnam engaged with three major U.S. financial institutions over the past year on governance and risk management with a goal of understanding how their different operational settings influence company-specific priorities.



Case study 2 — Governance and risk management

Risk management is especially important in financial services companies, where long-term business success relies on effective risk assessment, business-relevant insights, and appropriate oversight and compliance processes. Putnam engaged with three major U.S. financial institutions over the past year on these topics, with a goal of understanding how their different operational settings influence company-specific risk-management priorities.

We have seen a range of operating environments that highlight the structural importance of risk management for financial institutions. Most memorable for many investors is the global financial crisis of 2007–2009. Several major financial companies failed, and others were deeply compromised, leading to wide-ranging negative economic and social consequences. In recent years, like other types of companies, financial services organizations have been navigating pandemic

conditions, climate change and severe weather risks, and increases in operational complexity due to rising data security requirements and evolving regulatory landscapes.

While all three companies that Putnam engaged in this area face the challenges noted above, the company-specific details vary considerably. In one instance, our engagement concerned how the organization’s increased focus on risk oversight and risk management had served it when responding to the Russian invasion of Ukraine and other newly emerging geopolitical events. This company has spent several years enhancing its risk-related functions, and management noted the importance of having separate, robust processes for risk oversight (within compliance and regulatory functions) versus strategic risk management (within daily business functions). In this case, a number of board-level governance processes have also been established or enhanced to support the risk-related areas that are essential to the company’s ongoing success.

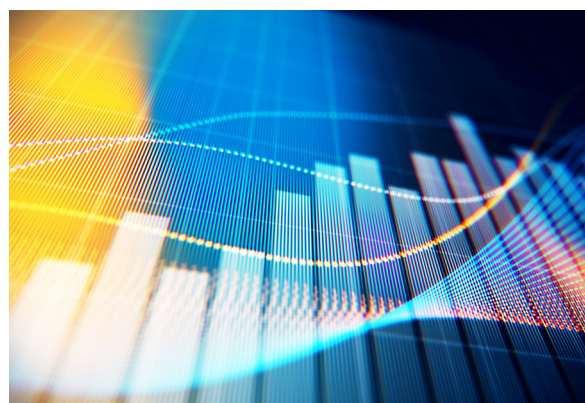
For another company, we focused on the risks and opportunities of the climate crisis and energy transition. This company has made a large commitment to funding climate solutions and has been proactive in highlighting ideas that are rooted in sound scientific and economic reasoning. In this discussion, we noted the importance of strong existing risk-related business processes, which have been developed over multiple decades and through a wide range of business conditions. In more recent years, the company has developed an expert internal climate-risk team, including related research, analysis, and disclosure functions. The integration of this combined risk-related expertise into the ongoing business units is evident and likely to be a key determinant of long-term business results.

With another company, we explored the role of its board of directors in times of crisis or heightened risk. Specifically, our concern was that the pace of development in real-world crisis situations continues to quicken. At the same time, many governance procedures are deliberately designed to support steady long-term focus, resulting in a potential inability to respond to rapidly evolving business circumstances. In this case, the company had established a strong foundation of core governance procedures that has proven effective over time. It also recently added mechanisms for increased real-time information sharing and for more immediate board involvement and responsiveness where warranted.

All three of these engagements offered insights on how long-established risk functions can evolve over time to address new issues and changing circumstances. Each also emphasized the ties between internal risk-management mechanisms and board-level oversight.

Observations and outcomes

These engagements reinforced the central importance of risk management for financial companies and also highlighted the specific differences between individual company settings. By tailoring our inquiry to each organization's strategic context, we learned more about their foundational risk-management processes and procedures, and how these link to board-related functions and oversight. Most importantly, we developed a greater understanding of how these complex organizations respond to emerging risks and opportunities. Given the clear links to long-term strategy and business fundamentals, we expect to continue to analyze risk-related issues within the financials sector.



Thematic engagement approach

In 2023, we established a framework and process to identify when an investment-relevant topic should be explored for thematic engagement across asset classes and sectors. Thematic engagement serves as a complement to investment-led, bottom-up engagement. It also brings increased understanding of risks and opportunities associated with material ESG topics across Putnam's portfolio holdings. Themes may emerge through research, industry trends, or direct engagement with an individual portfolio company.

When considering thematic areas of interest, Putnam considers whether the engagement is additive to fulfilling our fiduciary role, is relevant to investments across asset classes, is informed by other engagement activity, and is complementary to our research process and risk/opportunity analysis. As themes emerge, our foundational materiality maps influence further analysis across asset classes and sectors to identify companies with whom engagement may be appropriate. Analysts assigned to identified companies collaborate with Putnam's Sustainability Strategy team to conduct further research and engagement activities.

Our initial phase of thematic engagement focused on water-related risks and opportunities. We believe companies that proactively assess and address water-related risks in their supply chains, internal operations, and product use can potentially improve efficiencies, reduce costs, mitigate risks, and avoid operational disruptions.

In 2023, our equity and corporate credit teams engaged with a number of U.S.-domiciled consumer, semiconductor, and utilities companies. The goal was to better understand how these companies assess and manage water-related risks while addressing opportunities to increase efficiencies and reduce resource dependencies. Several of these companies have operations outside the United States, including in certain regions where water stress is a risk factor.

One company discussed improvements made to its risk assessment practices, community engagement, and goals on water restoration following operational disruptions when a production plant had to be shut down due to a lack of sufficient water supply. Several companies described the challenges they face in predicting water availability and cost across varying timelines. Companies that intentionally avoided water-stressed regions for manufacturing plants noted lessened water-related pressure on operations. One company discussed the risks associated with effluent waste management from its facilities and opportunities for refining relevant information disclosures.

Overall, the companies we engaged with are proactively managing a wide range of water-related risks in a way that is well aligned with their business models and the physical resource setting. This activity has shown how engagement on an issue across sectors and geographies can highlight best practices in issue management, as well as opportunities for creating solutions where companies operate in unique settings.

By building on our existing internal research understanding, our analysts were able to have collaborative and productive conversations with the companies.

Discussions included how water risk management links to efficiency, innovation, and the long-term economic models of the businesses. Two companies presented long-term goals and ongoing efforts that may be monitored going forward. Most companies were managing water risks appropriately as material business risks. We expect that companies who manage water-related risks proactively, disclose relevant metrics to stakeholders, and engage with local communities could continue to see benefits to operating effectiveness and long-term strategic success.

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Engaging thematically across sectors and geographies allows our research team to dive deep on relevant sustainability issues. We use our research foundation to engage with companies, learn about best practices, and highlight opportunities for improvement or solutions. The partnership between the research and stewardship teams makes this work possible.

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KATE LAKIN

Director of Equity Research



Case study example of thematic engagement

Case study 3 — Environment — Water resource management

A U.S. beverage company was part of our engagement to address water risk and strategy. Water consumption is an essential component of beer production and vineyard agriculture, and it presents key risks in Mexico and California. In 2020, this company experienced significant challenges resulting from water shortages and community opposition, which led to operational disruptions and significant costs for the business. Its current expansion plans in Northern Mexico face ongoing risks tied to water supply and community relations. More broadly, concerns also include water management, waste, and pollution.

Observations and outcomes

Through engagement, we learned that the beverage producer is aggressively pursuing water efficiency and restoration actions. It is implementing a three-year plan focused on water efficiency, watershed restoration, and water accessibility and quality, taking the needs of local communities into consideration while maintaining its focus on operational efficiency. The company also hired a community liaison to work with state and local governments as well as community leaders.

The goal is to create community-oriented programs and better alignment with the government, improving the stability of these relationships and the company's operating conditions. Through these efforts, and with guidance from third-party water restoration organizations, the company has initiated projects that aim to benefit the communities and overall watershed health.

Our engagement confirmed the multidimensional and geographically specific nature of water risk and the importance of active risk management. The company is working to mitigate its water risk by improving water practices for production efficiency as well as restoring and managing reforestation and waterways/wetlands. Social risk associated with the communities in the areas surrounding the breweries is also being addressed by the community liaison through engagement with community leaders and state and local governments. We will continue to monitor the company's efforts and progress toward achieving its goals, as it is clear that these issues are material for its long-term business success.

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We believe incorporating financially material ESG factors into our research process makes us better investors. This is based on our belief that material sustainability issues have the potential to impact company fundamentals. The research team applies a materiality map to dive into key issues across sectors, which is informed by SASB/ISSB frameworks and tools — an integral component of our work.

”



JACKIE VANDERBRUG
Head of Sustainability Strategy

Stewardship through the proxy voting program

Proxy voting is a cornerstone of strong governance and effective management. Putnam has had detailed proxy voting guidelines in place for many years. These guidelines aim to encourage actions that enhance shareholder value.

Putnam's engagement through the proxy voting process is managed by our proxy team, in partnership with the Sustainability team and relevant investment professionals. Putnam's Proxy Committee, which consists of senior investment professionals and the Head of Sustainability Strategy, reviews Putnam's proxy voting guidelines and procedures annually and considers special proxy issues as they arise from time to time. In March 2023, the Trustees of The Putnam Funds delegated voting of the proxies for the Funds to Putnam Investments. On an annual basis, the Trustees of The Putnam Funds will consider changes to the voting policies for approval.

The proxy voting guidelines are just that — guidelines. The guidelines are not exhaustive and do not address all potential voting issues. Because the circumstances of individual companies are so varied, the guidelines are applied with discretion, and there may be instances when we do not vote in strict adherence to them. For example, some proposals, while covered by the guidelines, may be more appropriately handled on a case-by-case basis because they involve unusual or controversial issues or because they are company-specific and of a non-routine nature. Putnam is mindful of emerging best practices in the areas of corporate governance, environmental stewardship and sustainability, and social responsibility. Recognizing that these matters may in some instances bear on investment

performance, they may be considerations in the voting decisions. Links to Putnam's proxy voting policies and procedures may be found on the [Proxy voting page](#) at putnam.com. Additionally, Putnam has retained Glass Lewis as our third-party proxy voting service provider. We also contract with ISS for additional research.

Collectively, across management and shareholder proposals, The Putnam Funds and institutional accounts voted with management on 19,535 proposals, against management on 2,039 proposals, and abstained from voting on 72 proposals.

Management proposals*

On an annual basis, investors are asked to vote on management-related business proposals, which generally include the election of the board of directors, capital structures such as authorization for debt or equity issuance, strategic transactions, the election of auditors, and compensation, including executive compensation, say-on-pay, and equity compensation plans.

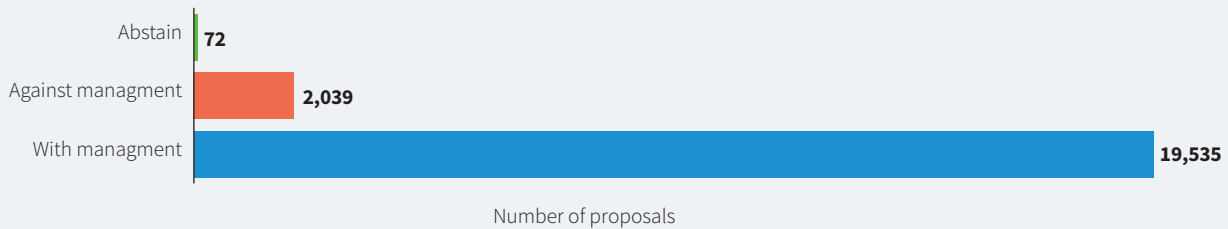
For the 2023 proxy season, we saw investors focused on board composition and quality, with director election garnering strong support. The new universal proxy card (UPC) rules contributed to changing dynamics when evaluating boards and activism. Executive compensation also remained a key focus, with say-on-pay opposition declining, resulting with the lowest failure rate since 2017.

* Source: Glass Lewis 2023 Proxy Season Briefing Report.

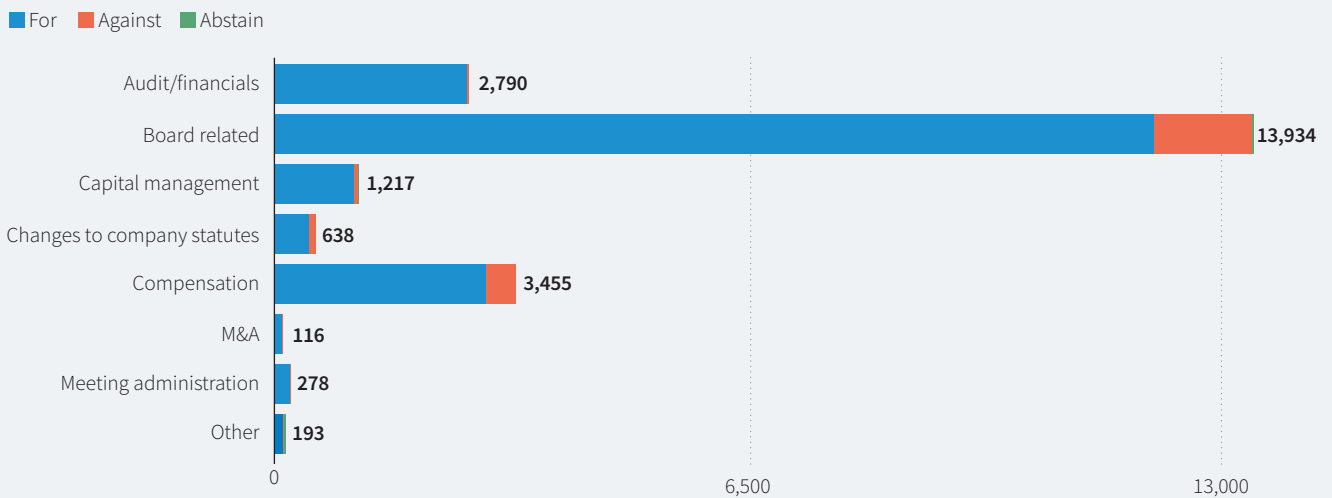
As this was the first proxy season following the new requirement to comply with the SEC’s pay-versus-performance disclosure rules, companies were required to provide additional disclosure highlighting the alignment between company performance and executive compensation.

The following charts illustrate Putnam’s proxy voting activity for management proposals during the period July 1, 2022–June 30, 2023, which is the most recent data available.

Management proposals voted



Management proposals by category



Source: Putnam. Represents global proxy voting activity for The Putnam Funds and institutional accounts for the period July 1, 2022–June 30, 2023.

Shareholder proposals†

In many markets around the world, shareholders of a company are given the right to present issues to be voted on at the annual general meeting. Shareholder proposals are nonbinding votes that are often opposed by management. Putnam has an established model to evaluate shareholder proposals. We consider the relevance and materiality of the proposal to the company’s business, whether the proposal is well crafted, and the practicality or reasonableness of implementing the proposal. For votes related to corporate disclosures, we review a company’s existing disclosure and reporting to assess the level of detail provided and the inclusion of forward-looking goals. We consider whether the company’s policies and actions, as well as impact and results, are effective, and we assess whether additional disclosure is necessary and would add value.

The 2023 proxy season saw a 12% increase in the number of shareholder proposals that went to vote. The increase in shareholder proposal volume was likely driven by both an SEC change that made it more difficult for companies to omit shareholder proposals and by greater investor focus on ESG-related issues. For the first time, environmental and social (E&S)-related resolutions accounted for the

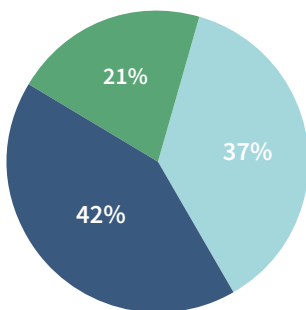
majority of shareholder resolutions, surpassing governance-related proposal activity. The most common E&S-related shareholder proposal topics were in the areas of climate change; political spending/lobbying; human rights; diversity, equity, and inclusion (DEI); and health/safety. On the governance side, common topics for proposals included requests for an independent board chair and for shareholder approval of severance policies.

Although there was an uptick in the number of shareholder proposals, levels of shareholder voting support for E&S-focused proposals decreased. In addition, the number of anti-ESG proposals voted on reflect the larger trend of politicization and polarization of corporate E&S issues in the U.S.

During the period July 1, 2022–June 30, 2023, there were 586 shareholder proposals relating to companies within Putnam portfolios seeking a vote on ESG matters: 123 (21%) addressed environmental issues, 217 (37%) addressed social issues, and 246 (42%) addressed governance issues. We believe our votes exemplify our philosophical and practical approach to shareholder proposal evaluation.

† Sources: Glass Lewis 2023 Proxy Season Briefing Report; ISS Insights, “In Focus: Shareholder Proposals in the 2023 U.S. Proxy Season.”

Shareholder proposals voted



	For	Against	Abstain
● Environmental	10%	90%	0%
● Social	10%	89%	1%
● Governance	46%	53%	1%

Source: Putnam. Represents global proxy voting activity for The Putnam Funds and institutional accounts for the period July 1, 2022–June 30, 2023.

Proxy voting case studies[‡]

Company: Chevron

Proposal type: Shareholder

Focus: Environmental

Putnam voted against the proposal that requested Chevron recalculate base year greenhouse gas (GHG) emissions to exclude emissions for material divestitures.

The proposal highlighted that recalculating base year emissions to account for divestitures is in line with guidance from several industry bodies. Doing so offers transparency that allows shareholders to assess if company GHG reductions stem from operational improvements or from transferring emissions from one company to another.

As reflected in our equity materiality map, Putnam considers GHG emissions a material issue for the energy sector. Our investment research monitors strategic and operational plans to address risks such as changes in environmental policy and the shifting value of emissions avoidance.

We reviewed Chevron's current reporting, which includes the annual CO₂ intensity of both oil and gas production, analysis of operations under various carbon constraint scenarios, and supplemental information on oil and gas producing activities. We believe this collective disclosure, viewed in combination with required financial and reserves reports, offers an appropriate lens to gauge operational and environmental progress and the associated economics.

Company: ExxonMobil

Proposal type: Shareholder

Focus: Environmental

Putnam voted in favor of a proposal that ExxonMobil summarize the outcome of efforts to directly measure methane emissions using recognized frameworks, and disclose whether that outcome suggests a need to alter its actions to achieve its climate targets.

As reflected in our equity materiality map, Putnam considers GHG emissions a material issue for the energy sector. Our investment research monitors strategic and operational plans to address developments such as changes in environmental policy and the shifting value of emissions avoidance. Research has shown that emissions of methane, which has 80 times the warming power of carbon dioxide over a 20-year timeframe, can occur throughout the oil and gas supply chain at a much higher rate than reflected in industry or government estimates. A growing system of satellite imaging and other monitoring allows methane emissions to be identified on a timely basis. More accurate data can help companies to effectively manage operations and mitigate potential risks.

We believe a more comprehensive effort by Exxon to reconcile any material differences between the methane emissions data Exxon reports and third-party measurement results could improve operational effectiveness. It could also enhance the credibility of Exxon's reported environmental data, which is an important indirect influence on the company's long-term cost of capital.

[‡] We may leverage Glass Lewis and ISS research to inform our proxy voting decisions.

Company: Meta Platforms, Inc.

Proposal type: Shareholder

Focus: Social

Putnam voted in favor of the shareholder proposal requesting that the company commission a nonpartisan assessment of its political entanglement and content management biases in its operations in India, with specific focus on how the platform has been utilized to foment ethnic and religious conflict, and disclose the results in a report to investors.

As reflected in Putnam's equity materiality map, data use and data management represent financially material issues for content and information platform companies, as do product impact and customer well-being. Failure to appropriately manage content presents financially material risks — legal, reputational, regulatory, and operational.

Although the company currently provides some limited disclosure, we believe events in India, for instance, suggest that certain content-related policies might not be effectively enforced across all geographies, which has potential for far-reaching impacts on the business. Given this relevance, shareholders would benefit from improved reporting, and therefore, we supported the proposal.

Company: Vornado Realty Trust

Proposal type: Management

Focus: Governance board independence

At their annual meetings, companies propose a slate of directors for shareholder consideration. Being a director of a company requires a significant time commitment to adequately prepare for and attend the company's board meetings. Directors must be able to commit the time and attention necessary to perform their fiduciary duties, particularly in times of crisis. In some cases, directors may serve on too many boards to make a meaningful contribution. This may be true for senior executives of public companies while serving on more than two outside boards. Putnam's equity materiality map notes that board structure and composition is a material consideration for all types of companies.

Our proxy voting guidelines indicated a potential vote against the re-election of one director, an executive with three outside directorships. After engaging with the company and assessing several factors, including board independence, a plurality voting standard, and the presence of a lead independent director, we concluded that based on a combination of leadership experience, director skill set, and added diversity of perspective, the candidate would enhance the overall board's effectiveness. As such, Putnam voted for the director nominee.

Proxy voting case studies: Company examples are intended to help illustrate Putnam's proxy voting process and should not be considered a recommendation or solicitation to purchase or sell the securities. The specific companies were selected without regard to whether such securities were profitable and are only intended to demonstrate Putnam's approach to evaluating shareholder proposals across E, S and G topics. It should not be assumed that any investment in these securities was, or will prove to be, profitable, or that the investment decisions we make in the future will be profitable or equal to the investment performance of the securities referenced herein. There is no assurance that any securities referenced herein are currently held in a Putnam portfolio or that securities sold have not been repurchased. Any securities mentioned are not necessarily held by Putnam for all client portfolios.

Engagement through partnership and collaboration

We recognize that the field of investment stewardship is growing and evolving, and that collaborations are essential to the field's advancement. Putnam partners with a variety of organizations to support areas of critical importance to our clients, the industry, and the broader community.

We view collaborative initiatives as an opportunity to stay abreast of industry developments, gain access to additional research, and identify best practices to address financially material risks and opportunities.

Most of our issuer engagement with portfolio companies is handled privately and directly. However, we may consider collaborative engagement with other investors if it is likely to advance Putnam clients' best interests, is consistent with company policies, is permitted under applicable laws and regulations, and is better suited to broad engagement.

We are members of several organizations that improve our understanding of financially material risks and opportunities, and encourage investment-relevant environmental, social, and governance disclosures.

Principles for Responsible Investment is an investor initiative in partnership with UNEP Finance Initiative and the UN Global Compact. Putnam became an investor signatory in 2011.

SASB/IFRS/ISSB: The International Sustainability Standards Board is committed to building on the work of existing investor-focused reporting initiatives, such as SASB Standards, which identify the subset of ESG issues most relevant to financial performance and enterprise value. Putnam became

an SASB member in 2018 and has served on the Investor Advisory Group and chaired the Corporate Engagement Group.

The Financial Stability Board created the **Task Force on Climate-Related Financial Disclosures (TCFD)** to develop recommendations on the types of information that companies should disclose in appropriately assessing and pricing a specific set of risks related to climate change. In 2021, Putnam became a public supporter of the TCFD.

CDP is a not-for-profit charity that runs the global disclosure system for investors, companies, cities, states, and regions to manage their environmental impacts. Putnam became an investor signatory in 2020 and participated in CDP's Non-Disclosure Campaign in 2022.

Ceres is a nonprofit organization that works with members to advance sustainable investment practices, engage with corporate leaders, and advocate for key policy and regulatory solutions. Putnam became an affiliate in 2022, joining the Ceres Investor Network.

The **FAIRR Initiative** investor network is helping to build a more sustainable food system by raising awareness of the material risks and opportunities present in global protein supply chains. In 2023, Putnam initiated investor network membership.

Principles of collaboration

As sustainability considerations are increasingly seen as financially material and integrated into more aspects of finance and investing, each part of our community has an opportunity to contribute to effective collaborative activity. Putnam seeks affiliations that are relevant to our position as active managers, and that relate to Putnam’s broader business, industry, and civic involvement, with an ultimate goal of contributing to results for our clients.



2023 overview of Putnam letters to corporate CEOs

Material sustainability issues where we engaged with a goal of increasing our understanding as long-term, active, fundamental investors

	GOVERNANCE				SOCIAL			ENVIRONMENTAL			DISCLOSURE	IMPACT
	Leadership structure and incentives	Risk management and business ethics	Corporate purpose, culture, and strategic alignment	Capital allocation	Employee DEI, well-being, and development	Supply chain management	Product safety, pricing/ access, and data use	Climate change risk, mitigation, and adaptation	Environmental management (emissions, water, energy, and ecosystems impact)	Lifecycle management, recycling, and materials	Advocacy for improved disclosure	Impact assessment of products
TOTALS >	12	20	33	29	43	10	24	12	47	11	119	24
TICKER												
AAPL		•				•	•				•	
ADBE	•						•				•	
AES		•			•	•		•	•		•	
AHT.LN					•				•		•	
AMAT		•							•		•	
AMD	•	•			•	•					•	
AMGN				•	•				•		•	
AMT				•					•		•	
AMZN					•						•	
APD				•					•		•	
ASML				•					•		•	
ASND					•				•		•	•
BAC				•			•				•	
BERY	•									•	•	
BIO	•										•	
BSX			•								•	•
BVI.PA			•								•	
BXP	•								•		•	
C		•									•	
CCL									•		•	
CDAY					•						•	•
CDNS					•				•		•	
CEG			•				•				•	
CF				•					•		•	
CMC				•					•		•	
CMG				•	•						•	
CMPS					•		•				•	
CNM					•				•		•	
COO					•						•	
CRM			•		•				•		•	
CRWD			•				•				•	•
CTAS	•										•	
CWST				•						•	•	
DE					•				•		•	
DG				•	•				•		•	
DHR			•	•					•		•	
DIS		•							•		•	
DNA			•		•						•	
DSMN.AS			•							•	•	
DT			•								•	
DXCM							•				•	•
EMN				•					•	•	•	
EQT			•				•				•	
ES				•							•	
EURA.PA			•								•	
EXAS											•	•
FSS			•						•		•	
FTV						•			•		•	
GM					•	•			•		•	•
GOOG		•					•				•	
HASI				•			•	•			•	
HD					•					•	•	
HEIN.AS			•							•	•	
HLT				•					•		•	
HQY			•								•	
IDXX					•		•				•	
INTU					•		•				•	
IR									•		•	
IT			•				•				•	
JPM		•	•				•				•	
KKR	•			•			•		•		•	
KMI				•					•		•	
LBTYK	•				•						•	
LEVI						•				•	•	
LIN				•					•		•	
LLY							•		•		•	•
LULU			•						•	•	•	
LVMH.PA		•							•		•	
MA		•									•	

2023 overview of Putnam letters to corporate CEOs (continued)

Material sustainability issues where we engaged with a goal of increasing our understanding as long-term, active, fundamental investors

	GOVERNANCE				SOCIAL			ENVIRONMENTAL			DISCLOSURE	IMPACT
	Leadership structure and incentives	Risk management and business ethics	Corporate purpose, culture, and strategic alignment	Capital allocation	Employee DEI, well-being, and development	Supply chain management	Product safety, pricing/ access, and data use	Climate change risk, mitigation, and adaptation	Environmental management (emissions, water, energy, and ecosystems impact)	Lifecycle management, recycling, and materials	Advocacy for improved disclosure	Impact assessment of products
TOTALS >	12	20	33	29	43	10	24	12	47	11	119	24
TICKER												
META		•					•		•		•	
MKC						•	•				•	
MRK					•		•		•		•	•
MSCI		•					•				•	
MSFT		•					•				•	
MTN					•				•		•	
NEE		•		•			•				•	
NGVT				•					•		•	•
Novelis				•					•		•	
NOW		•					•				•	
NVDA			•				•				•	•
NZYMb.CO	•		•						•		•	
ORCL	•								•		•	
OTIS				•					•		•	
OXY			•	•					•		•	
PANW					•				•		•	•
PCG			•				•				•	
PINS			•						•		•	
PL		•			•						•	•
PLD					•				•		•	•
PWR			•		•		•				•	
PYPL					•						•	
RCKT	•										•	•
RCL					•					•	•	
REGN					•						•	•
ROP			•		•				•		•	
RRX			•		•				•		•	
SASY.PA					•		•		•		•	•
SBUX					•						•	
SCHW		•									•	
SEDG				•	•						•	
SFM							•			•	•	
SRPT					•		•				•	•
TEAM					•				•		•	
TMO			•		•						•	
TMUS							•				•	
TPG		•		•			•				•	
TRMB			•		•	•					•	
TWST							•				•	•
ULVR.AS			•								•	
UNH			•	•							•	
V		•									•	
VEEV			•		•						•	•
VRRM			•								•	•
WCN	•			•	•				•		•	•
WMT					•	•			•		•	
WY				•	•		•				•	
XOM		•	•	•	•				•		•	
ZS					•						•	
ZTS			•				•				•	•

Source: Putnam. Represents CEO letters sent in 2023.

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As part of our investment analysis, depending on the strategy in question, we may integrate ESG issues or considerations into our research and/or investment decision-making. In our view, analysis of ESG issues is part of good investing, as these issues, like other, more traditional areas of investment analysis, such as market position, growth prospects, and business strategy, have the potential to impact risk and returns. For example, in the governance area, evaluation of the strength of a company's management has always been a critical consideration in our investment process. The relevance and materiality of other ESG issues in our process will differ from strategy to strategy,

from sector to sector, and from portfolio manager to portfolio manager, and for some strategies, including those where we lack relevant ESG data, ESG considerations are not a material part of our process.

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