

December 2020

Engagement & Stewardship Report

Philosophy

Our commitment to clients is the foundation of all we do. Our investment stewardship as an asset manager 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 that effective governance practices and appropriate transparency regarding material business issues, including relevant environmental, social, and governance (ESG) issues, benefit all investors.

Putnam's approach to engagement

As detailed in our Engagement and Stewardship Policy, our engagement takes several forms, including activity that is part of our investment process, proxy voting, and collaboration with other organizations. All engagement activity is undertaken with the goal of benefiting our clients and shareholders through long-term financial performance.

Engagement through our investment process

We believe that active managers have a particular role to play in engaging with company management teams, since our fundamental research process means that we are in regular dialogue regarding corporate strategy and execution. As part of our investment process, engagement with companies and issuers spans a wide range of topics, including long-term strategy, capital allocation, and financially material ESG issues. This type of engagement is an integral part of our fundamental research process and reflects our belief that the value we provide for clients is linked to thorough research and understanding of long-term business fundamentals.

Proxy voting

Proxy voting is an essential cornerstone of strong governance and effective engagement. At Putnam, the proxy guidelines and voting process for our mutual funds is led and controlled by the independent Trustees of The Putnam Funds. For our institutional investment management clients, the same functions are managed by our internal Proxy Committee and Legal and Compliance Division. These functions are undertaken with the consistent goal of promoting strong corporate governance, while acting in the best interests of our shareholders and clients.

Collaboration and partnership

Putnam Investments partners with a range of organizations to help advance the interests of investors and development of the financial marketplace, and to support economic growth. Similarly, we recognize that the field of sustainable investing is actively growing and evolving, and each organization in this community has an opportunity to contribute to the field’s advancement. We are advocates for improved and relevant ESG disclosure, as well as the development of thoughtful and effective taxonomies and assessment frameworks. Our sustainable investing partnerships include affiliations with several organizations that support comparable goals. Given this philosophy, our ESG integration and engagement is guided by our internally developed materiality maps, which are inspired and guided by the work of the Sustainable Accounting Standards Board (SASB), where Putnam representatives serve on the Investor Advisory Group.

Putnam equity materiality map

	Consumer	Healthcare	Financials	Tech (hardware)	Comm and tech (software)	Industrials	Materials and energy
GOVERNANCE	Board structure and composition	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
	Systemic risk management & leadership	Usually relevant	Usually relevant	Usually relevant	Usually relevant	Usually relevant	Usually relevant
	Accounting and business ethics	Usually relevant	Usually relevant	Usually relevant	Usually relevant	Usually relevant	Usually relevant
	Employee diversity, development, and well-being	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
	Corporate culture, purpose, mission alignment	Usually relevant	Usually relevant	Usually relevant	Usually relevant	Usually relevant	Usually relevant
SOCIAL	Supply chain, distribution, and marketing management	Usually relevant	Usually relevant	Sometimes relevant	Often relevant	Often relevant	Usually relevant
	Product safety	Usually relevant	Usually relevant	Often relevant	Often relevant	Often relevant	Usually relevant
	Pricing philosophy and access	Usually relevant	Usually relevant	Often relevant	Sometimes relevant	Often relevant	Sometimes relevant
	Privacy and data security	Sometimes relevant	Usually relevant	Usually relevant	Often relevant	Usually relevant	Sometimes relevant
	Climate change risk	Sometimes relevant	Sometimes relevant	Often relevant	Sometimes relevant	Sometimes relevant	Usually relevant
ENVIRONMENTAL	Climate change mitigation & adaptation	Sometimes relevant	Often relevant	Usually relevant	Often relevant	Usually relevant	Usually relevant
	GHG emissions	Sometimes relevant	Sometimes relevant	Sometimes relevant	Often relevant	Usually relevant	Usually relevant
	Water intensity and stress	Usually relevant	Sometimes relevant	Sometimes relevant	Often relevant	Sometimes relevant	Usually relevant
	Energy intensity & renewable energy use	Often relevant	Sometimes relevant	Sometimes relevant	Often relevant	Usually relevant	Usually relevant
	Materials sourcing, intensity, and lifecycle management	Usually relevant	Often relevant	Sometimes relevant	Usually relevant	Sometimes relevant	Usually relevant
	Biodiversity and ecosystems impact	Often relevant	Sometimes relevant	Sometimes relevant	Sometimes relevant	Sometimes relevant	Often relevant

Sources: Putnam and SASB.

Legend: ■ Usually relevant ■ Often relevant ■ Sometimes relevant

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 can be seen in our equity materiality map on page 2, which shows that different ESG issues are material for different sectors. Our corporate credit team employs a similar sector-specific approach to guide their materiality-focused research. Additionally, our research and engagement have a forward-looking focus, with a goal of anticipating change on relevant business issues. We believe that this forward-looking and customized research focus can be a key contributor to long-term investment results.

Not every portfolio manager, strategy, or fund has the same approach, and specific considerations of ESG issues will vary — but what unites us as an investing team is a growing view that thoughtful ESG research can serve as a meaningful input to pursuit of strong returns and assessment of potential risk.

Engagement and fundamental research

Our investment engagement is an integral component of our fundamental research process and helps us to assess risk and to identify opportunities. The vast majority of this type of engagement is done privately and directly with company management and directors. We believe that engaging directly and privately leads to the most effective and candid communication, is most additive to our research process and mosaic of information gathering, and offers the greatest benefit to our clients.

As active managers, we proactively decide to own the securities that are held in our portfolios. We therefore typically view our engagement with companies as a collaborative process. We are able to 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 do not view our engagement as a platform for advocacy beyond these issues.

Beyond these research-focused discussions, we also frequently participate in 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 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 work with multiple stakeholders, including our team.

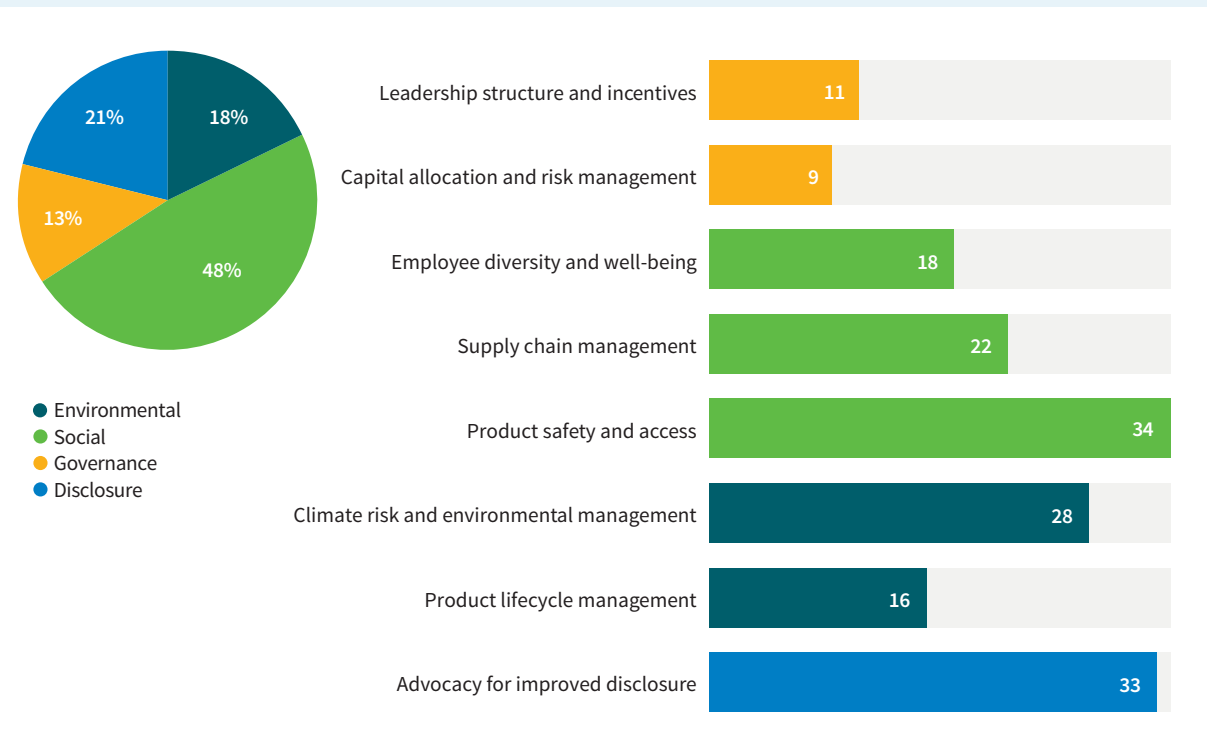
CEO letters

In addition to the ongoing research described above, we send annual, individually tailored letters to the CEOs of our top equity holdings. In 2020, we sent these letters to companies representing approximately 50% of equity assets we manage. This outreach identifies material sustainability issues specific to each company, acknowledging efforts to date and encouraging future progress.

As with our research process, in composing these letters we reference our materiality map 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 fully visible to outside audiences, and to provide a grounding for ongoing research and dialogue on these topics.

Over 60% of our letters received direct responses from company management teams within the first weeks after receipt, often offering opportunities to continue our ongoing communication and deepen our understanding of the issues noted through subsequent calls and meetings. The resulting discussions have further enhanced our research process, contributing to our understanding of essential long-term business issues.

Issues addressed in CEO letters



Engagement themes

As noted above, our CEO letters are informed by our materiality map, focused on issues that we deem to be material and financially relevant on a company-specific basis. In 2020, the most frequent topics addressed in our CEO letters were product safety and access, advocacy for improved ESG disclosure, and climate risk and environmental management. Together these areas represented approximately 70% of the total issues noted in our letters. The examples below highlight the business relevance of these issues and demonstrate how this type of engagement is intertwined with our core research process.

Product safety and access

The product safety category encompasses a broad definition of safety, including physical safety for customers and employees as well as broader elements of customer and social benefit. Clearly, product safety is paramount to customer well-being and trust, and these issues are especially relevant for consumer, healthcare, technology, and financial services companies. Neglecting product safety can lead to customer harm as well as brand and reputational damage, which can have both direct and indirect financial implications. Conversely, designing proactively for product safety can create more compelling product or service offerings, leading to opportunities for greater growth and profitability.

For example, our work at Putnam includes numerous cases where we have engaged on product safety with medical technology companies. Since this type of business involves constant innovation and evolution of product design, it's especially important for investors to understand corporate management processes regarding product safety. When safety issues arise, we focus on understanding the circumstances that led to the lapse, and the details of corrective action that is taken, with a goal of assessing whether the issue is specific or systemic in nature. Within this past year, we've engaged with a large medical technology company on certain product safety issues and on the changes to oversight, design, and production that followed the missteps. We will be following progress on these changes and the expected improvements. This issue is a key focus of our ongoing research process.

The issue of customer access — including availability and affordability of products and services — is also most commonly found within the technology, consumer, healthcare, and financial services industries. Like product safety, access has important implications for customer and social benefits and well-being. Within healthcare, for example, a key issue for investors in pharmaceutical companies is to understand product pricing strategies, which are directly connected to patient access as well as to corporate financial prospects. Other types of companies, like telemedicine providers, offer products that are inherently linked to increased access to care. Thoughtful approaches to pricing and access can expand market opportunities and can create long-term financial benefits. Our research and engagement throughout the healthcare sector consistently focuses on these issues.

Additionally, our team has engaged over the past few years with several financial service companies that are working to improve access by creating products and services that enable more individuals and businesses to be part of the formal banking and credit system. For example, as part of our research process we discussed strategies for prioritizing financial inclusion with a global financial services firm. This company has developed technology solutions that create a secure and inclusive payments ecosystem, allowing individuals and small businesses to gain access to credit and avoid costs associated with cash and check-based transactions. The company has made significant commitments and has outlined specific goals to provide financial services to a large number of unbanked or underbanked individuals.

Advocacy for improved ESG disclosure

We regularly advocate for improved disclosure of financially material and relevant ESG information. While many of the companies in which we invest have thoughtful and detailed approaches to sharing relevant sustainability information, we have worked with many management teams to share our investor perspective on enhancing reporting for increased analytical usefulness over time. We believe that improved ESG disclosure on material issues benefits investors' ability to analyze company performance and potential. In addition to reporting on specific metrics at a given point in time, we believe it is also helpful for companies to communicate their strategies, goals, and progress over the longer term.

An example of Putnam's engagement in this area is our ongoing dialogue with a large solar company's leadership team, including the CEO, CFO, Chairman, and head of investor relations. These discussions have addressed numerous topics related to social and environmental issues, as well as conversations on enhancing the company's ESG disclosure and reporting. The company's latest ESG and Impact report included more alignment with standards like the UN Sustainable Development Goals (SDGs), more detail on their positive environmental impact, and more quantification of the economic savings they provide to customers. Additionally, the report provided enhanced data on safety, including relative measures versus other similar industries, and more information on the company's influence on the broader field, with initiatives to decarbonize power generation and to build a more resilient electrical grid. All of these issues are relevant to the company's long-term business prospects and therefore helpful to investors. This example highlights the potential benefit that can come from ongoing dialogue, especially in a business where the operating context is rapidly developing, and the relevant data and disclosures are similarly dynamic.

Climate risk and environmental management

This category includes a wide range of climate and resource-related issues, such as management of greenhouse gas emissions; water, energy, and material use; climate change risk assessment; and climate mitigation and adaptation. Some subtopics in this area relate to analysis and reporting, while others relate to product design, manufacturing processes, or operational management.

Climate risk and environmental management is a key focus for us because these issues present increasingly important perils and opportunities for businesses and investors. As extreme weather, resource availability, operational disruptions, and related social challenges increase, it is clear that companies that manage these issues effectively — and those that offer solutions — could benefit over time. Proactively analyzing and addressing climate change and focusing on mitigation and adaptation can help lower risk, improve operational resilience, and alleviate costs, all of which can contribute positively to long-term financial prospects. Improved efficiencies in resource intensity for water, energy, and materials can generate similar benefits.

One example of our focus on environmental management is our dialogue with a leading ride-sharing company, where our research has included discussions of material and relevant environmental issues, social issues, and ESG disclosures since early 2019. The business model for ride-sharing companies involves a wide range of relevant concerns, such as the short- and long-term environmental impacts of the business, safety of riders and drivers, and driver wages and benefits. Recently, the company issued its first ESG report, which includes a focus on materiality, environmental impact, economic impact, and safety. Additionally, the company introduced a new goal to transition all cars on the platform to electric vehicles by 2030. Finally, the company has made progress in providing new healthcare and other benefits to drivers in certain jurisdictions.

We have also engaged multiple times with a large retail company on a wide range of social and environmental issues, including climate risk and mitigation. Our discussions have included review of this retailer's internal goals and science-based targets, which include reusable packaging goals, waste diversion goals,

100% renewable energy use targets, and reforestation efforts, among others. For this particular company, we have also focused on the influence and support it is providing to suppliers, including the creation of tools that have helped over 1,000 suppliers to reduce waste and emissions, leading to broader environmental benefit and cost savings.

Again, these examples illustrate the meaningful potential benefit of engaging through continuing dialogue. It allows for time and the feedback needed for relevant environmental issues to be analyzed by investors, and for enhanced action and disclosure to be undertaken by company leadership teams. As described earlier in this report, when we identify specific examples of progress like this, we find they are often representative of a broader range of activity that relates to effective management of ESG issues.

Engagement through the proxy voting process

Proxy voting is an essential cornerstone of strong governance and effective engagement. At Putnam, the proxy policy and voting process for our mutual funds is led and controlled by the independent Trustees of The Putnam Funds, while the same functions for our institutional investment management clients are managed by our internal Proxy Committee and Legal and Compliance Division. These functions are undertaken with the consistent goal of promoting strong corporate governance, acting in the best interests of our shareholders and clients.

The Putnam Funds

Putnam and the Trustees of The Putnam Funds are committed to managing the Funds in the best interests of shareholders. The Trustees have long been active in voting the Funds' proxies on behalf of Fund shareholders, in the belief that the proxy voting process is a significant means of addressing crucial corporate governance issues and encouraging corporate actions that enhance shareholder value.

The Putnam Funds have had detailed proxy voting guidelines in place for many years. Each year, the Board Policy and Nominating Committee of the Board of Trustees reviews the proxy voting guidelines and considers whether any changes are appropriate, recommending any changes to the proxy voting guidelines to the Trustees for approval. The Funds' proxy voting guidelines emphasize the need for strong boards that are effectively independent of company management and that are held strictly accountable for the long-term performance and conduct of their companies. The guidelines make it clear that the Trustees will support boards that recognize these duties and meet the strict independence and governance standards by generally voting for proposals approved by these boards, as long as the proposals are consistent in all other respects with any more specific requirements of the guidelines. The Trustees will withhold support from boards that do not meet these standards, either in fact or in spirit.

The Trustees are 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 from time to time be considerations in the Funds' voting decisions.

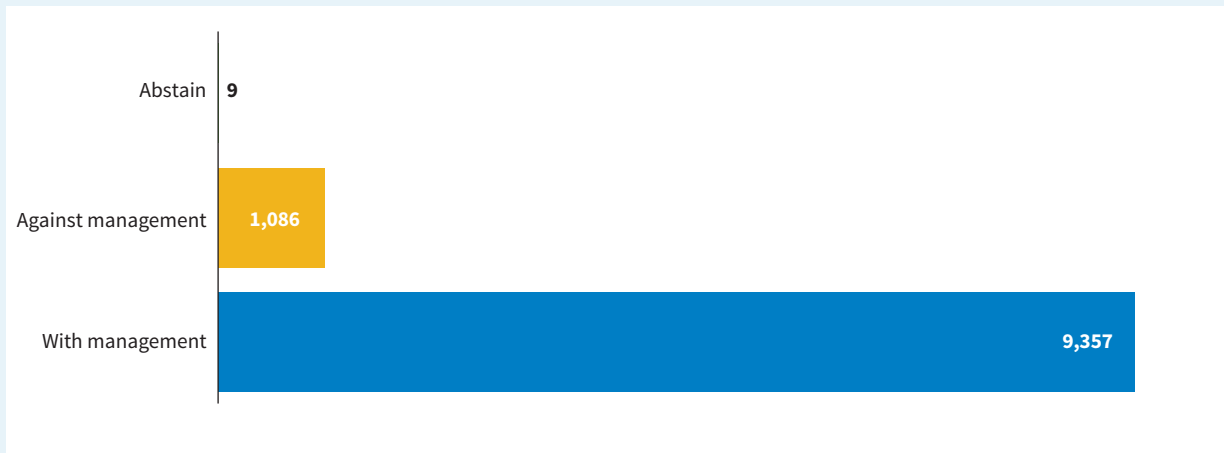
The independent Trustees of The Putnam Funds, through the Trustees' Board Policy and Nominating Committee and with the assistance of the Director of Proxy Voting and Corporate Governance, a member of the Trustees' independent administrative staff, exercise control over the Funds' proxy voting. The Funds have retained Institutional Shareholder Services (ISS) to process the Funds' votes. Although the Funds may receive proxy-related research from ISS or other proxy voting services, neither ISS nor any other service makes any decision on how to vote the Funds' proxies.

The following charts illustrate the global proxy voting activity for the Putnam Funds for the period January 1–June 30, 2020.

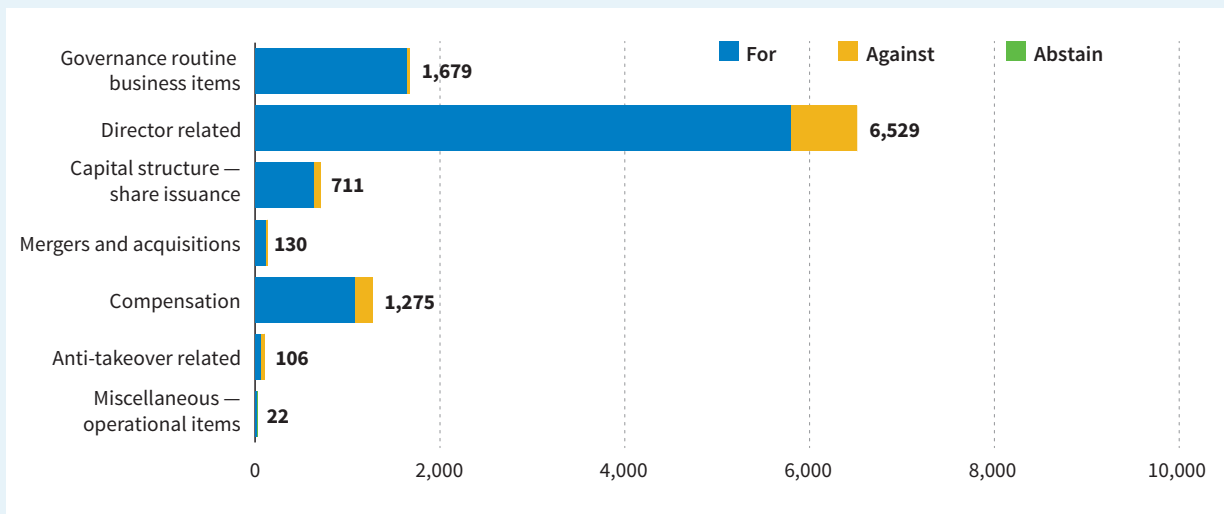
Management proposals

The Funds voted with management on 9,357 proposals, and against management on 1,086 proposals. The Funds also abstained from voting on 9 proposals.

Mutual fund management proposals



Mutual fund management proposals by category



Proposal categories and periods covered differ from those of Putnam’s institutional clients due to different proxy vendors.

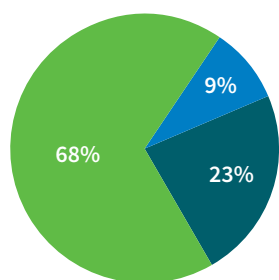
Shareholder proposals

In some 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 non-binding votes that are often opposed by management.

During the period January 1–June 30, 2020, there were 386 shareholder proposals relating to companies within the Funds' portfolios seeking a vote on ESG matters: 34 (9%) addressed environmental issues, 91 (23%) addressed social issues, and 261 (68%) addressed governance issues.

In evaluating shareholder proposals relating to environmental and social initiatives, the Funds take into account the relevance of the proposal to the company's business and the practicality of implementing the proposal, including the impact on the company's business activities, operations, and stakeholders. Shareholder proposals related to environmental and social issues are often overly broad and difficult to implement. Shareholder proposals related to governance issues often relate to such matters as separating the CEO and board chair roles, the right to act by written consent, and company-specific article amendments.

Mutual fund shareholder proposals



	For	Against
● Environmental	44%	56%
● Social	42%	54%
● Governance	30%	64%

Percentage to add to 100% includes votes abstained.

Putnam's institutional investment management clients

Putnam believes that the voting of proxies can be an important tool for institutional investors to promote best practices in corporate governance. Putnam votes all proxies in the best interests of its clients as investors. In Putnam's view, strong corporate governance policies, most notably oversight by an independent board of qualified directors, best serve investors' interests. Putnam will vote proxies and maintain records of voting of shares for which Putnam has proxy voting authority in accordance with its fiduciary obligations and applicable law.

Putnam has adopted a set of procedures and guidelines that cover all accounts for which Putnam has proxy voting authority. Some clients, such as the Putnam mutual funds, elect to vote their own proxies.

Putnam has a Proxy Committee composed of senior investment professionals. The Proxy Committee is responsible for setting general policy as to proxy voting. The Committee reviews procedures and the guidelines annually, approves any amendments considered to be advisable, and considers special proxy issues as they may arise from time to time.

Putnam maintains written voting guidelines setting forth voting positions determined by the Proxy Committee on those issues believed most likely to arise day to day. The guidelines may call for votes normally to be cast in favor of or opposed to a matter or may deem the matter an item to be referred to investment professionals on a case-by-case basis.

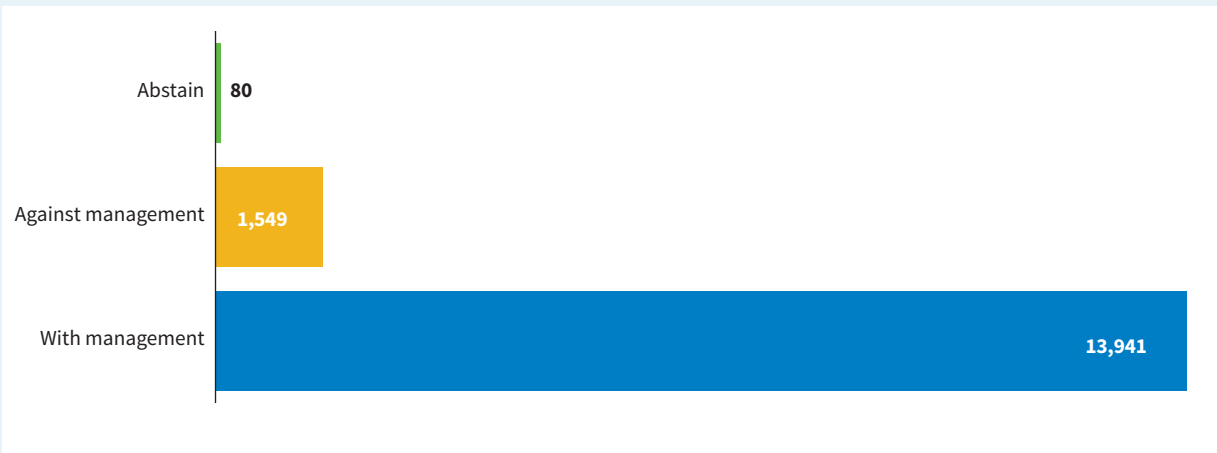
Putnam's Legal and Compliance Division administers the firm's proxy voting through a proxy manager, who, in turn, instructs a proxy-voting service (currently, Glass Lewis & Co. ("Glass Lewis")) to process proxy votes for our client accounts. Although Glass Lewis may supply proxy-related research to Putnam, Glass Lewis does not make any decisions on how to vote client proxies. The Putnam proxy manager, with supervision from senior members of Putnam's Legal and Compliance Division, oversees the proxy administration work of Glass Lewis.

The following charts illustrate the global proxy voting activity for Putnam’s institutional investment management accounts for the period July 1, 2019–June 30, 2020.

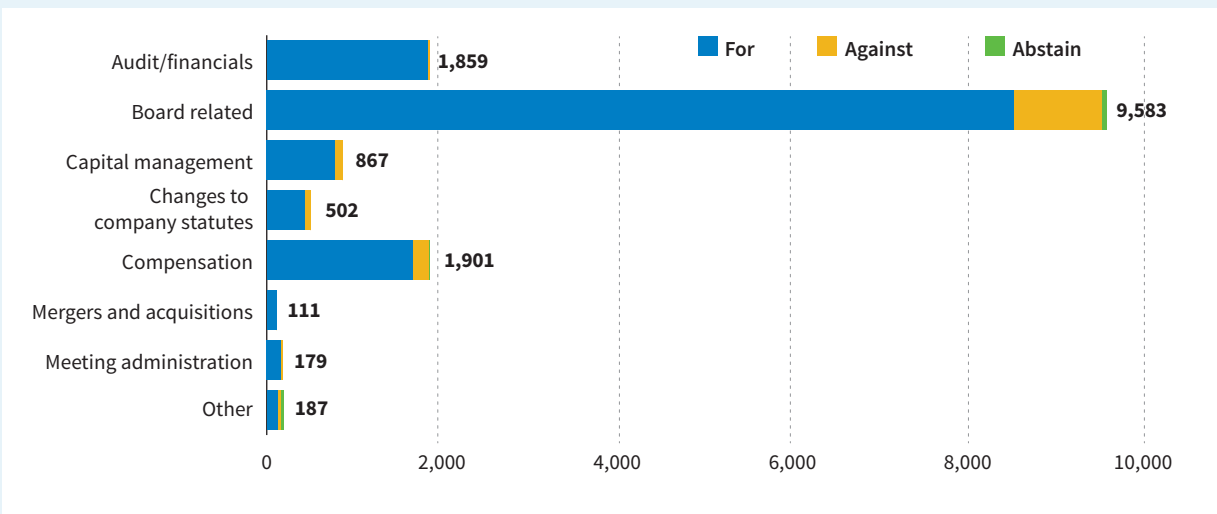
Management proposals

For our institutional accounts, we voted with management on 13,941 proposals and against management on 1,549 proposals; additionally, we abstained on 80 proposals.

Institutional fund management proposals



Institutional fund management proposals by category



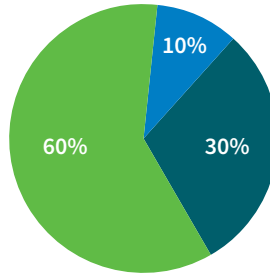
Proposal categories and periods covered differ from those of Putnam’s mutual funds due to different proxy vendors.

Shareholder proposals

In some markets around the world, shareholders of a company are given the right to present issues to be voted on at the annual general meeting.

During the period July 1, 2019–June 30, 2020, there were 390 shareholder proposals relating to companies within our institutional client portfolio holdings seeking a vote on ESG matters: 39 (10%) addressed environmental issues, 118 (30%) addressed social issues, and 231 (60%) addressed governance issues.

Institutional fund shareholder proposals



	For	Against
● Environmental	25%	75%
● Social	11%	89%
● Governance	45%	55%

Engagement through partnership and collaboration

Our participation in collaborative engagements is informed by assessment of client benefit, investment relevance, impact potential, tangibility, and practicality. We categorize our engagements by those that specifically relate to sustainable investing and ESG integration and those that relate to Putnam’s broader business, industry, and civic involvement.



Sustainable investing and ESG-related partnerships and affiliations

We recognize that the field of sustainable investing is actively growing and evolving, and each organization in this community has an opportunity to contribute to the field's advancement. We are advocates for improved and relevant ESG disclosure, as well as the development of thoughtful and effective taxonomies and assessment frameworks. Our partnerships include affiliations with several organizations that support similar goals:

United Nations Principles for Responsible Investing (UN PRI)
Sustainable Accounting Standards Board (SASB)
CDP (formerly Carbon Disclosure Project)
Boston Association of Institutional Investors
UNPRI Global Policy Reference group
Santa Fe Institute

Putnam Investments' Key Industry/Civic Affiliations

Putnam Investments partners with a range of organizations to help advance the interests of investors and development of the financial marketplace, and to support economic growth. The firm aims to support critical areas of importance for clients and the broader community. Our key partnerships include:

Regional and Local Business Development and Economic Growth

Associated Industries of Massachusetts (AIM)
Boston College – Chief Executives' Club
Commercial Club of Boston
Greater Boston Chamber of Commerce
MassChallenge Fintech

Mass High Tech Council
Massachusetts Competitive Partnership
Massachusetts Taxpayers Foundation
The New England Council

U.S. Public Policy

American Council of Capital Formation (ACCF)
American Enterprise Institute

Industry Relations and Shareholder Advocacy

Boston Asset Management Association Inc.
Investment Company Institute – (ICI)
Insured Retirement Institute – (IRI)
NICSA
SIFMA
Marketplace Fairness and Advancement
Center for Capital Markets Competitiveness
Council of Institutional Investors

Charitable/Volunteering partnerships

The Posse Foundation
The Partnership Inc.
Simmons Leadership Conference
Invest in Girls
BLK Capital
The Toigo Foundation
United Way
Heading Home

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Your clients should carefully consider the investment objectives, risks, charges, and expenses of a fund before investing. For a prospectus, or a summary prospectus if available, containing this and other information for any Putnam fund or product, call the Putnam Client Engagement Center at 1-800-354-4000. Your clients should read the prospectus carefully before investing.