

March 30, 2024

Form ADV Part 2A

Putnam Investment Management, LLC

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This brochure provides information about the qualifications and business practices of Putnam Investment Management, LLC. If you have any questions about the contents of this brochure, please contact James Clark, Chief Compliance Officer, at james.f.clark@franklintempleton.com. The information in this brochure has not been approved or verified by the United States Securities and Exchange Commission ("SEC") or by any state securities authority. Additional information about Putnam Investment Management, LLC also is available on the SEC's website at www.adviserinfo.sec.gov. Clients should note that SEC registration does not imply a certain level of skill or training.



Putnam
I N V E S T M E N T S

A Franklin Templeton Company

Item 2: Material Changes

The purpose of this page is to inform you of any material changes since the previous version of this brochure. We review and update our brochure at least annually to make sure that it remains current. On March 30, 2024, we submitted our annual updating amendment filing for fiscal year 2023.

As part of our annual review, the brochure was revised to include a number of changes since our last annual update. Some of the notable changes include:

- *Item 8: Methods of Analysis, Investment Strategies and Risk of Loss:* Added investment strategies offered through Retail SMA programs.
- *Item 11: Code of Ethics:* Updated to reflect changes in the applicable Code of Ethics resulting from the recent acquisition by Franklin Resources, Inc.
- *Item 17: Voting Client Securities:* Updated disclosure to reflect changes in the Proxy Voting process resulting from the recent acquisition by Franklin Resources, Inc., as well as ordinary course updates to the Proxy Voting Guidelines

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Item 4: Advisory Business

Introduction to Putnam

Putnam Investment Management, LLC ("PIM") has been registered with the Securities and Exchange Commission as an investment adviser since 1971.

On January 1, 2024, a subsidiary of Franklin Resources, Inc. ("Franklin Resources") acquired Putnam U.S. Holdings I, LLC, which does business as Putnam Investments ("Putnam" or "Putnam Investments") in a stock and cash transaction (the "Transaction"). As a result of the Transaction, PIM, a wholly-owned subsidiary of Putnam, became an indirect, wholly-owned subsidiary of Franklin Resources.

Putnam, whose history reaches back to 1937, is an active asset manager providing investment advice across all asset classes to individuals and institutions worldwide through separately managed accounts and pooled investment funds. Based in Boston, Putnam also has offices in Europe, Asia and Australia.

Franklin Resources is a holding company with subsidiaries that operate under the Franklin Templeton® and/or subsidiary brand names. Franklin Resources is a global investment management organization, and the various distinct brand names it offers investment services and products under include, but are not limited to, Alcentra®, Benefit Street Partners®, Brandywine Global Investment Management®, Clarion Partners®, ClearBridge Investments®, Fiduciary Trust International™, Franklin®, Franklin Bissett®, Franklin Mutual Series®, K2®, Legg Mason®, Lexington Partners®, Martin Currie®, O'Shaughnessy® Asset Management, Royce® Investment Partners, Templeton®, and Western Asset Management Company®. Franklin Resources, through current and predecessor subsidiaries, has been engaged in the investment management and related services business for over 75 years. Franklin Resources' common stock is traded on the New York Stock Exchange under the ticker symbol "BEN" and is included in the Standard & Poor's 500 Index.

PIM primarily manages Putnam's open-end and closed-end registered investment companies (the "Putnam Funds") and Putnam 529 for America,SM a Section 529 college savings plan. PIM also provides "model only" recommendations to the account sponsors for various wrap programs' separately managed account offerings, and offers certain standalone model portfolios. Additionally, PIM provides investment advisory services to retail separately managed account ("Retail SMA") clients through managed account programs sponsored by broker-dealers and other financial intermediaries ("Program Sponsors"). PIM also sub-advises registered investment companies sponsored by other financial firms. PIM is also investment adviser to a range of actively-managed exchange-traded funds. PIM is affiliated, through common ownership by Putnam Investments, with:

- ◆ Putnam Fiduciary Trust Company, LLC ("PFTC"), a New Hampshire non-depository trust company that manages assets through collective investment trusts and separate accounts, and also provides trustee and custodial services pursuant to its banking and fiduciary powers,
- ◆ The Putnam Advisory Company, LLC ("PAC"), a registered investment adviser that manages assets for institutional and international clients. PAC also manages various pooled investment funds, such as limited liability companies, limited partnerships, and non-U.S. funds, and also sub-advises some Putnam Funds, and
- ◆ Putnam Investments Limited ("PIL"), a registered investment adviser that manages assets for non-U.S. institutional clients, sub advises some PAC and PIM client portfolios (including certain Putnam Funds), and promotes Putnam products and services in Europe, the Middle East and Africa and some other non-U.S. countries.

These four Putnam management companies generally market their services together (depending on the type of client involved) under the Putnam brand, and share a common platform of trading, compliance, risk systems, and policies and procedures. They are sometimes called "Putnam," the "Putnam Advisers," or simply "We" in this brochure.

Services of Other Affiliates

Franklin Templeton operates its investment management business through the Putnam Advisers, as well as through multiple affiliates of the Putnam Advisers, some of which are investment advisers registered with the SEC, some of which are registered with non-U.S. regulatory authorities, and some of which are registered with multiple regulatory authorities. A Putnam Adviser uses the services of appropriate personnel of one or more of its affiliates for investment advice, portfolio execution and trading, and/or client servicing in their local or regional markets or in their areas of special expertise, except to the extent restricted by the client under its investment management agreement, or if inconsistent with applicable law. Arrangements among affiliates take a variety of forms, including delegation arrangements, formal sub-advisory arrangements, and servicing agreements. Certain employees and officers of Franklin Resources and its subsidiaries who engage in investment advisory services may also be appointed to serve as officers and/or authorized persons of a Putnam Adviser and, in that capacity, may provide investment research, investment recommendations and other services to a Putnam Adviser from time to time. In each of these circumstances, the Putnam Adviser remains fully responsible for the account from a legal and contractual perspective. No additional fees are charged for the affiliates' services except as disclosed in the investment management agreement. Please see Item 10 ("Other Financial Industry Activities and Affiliations") for more details.

Investment Management Services

Putnam offers professional, active investment management across a broad range of asset classes, including traditional long-only equity, fixed income, multi-asset income, alternative, and multi-asset class strategies. Putnam is primarily a discretionary asset manager and does not routinely provide general investment advice or planning services to its clients. As of December 31, 2023, PIM has \$92,886,867,398 in discretionary net assets under management¹ and no non-discretionary assets under management.

PIM manages the Putnam Funds in accordance with their written investment objectives, strategies and guidelines, as disclosed in their SEC registration statements. The investment program of a Putnam Fund cannot be tailored to the individual needs of any particular investor. Investment in a Putnam Fund does not create an advisory client relationship between the investor and Putnam. Therefore, investors should consult their financial representatives and consider whether a Putnam Fund meets their investment objectives and risk tolerance prior to investing.

PIM manages other discretionary advisory clients' assets based on the individual needs of the client, which are stated in the written objectives and guidelines of the client's account. In a typical discretionary relationship, the client authorizes PIM to supervise, manage and direct the investment of the assets of the portfolio without prior consultation with the client.

With respect to its alternative investments business, which provides investment solutions across equity and credit in both open-ended and drawdown structures, PIM uses the trade name "37 Capital."

Model Portfolios

PIM also provides non-discretionary investment management services through wrap fee programs such as Unified Managed Account (UMA) programs or other programs, where PIM generally provides ongoing investment recommendations through one or more "model" portfolios, and the program sponsor, rather than PIM, makes investment decisions and executes trades on behalf of its underlying clients. The sponsor decides in its discretion whether to make any changes to the model that PIM recommends and is also solely responsible for determining the suitability of the strategy and investments for each client that participates. All management and support of underlying client accounts, such as investment allocation, implementation of any agreed-on client customizations, or tax management, is also the responsibility of the sponsor or any

¹ Regulatory assets under management reported in Item 5 of Form ADV Part 1 are required to be calculated gross of fees and other liabilities, so they will differ from the net asset numbers stated in this brochure or in other sources.

overlay manager selected by the sponsor. When PIM does not provide continuous investment advice or effect transactions for client accounts in model provider programs, their assets are not counted as assets under management in the information above in this item. To the extent that this brochure is delivered to program clients with whom PIM has no advisory relationship, or in other circumstances where it is not legally required to be delivered, it is provided for informational purposes only.

PIM also serves as a model provider in the Morgan Stanley Smith Barney LLC Select UMA[®] program. Although PIM's role is limited to providing a model portfolio, we could be deemed to have an advisory relationship with the sponsor's clients due to the structure of the program. As a result, we arrange for the sponsor to deliver this brochure to program clients who have selected a PIM model. Such clients should refer to the Sponsor's Wrap Fee Program Brochure and Appendix A to this document for additional information about the program and PIM's services.

PIM also offers multi-asset allocation model portfolios, made up of mutual funds and ETFs, which may be selected by registered investment advisers and other third-party financial intermediaries for use in managing their clients' investment portfolios. Putnam currently offers four such model portfolios with allocations designed for different investment objectives. Putnam's multi-asset allocation model portfolios are created using a quantitative, factor-based approach that analyzes historical fund returns, with additional elements of qualitative judgment, with the goal of constructing a risk- and cost- efficient portfolio. PIM makes these portfolios available on a "model only" basis through third-party intermediaries and investment platforms. PIM does not manage the model portfolios directly for underlying investors and is not responsible for determining the suitability of any such portfolio for a given investor.

These multi-asset allocation model portfolios generally consist of a mix of actively-managed Putnam mutual funds and non-Putnam passive ETFs. Putnam will consider only Putnam funds for inclusion within the active mutual fund allocation for a fund model. We do not seek or purport to review or consider third party mutual funds available in the marketplace for this purpose, and investors interested in constructing a model portfolio offering active funds from other providers should consult with an independent financial intermediary about other investment options.

PIM earns additional fees from the underlying Putnam mutual funds when a model portfolio includes a higher percentage of Putnam funds, and also earns differing levels of management fees from different Putnam funds; as a result, we face a conflict of interest in our decisions on how to construct the portfolios. Although we seek to mitigate these conflicts by maintaining controls around the models and by requiring that Putnam funds included in a model portfolio pass certain quantitative screens, there can be no assurance that these controls will resolve the conflict.

Retail SMAs

PIM provides investment advisory services to Retail SMAs in a "single contract" or a "dual contract" capacity, where the clients ("Dual Contract Clients") contract separately with the Program Sponsor or a designated broker for brokerage and other services and with PIM for portfolio management services ("Dual Contract Programs"). In single contract programs, PIM contracts with the Program Sponsor to provide portfolio management services to the Program Sponsor's clients. In Dual Contract Programs, PIM provides its advisory services pursuant to an advisory agreement directly with the Dual Contract Client. Clients may select PIM to provide investment advisory services for their account (or a portion thereof) for a specified strategy.

Clients are encouraged to consult their own financial advisors and legal and tax professionals on an initial and continuous basis in connection with suitability of the strategy and selecting and engaging the services of an investment adviser for the particular strategy and participating in a managed account program. In Retail SMA accounts, the Program Sponsor or designated broker is responsible for ascertaining the financial circumstances, investment objectives, and investment restrictions applicable to each client through information provided by the client. PIM is entitled to rely on such information provided by Program Sponsor. The client may select PIM from among the investment advisers that the Program Sponsor or designated broker presents to the client. In

the course of providing services to Retail SMA accounts advised by a financial advisor, PIM generally relies on information or directions communicated by the financial advisor acting with apparent authority on behalf of its client. PIM reserves the right, in its sole discretion, to reject for any reason any SMA Program participant referred to it.

PIM is responsible only for managing the Retail SMA in accordance with the selected investment strategy and any “reasonable restrictions” imposed by the client. The execution of a particular strategy in a Retail SMA may differ from the execution of the same or a similar strategy for a fund or institutional client due to the need to adhere to “reasonable restrictions” imposed by the client and agreed to by PIM. Accordingly, the performance of a strategy available through a Retail SMA may differ from the performance of the same or a similar strategy that is executed for a Putnam Fund or institutional client.

PIM seeks to commence management of an account as soon as practicable after review of the account documentation in good form, acceptance of its appointment as adviser and contribution of assets to the client’s account. The time required to commence management varies depending on the time required to complete these steps, the efficiency of the Program Sponsor and/or other third parties, and the time required to establish an appropriate portfolio. The timing required to fully invest an account depends on multiple factors, including the particular strategy and guidelines; market conditions; availability of desirable securities; the amount of cash versus legacy securities used to fund a new account; and if legacy securities are used, the characteristics of such legacy securities, among others.

With respect to Retail SMA accounts, PIM has entered into, and expects to enter into additional, arrangements with service providers to provide administrative and operational functions, such as accounting, reconciliation, trade generation, trade settlement, recordkeeping and reporting (“SMA Service Providers”). SMA Service Providers include Vestmark, Inc. (“Vestmark”) and Franklin Templeton Private Portfolio Group, LLC (“FTPPG”), an affiliated service provider. Fees paid pursuant to these arrangements are typically paid for by PIM and not Retail SMA clients. Vestmark, through its subsidiary Vestmark Advisory Solutions, Inc., a registered investment adviser, will provide discretionary sub-advisory services to Retail SMA accounts for the purpose of generating trades for implementing position changes directed by PIM, enforcing draft tolerances and implementing maintenance trades.

Index Products

From time-to-time PIM engages in other business activities related to its core investment business, including licensing of intellectual property with respect to, for example, the development of methodologies for compiling and calculating a benchmark index. We license or sell our intellectual property rights in these methodologies to third parties who use these methodologies to create and issue investment products that are based on such indices and/or correlated to the underlying components of such indices. In connection with such indices, we may retain third parties as calculation agents and/or license the third parties’ underlying intellectual property, to the extent used in constructing our indices.

Sales and Marketing Activities

In order to promote our products and services, Putnam engages in sales and marketing activities, including responding to client requests for proposals (RFPs) and presenting or making available information on our investment capabilities and pooled fund products, as well as sharing education materials, market commentary, white papers, investment and portfolio analysis tools and models, and other resources. Clients and prospective clients should be aware that Putnam will not be considered an investment advice fiduciary in connection with selling and distributing our products and services, including under the Employee Retirement Income Security Act of 1974 or any similar law. When we discuss a possible investment with Putnam with a prospective or current client, we do not undertake to provide impartial investment advice, or to give advice in a fiduciary capacity in connection with any related investment decision or transaction. This is because providing such advice could involve an inherent conflict of interest, since Putnam earns fees, such as the management fees discussed in Item 5 of this brochure, when clients invest with us. We earn our fees in

connection with selecting portfolio investments for our clients within a specific investment discipline or fund strategy; in contrast, we do not provide advice, and do not earn fees for providing advice, on the selection of investment advisers (such as Putnam and its competitors) or, except in the limited case of the model portfolios discussed above, investment funds (such as our managed funds and those offered by other asset managers). We offer and sell only our own products and services, and do so on an arm's length basis.

While Putnam aims to provide accurate information and comply with applicable law in all our sales and marketing activities, clients and prospects who want professional guidance on whether or not to hire Putnam, or whether or not to invest in a particular Putnam offering, should seek independent advice.

Limitations on Services

As an asset manager, PIM provides a specific service. PIM does not provide tax, legal, or accounting advice, and clients should note that, unless otherwise specifically agreed or disclosed in writing, PIM will not take tax considerations into account in managing a client's portfolio. In addition, for sub-advised clients, we do not advise on or take any action in any legal proceedings on their behalf, including bankruptcies or class actions, involving securities or other investments held or formerly held in a client's account or the issuers of those securities, except where specifically agreed with the client in writing.

For Putnam-sponsored pooled investment funds, Putnam manages portfolio cash as part of its overall investment services. Cash arrangements for other clients, such as separate accounts or sub-advised clients, vary depending on the client's preferences and the account documents. Where the short-term investment fund (STIF) or similar vehicle offered by a client's custodian is used for residual cash investment (for example, where a client directs that all cash be swept daily to the STIF), clients should note that the STIF involve additional credit, market and other risks beyond the securities managed directly by Putnam. Clients interested in greater detail about their custodian's STIF should contact their custodian for more information.

Item 5: Fees and Compensation

Putnam's management fees are set forth in the client's investment management agreement. Putnam generally charges management fees to its discretionary account clients in accordance with its standard fee schedules in effect when the management agreement is signed. Management fees are negotiated with some clients, so fees vary from the standard schedules. Other investment advisers may charge higher or lower fees for comparable services than Putnam charges.

Generally, PIM's fund clients pay management fees to PIM out of fund assets. For separate account clients, fees are billed to the client and are payable quarterly in arrears. Putnam does not require prepayment of management fees.

Putnam must comply with SEC rules about "custody" of client assets (which can include automatic billing arrangements). Clients other than registered investment companies who prefer that Putnam deduct fees directly from their account will be required to make specific arrangements with a qualified custodian and to provide Putnam with additional information (including confirmation that the custodian provides the client with required account statements).

Except with respect to the Putnam Funds, fees, minimum account sizes, and fee breakpoints may be negotiated or modified in Putnam's discretion based on factors such as asset class, pre-existing fee schedules, account size and overall size of the client relationship, portfolio complexity and customization requests (such as specific investment restrictions requested by the client that cause the account to differ from similar accounts managed at Putnam), service requirements (such as non-standard reporting and information requests), the country or market in which a client is located, affiliate status, or other factors. Putnam sometimes also chooses to waive all or a portion of negotiated fees for a period.

While we act as a fiduciary in managing client assets, not all our business decisions are fiduciary decisions. Subject to applicable law and any contractual commitments, we may choose to charge different fees or otherwise offer different levels of service to different clients for the same fee, depending on our own business needs and market demands.

Putnam Fund and 529 Plan Fees

PIM's fees under its investment management agreements with respect to the Putnam Funds (and, where required by SEC rules other registered investment company clients) are shown in the funds' registration statements, on file with the SEC.

Fees for Putnam 529 for America^(SM) are described in the offering documents for the program. Investors should note that the fees for fund (and 529 plan) investments differ from the fees for separate accounts investments in several ways.

First, a separate account client arranges for custody, recordkeeping and other service providers for its portfolio on its own (and pays for these services separately). In contrast, Putnam Funds and 529 plan portfolios hire their own service providers and pay the related operating costs. Depending on the fund and account documentation, in some cases, Putnam bears some or all of these expenses. For details, please refer to the specific fund's or portfolio's offering documents.

In addition, the management fees on a fund may also differ from the fees for similar separate accounts depending, for example, on the specific services provided and Putnam's related costs.

UMA and other Wrap Program, Model Portfolio Fees and Retail SMAs

PIM receives fees quarterly in arrears based on a percentage of the aggregate or average asset value of all UMA program assets managed by the sponsor in accordance with PIM's model portfolios. This fee is negotiated with and paid by the sponsor, and typically ranges from 0.30% to 0.50% of net assets per annum, depending on the program and model. Advisory fees paid by the client to the sponsor in order to participate in these programs are established by the sponsor; PIM does not negotiate advisory fees with a UMA client. Clients should note, however, that their overall fees for participating in a UMA program with a PIM model may be higher or lower than the fees associated with using other managers' models. Each client should evaluate whether a particular UMA program, including the fees charged and services provided, is suitable for his or her needs, including the fees charged and services provided. Please see your sponsor's wrap fee program brochure or similar disclosure document for additional fee information and disclosures.

PIM earns fees on model fund portfolios, made up of mutual funds and ETFs, through management fees charged on the underlying Putnam funds and/or in, some cases, through a management fee at the portfolio level.

For Dual Contract Programs, PIM's fee is typically paid directly by the client pursuant to a separate agreement. PIM generally negotiates its fees with each Program Sponsor, subject to varying factors, including the Program Sponsor's program size and style, the services performed by the Program Sponsor, and other factors. The annual fee schedules for investment management services for Dual Contract Clients are expressed as a percentage of total assets. All assets are stated in U.S. dollars. In addition to the fee schedules outlined below, different fee schedules apply for certain long-standing clients, initial investors in a new strategy, as well as clients with customized mandates or special service needs, among other clients.

Advisory Fees for Dual Contract Retail SMAs

Advisory fees for Dual Contract Retail SMAs are generally determined based upon the following schedules. However, fees and minimum account sizes may be negotiated. PIM and Program Sponsors each charge their fees separately.

U.S. Large Cap Value Equity Concentrated

All Assets 0.55%

New Client Minimum Account Size: \$1,000,000

Sustainable Leaders

All Assets 0.60%

New Client Minimum Account Size: \$1,000,000

Ultra Short Duration Income Managed Account

All Assets 0.40%

New Client Minimum Account Size: \$10,000,000

Advisory Fees for Single Contract Retail SMAs

Advisory fees for Single Contract Retail SMAs are generally determined based upon the following schedules. However, fees and minimum account sizes may be negotiated. PIM and Program Sponsors each charge their fees separately.

Ultra Short Duration Income Managed Account

All Assets 0.25%

New Client Minimum Account Size: \$250,000

Performance Fees

Some Putnam clients, including some investment funds, pay performance-based fees. For more information on these fees, please read Item 6 of this brochure.

Non-Discretionary Advice

In addition to discretionary asset management, Putnam may sometimes agree to provide non-discretionary advice for a specific client portfolio in a particular asset class. Putnam does not act as general investment counsel for these accounts, but instead makes specific, security-level recommendations for the client to implement in its discretion. The fees for these services, or for any additional services such as unusual reporting needs or other client-specific requirements, are determined on a case by case basis.

Account Termination

The terms and conditions of PIM's services are specified in the investment management agreement between PIM and the client. The management agreement generally allows either the client or PIM to terminate it at any time on written notice (typically, of not less than 60 days).

Other Third-Party Fees and Expenses

In addition to Putnam's management fee, clients are responsible for other charges imposed by third parties other than Putnam. Investment in a portfolio of securities and other investments involves various costs, such as commissions, clearing fees, taxes, and custody and accounting charges. For separate account clients, the custodian or administrator, not Putnam, charges each of these expenses (other than commissions) directly to the portfolio, and, in many cases, Putnam does not know the amounts of these expenses. For more information, clients should contact their service providers directly. For fund investors, the fund generally bears these expenses, which reduce the return on an investor's investment.

Commissions and Transaction Costs: The rate of commissions and level of transaction costs will vary, and, for fixed-income securities, commissions are generally not separately stated, but implicit in the spread paid on the trade. Please see Item 12 for more information.

Taxes: Withholding taxes and/or other taxes apply to some investments (such as securities of non-U.S. issuers).

Custody and Accounting Charges: These charges (including ongoing fees as well as transaction specific fees and charges for portfolio trades and collateral transfers) are charged by the custodian and accounting agent/record keeper for the portfolio.

Fund expenses. The Putnam Funds also bear other ongoing expenses, such as investor servicing fees, SEC fees and audit fees. Accounts that invest in mutual funds, exchange-traded funds ("ETFs") or other funds will bear those funds' expenses and any associated management fees.

Valuation of Portfolio Assets in Calculating Fees

Putnam's management fees are based on the value and performance of the assets held in the client account. Putnam generally does not act as official record keeper or pricing agent for its client accounts. However, if the investment management agreement provides that fees will be based on Putnam's calculation of the portfolio's net assets or performance, or in the case of an investment fund managed by Putnam, Putnam's valuation of securities determines the fees that a client or fund investor pays. Although most investment types are valued based on publicly available prices (such as equity closing prices), third party pricing sources, or broker dealer prices, Putnam does have a role in determining asset values in some asset classes and circumstances. For example, Putnam may be required to price a portfolio holding when a market price is not readily available or when Putnam has reason to believe that the market price is inaccurate. To the extent Putnam's fees are based on the value or performance of client accounts, Putnam will benefit by receiving a

fee based on the impact, if any, of the increased value of assets in an account. As a result, valuation of assets by Putnam could involve a potential conflict of interest. Putnam has adopted detailed pricing procedures and related oversight controls to assist in proper valuation of client investments.

The Putnam Funds have adopted their own pricing procedures; however, the Board of Trustees of the Putnam Funds has also designated PIM as the “valuation designee” (as that term is defined in Rule 2a-5 under the Investment Company Act of 1940, as amended) to perform fair valuation determinations for each Putnam Fund with respect to assets for which a market quotation is not readily available.

Item 6: Performance-Based Fees and Side-By-Side Management

Most Putnam management fees are asset-based. However, for some clients, the management fee includes a performance component in which Putnam is paid either based upon a fulcrum fee (for certain Putnam Funds) or is paid additional amounts to the extent the account's performance exceeds a specific performance benchmark. Putnam also manages institutional accounts and funds that pay performance based fees of a certain percentage (such as, for example, 20%) of investment gains (or of outperformance over an agreed-upon benchmark, such as a securities index or a cash measure such as LIBOR or the return on Treasury bills) in addition to a base fee. In some cases, these performance fees are subject to a high-water mark or other provisions intended to ensure that prior losses are recouped before Putnam earns any performance fees. Other accounts and funds have periodic or cumulative performance hurdles that must be achieved before Putnam receives a performance fee. The periods used to measure the performance are specified in the management agreement and will typically be at least a twelve-month period.

Performance fee accounts can generate significant fees. While performance fees are intended to reward Putnam for the successful pursuit of client investment goals, they could create an incentive for portfolio managers to take risks in managing client assets that they would not otherwise take. In addition, the management of performance fee accounts alongside non-performance fee accounts raises potential conflicts of interest, such as:

- ◆ The most attractive investments could be allocated to performance fee accounts.
- ◆ The trading of performance fee accounts could be favored as to timing and execution price.
- ◆ The trading of other accounts could be used to benefit performance fee accounts (front running).
- ◆ Portfolio managers could focus primarily on performance fee accounts due to their personal stake in compensation.

Putnam attempts to address these potential conflicts of interest through compliance policies that are generally intended to place all accounts, regardless of fee structure, on the same footing for investment management purposes. For example, under Putnam's policies:

- ◆ Performance fee accounts must be included in all standard trading and allocation procedures with all other accounts.
- ◆ All accounts must be assigned to a specific category of account and trade together with allocations of similar accounts in their categories based on the procedures generally applicable to all accounts in those categories (such as based on relative risk budgets of accounts).
- ◆ All trading must be effected through Putnam's trading desks and normal queues and procedures must be followed (that is, no special treatment is permitted for performance fee accounts or higher-fee accounts based on account fee structure).
- ◆ Front running is prohibited.
- ◆ Without approval of the Chief Compliance Officer, no portfolio manager or team may be guaranteed or specifically allocated any portion of a performance fee. Interested clients whose accounts bear performance fees should refer to the documentation for their particular fund or account for more information.

As part of these policies, Putnam has also implemented trade oversight and review procedures in order to monitor whether particular accounts (including higher-fee accounts, performance fee accounts and affiliated accounts) are being favored over time.

Although Putnam believes our policies and procedures are reasonably designed, it is not possible to eliminate all the potential risks of these conflicts. For more information about other potential conflicts of interest in trading and managing client accounts, see Item 11.

Item 7: Types of Clients

PIM primarily manages the Putnam Funds and the Putnam 529 for AmericaSM college savings plan. PIM also sub-advises other financial firms' registered investment companies. PIM also provides investment advisory services to individuals through Retail SMAs. Minimum account sizes depend on the type of client relationship and asset class.

Item 8: Methods of Analysis, Investment Strategies and Risk of Loss

Methods of Analysis

Putnam is an active, long-term investment manager across the major asset classes.

Our analysis of the financial markets is generally based on fundamental analysis and research, but also includes quantitative elements. Fundamental analysis attempts to measure the intrinsic value of a security by looking at economic and financial factors (including the overall economy, industry conditions, and the financial condition and management of the company itself) in order to determine if the company is underpriced or overpriced. Quantitative analysis applies concepts of fundamental valuation and security selection via computer models. These computer-based models are designed to analyze a variety of financial data from various sources and generate investment selections.

We may consider, among other factors, a company's valuation, financial strength, growth potential, competitive position in its industry, projected future earnings, cash flows and dividends when deciding whether to buy or sell equity investments. We may consider, among other factors, credit, interest rate prepayment, and liquidity risks, as well as general market conditions, when deciding whether to buy or sell fixed-income investments.

As part of our investment analysis, depending on the strategy or portfolio in question, we may integrate environmental, social, or governance ("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, most notably those where we lack relevant ESG data, depending on the strategy, ESG considerations may not be a material part of our process. It is also important to note that consideration of ESG issues does not mean that a particular account pursues a specific "ESG" or "sustainable" investment strategy, and, depending on the strategy, we sometimes make investment decisions notwithstanding the associated ESG considerations. In all cases, our task is to pursue the agreed-on investment objective for a given account. In our view, pursuing that goal often requires appropriate consideration of ESG matters, just as it does other investment factors.

Generally, Putnam research is focused on developing both a top-down view of broader market performance and a bottom-up outlook for individual securities. Putnam relies significantly on research generated in-house which is tailored to the precise needs of our investment professionals. External research is also used - for example, to evaluate consensus views and to augment the research process. For more information, see Item 12 of this brochure.

Investment Strategies

Putnam offers a wide variety of investment strategies to its clients. In managing assets, Putnam has the flexibility to invest in securities and other financial instruments of almost any type (including both cash securities, such as stocks and bonds, and derivative instruments, such as swaps, futures, forwards, and options). This flexibility is subject to the investment objectives and guidelines of each account, as agreed with the client.

Equity Mandates

Putnam's equity mandates typically seek competitive results over time, backed by original, fundamental research on a global scale. Putnam seeks to generate alpha through a bottom-up approach to investing, seeking to identify the most attractive investment opportunities based on valuation and perceived quality while considering overall portfolio construction. Portfolios are designed in an attempt to maximize alpha from stock selection, and while individual portfolios vary, holdings tend to be broad based, which can help dampen volatility over time, although there can be no guarantee of investment results. We employ global sector coverage, with each team having extensive experience in researching their sectors.

Putnam offers a variety of equity strategies, including various Putnam Funds, as well as through Retail SMAs and model-delivery non-discretionary investment management services through wrap fee programs. Equity investing involves many risks. See the "Risk of Loss" section below for more information.

Equity Investment Strategies offered in Retail SMAs:

U.S. Core Equity Concentrated

The U.S. Core Equity Concentrated strategy seeks capital appreciation through investment in common stocks (growth stocks, value stocks, or both) of U.S. companies of any size with favorable investment potential. For example, we may purchase stocks of companies with stock prices that reflect a value lower than that which we place on the company. We may also consider other factors we believe will cause the stock price to rise. We may consider, among other factors, a company's valuation, financial strength, growth potential, competitive position in its industry, projected future earnings, cash flows and dividends when deciding whether to buy or sell investments. The strategy uses a disciplined, fundamental investment process with three buckets of idea generation: legacy companies, smart-money indicators, and special situations.

U.S. Large Cap Growth Equity Concentrated

The U.S. Large Cap Growth Equity Concentrated strategy seeks above-average growth by investing in large U.S. companies that we believe exhibit both a high level of growth and an above-average duration of growth. The investment strategy employs a thematic approach to identify durable growth companies and combines top-down investment themes with bottom-up research to select securities that can potentially benefit from growth trends. Portfolios target above-average growth by investing in large cap companies whose earnings and cash-flow trajectories indicate potential growth opportunities. The strategy focuses on growth companies that exhibit both a high level of growth and an above-average duration of growth and combines top-down investment themes with bottom-up research to select securities that can benefit from growth trends and seeks to take advantage of market opportunities and differentiated views.

U.S. Large Cap Value Equity Concentrated

The U.S. Large Cap Value Equity Concentrated strategy seeks to invest in companies with underappreciated fundamentals and the income potential from growing dividends to pursue returns (common stocks of U.S. companies, with a focus on value stocks that offer the potential for capital growth, current income, or both). The investment strategy uses a disciplined process that combines fundamental research and quantitative tools to pursue multiple alpha sources, with a strong overlay of risk control and portfolio construction and a focus on large companies whose stocks are priced below their long-term potential, and where there may be a catalyst for positive change.

U.S. Small Cap Growth Equity

The U.S. Small Cap Growth Equity strategy seeks to outperform the Russell 2000 Growth® Index over a

full market cycle by investing mainly in common stock of small U.S. companies. The strategy seeks to build a portfolio that offers above-average growth with a focus on quality and stability.

U.S. Small Cap Value Equity

The U.S. Small Cap Value Equity strategy seeks to outperform the Russell 2000 Value® Index by investing in a portfolio of stocks with attractive valuation and quality characteristics and improving business momentum or catalysts that can unlock value. The strategy focuses on bottom-up stock selection, well-diversified portfolios, and downside risk management and seeks to manage risk through security selection, portfolio construction, and liquidity management. The strategy will invest mainly in common stocks of small U.S. companies, with a focus on value stocks. Value stocks are issued by companies that we believe are currently undervalued by the market.

International Durable Equity (ADR-Only)

The International Durable Equity (ADR-Only) strategy seeks long-term capital appreciation by investing primarily in U.S. listed equity securities and American Depositary Receipts of common stocks of companies incorporated outside of the United States. The strategy will invest mainly in developed countries but may also invest in emerging markets, targeting high quality companies with durable growth prospects and low volatility in operating results. Portfolios may also invest in equity securities of U.S. incorporated issuers which have significant international operations, assets or revenue.

Sustainable Future

The Sustainable Future strategy seeks long-term capital appreciation by investing mainly in common stocks of U.S. companies of any size, with a focus on companies whose products and services we believe provide solutions that directly contribute to sustainable social, environmental and economic development. Stocks of this type of company are typically, but not always, considered to be growth stocks. Growth stocks are stocks of companies whose revenues, earnings, or cash flows are expected to grow faster than those of similar firms, and whose business growth and other characteristics may lead to an increase in stock price. We may consider, among other factors, a company's impact on sustainable environmental, social and economic development, valuation, financial strength, growth potential, competitive position in its industry, projected future earnings, cash flows and dividends when deciding whether to buy or sell investments. The strategy integrates relevant and forward-looking sustainability analysis with high-quality fundamental research to drive investment decisions.

Sustainable Leaders

The Sustainable Leaders strategy seeks long term capital appreciation by investing mainly in stocks of U.S. companies of any size, with a focus on companies that we believe exhibit a commitment to financially material sustainable business practices. In evaluating investments for the strategy, we view "financially material sustainable business practices" as business practices that we believe are reasonably likely to impact the financial condition or operating performance of a company and that relate to environmental, social, or corporate governance issues. The strategy integrates relevant and forward-looking sustainability analysis with high-quality fundamental research to drive investment decisions.

Fixed Income Mandates

Putnam's fixed income portfolios generally seek above average total returns relative to an agreed benchmark by investing in a diversified portfolio of fixed income securities. Our fixed income strategies are managed in a holistic fashion that seeks to combine specialist investment insights upon a common platform of disciplined portfolio construction and risk management techniques. We believe that fixed income markets are inefficient at pricing the risk of various securities, and that active management can help add value to client portfolios by exploiting these inefficiencies through the disciplined and systematic application of a well-defined, robust investment process. Of course, there can be no guarantee of investment results.

Understanding the dynamics of fixed income markets and individual securities is a complex, technical area with vast volumes of information. We believe that opportunities are most effectively exploited by dedicated sector specialist teams. Our top-down view is based on ongoing market discussion among the group's portfolio managers. The group reviews internal and external market data, including proprietary forecasting models. Based on fundamental and quantitative research performed by the analysts, the portfolio managers determine which securities of an issuer to own and in what amount. This decision incorporates a relative value opinion across industries and within an issuer's capital structure. The security selection process also factors in considerations such as liquidity, market technicals, market opportunities, and our own macro level views.

Putnam's fixed-income team operates as part of the Franklin Templeton Fixed Income group and offers a variety of fixed-income strategies, including various Putnam Funds. Strategies range from various single-sector to multi-sector portfolios managed against a variety of benchmarks. Fixed-income investing involves many risks. See the "Risk of Loss" section below for more information.

Fixed Income Investment Strategies offered in Retail SMAs:

Ultra Short Duration Income Managed Account

The Ultra Short Duration Income Managed Account strategy seeks as high a rate of current income as we believe is consistent with preservation of capital and maintenance of liquidity through a diversified portfolio composed primarily of individual short-duration, investment-grade rated fixed income securities and a pooled vehicle of similar fixed income securities. The strategy provides exposure to a wider range of income opportunities and has the potential to offer higher income than other short-term investments. The Ultra Short Duration Income Managed Account strategy utilizes both individual securities and a diversified pooled vehicle that permits access to security types that are difficult to implement for Retail Separately Managed Account (SMA) investors. Exposure to certain sectors and security types, including derivatives, are gained via the Putnam Ultra Short MAC Series ("the fund"), which is a proprietary no-fee mutual fund established exclusively for use within SMAs. The fund is used in combination with selected individual securities to implement the SMA's investment program. The fund does not pay a management fee to Putnam. Shareholders should be aware, however, that the fund is part of SMA investment programs, and Putnam will be compensated directly or indirectly by program sponsors or program clients for SMA advisory services. The fund's prospectus includes information on fund investment objectives, strategies and risks.

Global Asset Allocation Mandates

Putnam's Global Asset Allocation Team, which now operates as a part of the Franklin Templeton Investment Solutions group, believes that traditional beta and alpha-only investment approaches are not always sufficient to achieve a client's investment objectives; instead, the modern investing landscape, in our view, requires a team of professionals with the breadth and skill to exploit the full spectrum of available investment opportunities in a portfolio featuring diversification across asset classes and active strategies. The Global Asset Allocation Team's products combine equity, fixed-income, and other asset classes in order to seek particular client goals, such as total return, although there can be no guarantee of investment results.

Putnam offers a variety of Global Asset Allocation strategies, including various Putnam Funds managed by the Global Asset Allocation team with asset allocation, multi-asset income, and target date strategies. Investing in a diversified portfolio of equity and fixed-income instruments involves many risks. See the "Risk of Loss" section below for more information.

Risk of Loss

While Putnam seeks to achieve a client's stated investment objective, there is no guarantee that we will succeed. Investing in securities and other financial instruments involves risk of loss that clients should be prepared to bear. Our accounts may not perform as well as accounts managed by others or as well as their benchmarks.

This section gives more information on the material risks that may apply to a client portfolio depending on the asset class or classes in which it invests. These descriptions cover our most significant strategies, and they focus on risks that are shared by most portfolios in a given asset class (such as equities or fixed-income). Some specialized portfolios may be subject to additional risks. For example, our regional or sector strategies, such as Emerging Markets Equity or Global Technology, will be subject to risks associated with focusing in one geographic region or sector.

Of course, this section does not cover every possible risk, and Putnam sometimes buys investments that we do not describe below. In addition, each specific account's guidelines and strategy will determine the risks that apply. For example, if you invest in a portfolio of mostly large-cap equities, the risks of small-cap investing may not be significant. If you invest in a high yield bond portfolio, credit risk may be significant, but prepayment risk may not be. If your account does not permit the use of derivatives, derivatives risks will not apply. For more detailed information about your portfolio's risks, please contact Putnam. Fund investors should also refer to their fund's offering materials for a more detailed discussion about risks.

Overall Risks (for all strategies)

»**Management and operational risk.** Our portfolios are actively managed, and our performance will reflect, in part, our ability to make investment decisions that seek to achieve the account's investment objective. There is no guarantee that the investment techniques, analyses, or judgments that we apply in making investment decisions for a client account will produce the intended outcome or that the investments we select for an account will perform as well as other securities that were not selected for the account. As a result, a client account may underperform its benchmark or other accounts with a similar investment goal and may realize losses. In addition, we or our other service providers (or service providers with which we must work in managing an account), may experience disruptions or operating errors that could negatively impact the operations of a client's investment account. It may not be possible to identify all of the operational risks that may affect our clients or to develop processes and controls to completely eliminate or mitigate their occurrence or effects.

»**Market risk.** The value of investments in a client portfolio may fall or fail to rise over extended periods of time for a variety of reasons, including general economic, political or financial market conditions ; investor sentiment and market perceptions, (including perceptions about monetary policy, interest rates or the risk of default); government actions (including protectionist measures, intervention in the financial markets or other regulation, and changes in fiscal, monetary or tax policies); geopolitical events or changes (including natural disasters, epidemics or pandemics, terrorism and war); and factors related to a specific issuer, asset class, geography, industry or sector. Non-U.S. financial markets have their own market risks, and they may be more or less volatile than U.S. markets and may move in different directions. These and other factors may lead to increased volatility and reduced liquidity in a client portfolio. During those periods, if a client portfolio is subject to withdrawals, it may have to sell securities at times when it would otherwise not do so, and at unfavorable prices.

Beginning in January 2020, global financial markets have experienced, and may continue to experience, significant volatility, reduced liquidity, and other adverse impacts resulting from the spread of COVID-19. The outbreak of COVID-19 and efforts to contain its spread have resulted in, among other things, international, national, and local border closings and other significant travel restrictions and disruptions, significant disruptions to business operations, supply chains, and customer activity, event cancellations and restrictions, individual and community quarantines, lower consumer demand, significant challenges to healthcare services, and general market uncertainty. The effects of COVID-19 (which may be short-term or last for an extended period of time) have adversely affected, and may continue to adversely affect, the global economy, the economies of certain nations, and individual issuers, all of which may negatively impact

a client account's performance.

Fixed-Income Investments

»**Interest rate risk.** The values of fixed income securities (including mortgage-related and other asset-backed securities, bonds and other debt instruments) usually rise and fall in response to changes in interest rates. Declining interest rates generally increase the value of existing debt instruments, and rising interest rates generally decrease the value of existing debt instruments. Changes in a debt instrument's value usually will not affect the amount of interest income paid to a portfolio, but will affect the value of the portfolio. Interest rate risk is generally greater for investments with longer maturities.

Some investments give the issuer the option to call or redeem an investment before its maturity date. If an issuer calls or redeems an investment during a time of declining interest rates, we might have to reinvest the proceeds in an investment offering a lower yield, and therefore might not benefit from any increase in value as a result of declining interest rates.

»**Inflation-protected securities.** Inflation-protected securities are debt instruments whose principal and/or interest are adjusted for inflation. Inflation-protected securities issued by the U.S. Treasury pay a fixed rate of interest that is applied to an inflation-adjusted principal amount. The principal amount is adjusted based on changes in the Consumer Price Index, a measure of inflation. The principal due at maturity is typically equal to the inflation-adjusted principal amount, or to the instrument's original par value, whichever is greater. Because the principal amount would be adjusted downward during a period of deflation, a portfolio will be subject to deflation risk with respect to its investments in these securities. In addition, if the portfolio purchases inflation-adjusted debt instruments in the secondary market whose principal values have been adjusted upward due to inflation since issuance, the portfolio may experience a loss if there is a subsequent period of deflation.

»**Credit risk.** Investors normally expect to be compensated in proportion to the risk they are assuming. Thus, debt of issuers with poor credit prospects usually offers higher yields than debt of issuers with more secure credit. Higher-rated investments generally have lower credit risk.

Where a portfolio's investment guidelines permit, we may invest in higher-yield, higher-risk debt investments that are below investment grade, including investments in the lowest rating category of the rating agency. Investments rated below BBB or its equivalent are below investment-grade. This rating reflects a greater possibility that the issuers may be unable to make timely payments of interest and principal and thus default. If this happens, or is perceived as likely to happen, the values of those investments will usually be more volatile and are likely to fall. A default or expected default could also make it difficult for us to sell the investments at prices approximating the values we had previously placed on them. Lower-rated debt usually has a more limited market than higher-rated debt, which may at times make it difficult for us to buy or sell some debt instruments or to establish their fair value. Credit risk is generally greater for zero coupon bonds and other investments that are issued at less than their face value and that are required to make interest payments only at maturity rather than at intervals during the life of the investment. Although investment-grade investments generally have lower credit risk, they may share some of the risks of lower-rated investments. U.S. government investments generally have the least credit risk, but are not completely free of credit risk. While some investments, such as U.S. Treasury obligations and Ginnie Mae certificates, are backed by the full faith and credit of the U.S. government, no assurance can be given that the U.S. government will continue to provide financial support to U.S. government-sponsored agencies or instrumentalities where it is not obligated to do so by law, such as Fannie Mae and Freddie Mac. In September 2008, the Federal Housing Finance Agency (FHFA), an agency of the U.S. government, placed Fannie Mae and Freddie Mac into conservatorship, a statutory process with the objective of returning the entities to normal business operations. FHFA operates Fannie Mae and Freddie Mac as conservator until they are stabilized. It is unclear how long the conservatorship will last, how Fannie Mae and Freddie Mac will operate following conservatorship, or what effect this conservatorship will have on the securities issued or guaranteed by Fannie Mae or Freddie Mac. In addition, the impact of any policy or legislative changes in the United States with

respect to the housing market, and the practical implications for market participants, is uncertain and may not be known fully for some time after any such changes are implemented. Mortgage-backed and asset-backed securities not guaranteed by a government agency, including collateralized investment vehicles, and generally involve greater credit risk than securities guaranteed by government agencies.

Credit ratings are based largely on the issuer's historical financial condition and the rating agencies' investment analysis at the time of rating. The rating assigned to any particular investment does not necessarily reflect the issuer's current financial condition, and does not reflect an assessment of an investment's volatility or liquidity. Although we consider credit ratings in making investment decisions, we perform our own investment analysis and do not rely only on ratings assigned by the rating agencies. Our success in achieving a portfolio's goals may depend more on our own credit analysis when we buy lower rated debt than when we buy investment-grade debt. We may have to participate in legal proceedings involving the issuer. This could increase a portfolio's operating expenses and decrease its value.

Some convertible securities receive payments only after the company has paid the holders of its non-convertible debt; for this reason, the credit risk of a company's convertible securities can be greater than that of its non-convertible debt.

Mortgage-backed securities may be subject to the risk that underlying borrowers will be unable to meet their obligations.

»Prepayment risk. Traditional debt investments typically pay a fixed rate of interest until maturity, when the entire principal amount is due. By contrast, payments on securitized debt instruments, including mortgage-backed and asset-backed investments, typically include both interest and partial payment of principal. Principal may also be prepaid voluntarily, or as a result of refinancing or foreclosure. We may have to invest the proceeds from prepaid investments in other investments with less attractive terms and yields. Compared to debt that cannot be prepaid, mortgage-backed investments are less likely to increase in value during periods of declining interest rates and have a higher risk of decline in value during periods of rising interest rates. They may increase the volatility of the portfolio. Some mortgage-backed investments receive only the interest portion or the principal portion of payments on the underlying mortgages. The yields and values of these investments are extremely sensitive to changes in interest rates and in the rate of principal payments on the underlying mortgages. The market for these investments may be volatile and limited, which may make them difficult to buy or sell. Asset-backed securities are structured like mortgage-backed securities, but instead of mortgage loans or interests in mortgage loans, the underlying assets may include such items as motor vehicle installment sales or installment loan contracts, leases of various types of real and personal property and receivables from credit card agreements. Asset-backed securities are subject to risks similar to those of mortgage-backed securities.

»Floating rate loans. Floating rate loans are debt obligations with interest rates that adjust or "float" periodically (normally on a monthly or quarterly basis) based on a widely recognized base rate, such as the London Inter-Bank Offered Rate or the prime rate offered by one or more major U.S. banks. While most floating rate loans are below-investment-grade in quality, many also are senior in rank in the event of bankruptcy to most other securities of the borrower, such as common stock or public bonds. Floating rate loans are also normally secured by specific collateral or assets of the borrower so that the holders of the loans will have a priority claim on those assets in the event of default or bankruptcy of the issuer.

Floating rate loans generally are less sensitive to interest rate changes than obligations with fixed interest rates but may decline in value if their interest rates do not rise as much, or as quickly, as interest rates in general. Conversely, floating rate instruments will not generally increase in value if interest rates decline. Changes in interest rates will also affect the amount of interest income the client earns on its floating rate investments. Most floating rate loans allow for prepayment of principal without penalty. If a borrower prepays a loan, we might have to reinvest the proceeds in an investment that may have lower yields than the yield on the prepaid loan or might not be able to take advantage of potential gains from increases in the credit quality of the issuer. The value of collateral, if any, securing a floating rate loan can decline, and may be insufficient to meet the borrower's obligations or difficult to liquidate. In addition, our access to collateral may be limited by

bankruptcy or other insolvency proceedings. Floating rate loans may not be fully collateralized and may decline in value. Loans may not be considered “securities,” and it is possible that the portfolio may not be entitled to rely on anti-fraud and other protections under the federal securities laws when it purchases loans.

Although the market for the types of floating rate loans in which we invest has become increasingly liquid over time, this market is still developing, and there can be no assurance that adverse developments with respect to this market or particular borrowers will not prevent us from selling these loans at their market values when we consider such a sale desirable. In addition, the settlement period (the period between the execution of the trade and the delivery of cash to the purchaser) for floating rate loan transactions may be significantly longer than the settlement period for other investments, and in some cases longer than seven days. Requirements to obtain consent of borrower and/or agent can delay or impede our ability to sell the floating rate loans and can adversely affect the price that can be obtained. It is possible that sale proceeds from floating rate loan transactions will not be available to meet redemption obligations.

»Illiquid markets risk. The markets for below-investment-grade mortgage-backed securities and asset-backed securities, and certain other securities and derivatives have been at times characterized by less liquidity and significant imputed transaction costs. Imputed transaction costs represent the undisclosed amount of profit (sometimes referred to as “mark-up” or “dealer spread”) included in the price of an investment by the other party to a transaction. These transaction costs may be considerable and will reduce returns. While we intend generally to invest in markets that are liquid, depending on market conditions, we may not be able to sell investments when desirable to do so, or we may be able to sell them only at less than their fair value. Market liquidity for lower-rated investments may be more likely to deteriorate than for higher-rated investments. Dealers in below-investment-grade mortgage- and asset-backed securities play an important role in providing liquidity, but are under no obligation to do so and may stop providing liquidity at any time. The impact of recent regulatory changes may further limit the ability or willingness of dealers to provide liquidity. Changing regulatory and market conditions, especially conditions in the housing market, or changes to the status of Fannie Mae and Freddie Mac or of the securities they issue, may adversely affect the liquidity of investments. These risks may be magnified in a rising interest rate environment or in other circumstances where there is increased supply in the market due to selling activity.

»ESG fixed income investing risk. Some Putnam strategies may invest with a focus on companies that Putnam believes meet relevant ESG criteria. Investing with a focus on companies or issuers that meet Putnam’s ESG criteria may result in a portfolio investing in certain types of companies, issuers, industries or sectors that the market may not favor. Conversely, investing in such companies or issuers may result in a portfolio foregoing investment in securities that outperform the portfolio’s investments in certain environments. In evaluating an investment opportunity, Putnam may make investment decisions without the availability of optimal ESG-related data (which may be even less available with securitized debt instruments) or based on information and data that is incomplete or inaccurate. ESG criteria are not uniformly defined and applying such factors involves subjective assessments. ESG scorings and assessments of issuers can vary across third-party data providers and may change over time. Putnam does not rely exclusively on third-party data providers in evaluating ESG criteria. ESG information from third-party data providers may be incomplete, inaccurate or unavailable, particularly with respect to companies in emerging market countries, which may adversely impact the investment process. Portfolios may not restrict investments to “green bonds” (i.e., U.S. dollar-denominated bonds designated as “green” by the Climate Bonds Initiative) and may not restrict investments based solely on “negative screens”. In addition, a company’s or issuer’s business practices, products or services may change over time. As a result of these possibilities, among others, a portfolio may temporarily hold securities that are inconsistent with its ESG investment criteria. Regulatory changes or interpretations regarding the definitions and/or use of ESG criteria could have a material adverse effect on a portfolio’s ability to invest in accordance with its investment policies and/or achieve its investment objective, as well as the ability of certain classes of investors to invest in portfolios whose strategies include ESG criteria. There may be limitations with respect to availability of ESG data in certain sectors, as well as limited availability of investments with positive ESG assessments in certain sectors. Putnam’s evaluation of ESG criteria may change over time. Because fixed-income investments generally

represent a promise to pay principal and interest by an issuer, and not an ownership interest, and may involve complex structures, ESG-related investment considerations may have a more limited impact on risk and return (or may have an impact over a different investment time horizon) relative to other asset classes, and this may be particularly true for shorter-term investments. Third-party ESG data regarding fixed-income investments is generally less available than ESG data for equity investments. In addition, holders of fixed-income investments do not typically have voting rights, unlike holders of equity investments who have the right to vote on issuer proposals.

Equity Investments

»**Common stocks.** Common stock represents an ownership interest in a company. The value of a company's stock may fall as a result of factors directly relating to that company, such as decisions made by its management or lower demand for the company's products or services. A stock's value may also fall because of factors affecting not just the company, but also companies in the same industry or in a number of different industries, such as increases in production costs. From time to time, we may invest a significant portion of a portfolio's assets in companies in one or more related industries or sectors, which would make the portfolio more vulnerable to adverse developments affecting those companies, industries or sectors. For example, financial services companies may be affected by the availability and cost of capital; changes in interest rates, insurance claims activity, industry consolidations, reduced profitability from limitations on loans, proprietary trading and interest rates and fees charged as a result of extensive government regulations, while the information technology sector (including companies that develop products, processes or services that will provide advances and improvements through information technology to consumers, enterprises and governments) may be significantly affected by technological obsolescence or innovation, short product cycles, falling prices and profits, competitive pressures and general market conditions. The value of a company's stock may also be affected by changes in financial markets that are relatively unrelated to the company or its industry, such as changes in interest rates or currency exchange rates. In addition, a company's stock generally pays dividends only after the company invests in its own business and makes required payments to holders of its bonds and other debt. For this reason, the value of a company's stock will usually react more strongly than its bonds and other debt to actual or perceived changes in the company's financial condition or prospects. Stocks of smaller companies may be more vulnerable to adverse developments than those of larger companies.

Growth stocks – Stocks of companies we believe are fast-growing may trade at a higher multiple of current earnings than other stocks. The values of these stocks may be more sensitive to changes in current or expected earnings than the values of other stocks. If our assessment of the prospects for a company's earnings growth is wrong, or if our judgment of how other investors will value the company's earnings growth is wrong, then the price of the company's stock may fall or not approach the value that we have placed on it. Seeking earnings growth may result in significant investments in some sectors, including the technology sector, which may be subject to greater volatility than other sectors of the economy. Growth stocks may be more susceptible to earnings disappointments, technological obsolescence, falling prices and profits. In addition, growth stocks, at times, may not perform as well as value stocks or the stock market in general, and may be out of favor with investors for varying periods of time.

Value stocks – Companies whose stock we believe is undervalued by the market may have experienced adverse business developments or may be subject to special risks that have caused their stocks to be out of favor. If our assessment of a company's prospects is wrong, or if other investors do not similarly recognize the value of the company, then the price of the company's stock may fall or may not approach the value that we have placed on it. In addition, value stocks, at times, may not perform as well as growth stocks or the stock market in general, and may be out of favor with investors for varying periods of time.

»**Small and midsize companies.** These companies, some of which may have a market capitalization of less than \$1 billion, are more likely than larger companies to have limited product lines, markets or financial resources, lack profitability or depend on a small management group. Stocks of these companies often trade in smaller volumes, and their prices may fluctuate more than stocks of larger companies. Stocks of small and

mid-sized companies may therefore be more vulnerable to adverse developments than those of larger companies. Small companies in non-U.S. countries could be relatively smaller than those in the United States. In addition, stocks of small and midsize companies, at times, may not perform as well as stocks of larger companies or the stock market in general, and may be out of favor with investors for varying periods of time.

»Sustainable Equity Investing. Some Putnam strategies may invest with a focus on companies that exhibit a commitment to sustainable business practices, with a focus on companies whose products and services may provide solutions that directly impact sustainable environmental, social and economic development, or with a focus on companies that Putnam believes meet relevant ESG criteria. These strategies may result in a fund investing in certain types of companies, industries or sectors that the market may not favor. In evaluating an investment opportunity, we may make investment decisions based on information and data that is incomplete or inaccurate. Sustainability and ESG metrics are not uniformly defined and applying these metrics involves subjective assessments. Sustainability and ESG scorings and assessments of issuers can vary across third-party data providers and may change over time. Putnam does not rely exclusively on third-party data providers in evaluating sustainability and ESG factors. In addition, a company's business practices, products or services may change over time. As a result of these possibilities, among others, a portfolio may temporarily hold securities that are inconsistent with the account's sustainable investment criteria. Regulatory changes or interpretations regarding the definitions and/or use of ESG or other sustainability criteria could have a material adverse effect on an account's ability to invest in accordance with its investment policies and/or achieve its investment objective, as well as the ability of certain classes of investors to invest in accounts whose strategies include ESG or other sustainability criteria.

»Biorevolution companies. Some Putnam strategies may invest with a focus on "biology revolution" companies. Biology revolution companies face intense competition and potentially rapid product obsolescence. Biology revolution companies may be adversely affected by the loss or impairment of intellectual property rights and other proprietary information or changes in government regulations. The potential for an increased amount of required disclosure or lack of access to proprietary scientific information could negatively impact the performance of these companies. A portfolio may invest in companies that operate in industries that are likely to be impacted by the biology revolution over time. However, certain of these companies do not currently derive a substantial portion of their current revenues from biology revolution activities and there is no assurance that any company will do so in the future, which may adversely affect the ability of a portfolio to achieve its investment objective.

»BDC investing risk. Some Putnam strategies may invest with a focus on exchange-traded business development companies ("BDCs"). BDCs generally invest in less mature U.S. private companies or thinly traded U.S. public companies which involve greater risk than well-established publicly-traded companies. While the BDCs in which a portfolio invests are expected to generate income in the form of dividends, certain BDCs during certain periods of time may not generate such income. A portfolio that invests in BDCs will indirectly bear its proportionate share of any management fees and other operating expenses incurred by the BDCs and of any performance-based or incentive fees payable by the BDCs in which it invests, in addition to the expenses paid by the fund. A BDC's incentive fee may be very high, vary from year to year and be payable even if the value of the BDC's portfolio declines in a given time period. The use of leverage by BDCs magnifies gains and losses on amounts invested and increases the risks associated with investing in BDCs. A BDC may make investments with a larger amount of risk of volatility and loss of principal than other investment options and may also be highly speculative and aggressive. Certain BDCs may also be difficult to value since many of the assets of BDCs do not have readily ascertainable market values. Therefore, such assets are most often recorded at fair value in accordance with valuation procedures adopted by such companies, which may potentially result in material differences between a BDC's net asset value ("NAV") per share and its market value.

Non-U.S. Investments

Non-U.S. investments (whether equities or fixed-income investments) involve special risks, including:

- » Unfavorable changes in currency exchange rates: Non-U.S. investments are typically issued and traded in non-U.S. currencies. As a result, their values may be affected by changes in exchange rates.
- » Political and economic developments: Non-U.S. investments may be subject to the risks of seizure by a non-U.S. government, direct or indirect impact of sovereign debt default, imposition of economic sanctions or restrictions on the exchange or export of non-U.S. currency, and tax increases.
- » Unreliable or untimely information: There may be less information publicly available about a non-U.S. company than about most publicly traded U.S. companies, and non-U.S. companies are usually not subject to accounting, auditing and financial reporting standards and practices as stringent as those in the United States. Non-U.S. securities may trade on markets that are closed when U.S. markets are open. As a result, accurate pricing information based on foreign market prices may not always be available.
- » Limited legal recourse: Legal remedies for investors may be more limited than the remedies available for investors in U.S. companies.
- » Limited markets: Some non-U.S. investments may be less liquid (harder to buy and sell) and more volatile, which means we may at times be unable to sell these non-U.S. investments at desirable prices. In addition, there may be limited or no markets for bonds of issuers that become distressed. For the same reason, we may at times find it difficult to value the portfolio's non-U.S. investments. In addition, there may be limited or no market for bonds of issuers that become distressed.
- » Trading practices: Brokerage commissions and other fees are generally higher for non-U.S. investments than for U.S. investments. The procedures and rules governing non-U.S. transactions and custody may also involve delays in payment, delivery or recovery of money or investments.
- » Sovereign issuers: The willingness and ability of sovereign issuers to pay principal and interest on government securities depends on various economic factors, including the issuer's balance of payments, overall debt level, and cash flow from tax or other revenues. In addition, there may be no legal recourse for investors in the event of default by a sovereign government.

The risks of non-U.S. investments are typically increased in countries with less developed markets, which are sometimes referred to as emerging markets. Emerging markets may have less developed economies, and legal, and regulatory systems, and may be susceptible to greater political and economic instability than developed foreign markets. Countries with emerging markets are also more likely to experience high levels of inflation or currency devaluation, and investments in emerging markets may be more volatile and less liquid than investments in developed markets. For these and other reasons, investments in emerging markets are often considered speculative.

Some of these risks related to non-U.S. investments may also apply to some extent to U.S. investments that are denominated in non-U.S. currencies, investments in U.S. companies that are traded in non-U.S. markets or investments in U.S. companies that have significant non-U.S. operations.

Geographic Focus

If a portfolio invests a substantial percentage of its assets in issuers located in a single country, a small number of countries, or a particular geographic region, the portfolio's performance will likely be closely tied to the market, currency, political, economic, regulatory, geopolitical, and other conditions in such countries or region. These conditions could generally have a greater effect on the portfolio than they would on a more geographically diversified portfolio, which may result in greater losses and volatility. For instance, if the

portfolio invests significantly in European issuers, the portfolio will be subject to certain geopolitical concerns, such as the potential that a member country might exit the Economic and Monetary Union of the European Union and/or European Union, could lead to increased volatility in European markets and negatively affect a portfolio's investments both in issuers in the exiting country and throughout Europe. In addition, the economies of countries in Europe are in different stages of economic development. Efforts by the member countries of the European Union to continue to unify their economic and monetary policies may increase the potential for similarities in the movements of European markets and reduce the potential investment benefits of diversification within the region. However, the substance of these policies may not address the needs of all European economies. European financial markets have in recent years experienced increased volatility due to concerns with some countries' high levels of sovereign debt, budget deficits and unemployment. For example, markets have also been affected by the United Kingdom's withdrawal from the European Union (commonly known as "Brexit"). Also, if a portfolio invests in Asian or Pacific Basin countries that may be either developing (also known as emerging) or newly industrialized, these economies may be characterized by frequent currency fluctuations and restrictions, rising unemployment, rapid fluctuation in inflation and interest rates, reliance on exports and international trade, and less efficient markets. Furthermore, political and social unrest in some Asian and Pacific Basin countries could cause economic and market uncertainty in the region. In Japan, the economy is strongly impacted by government intervention and protectionism, as well as international trade, government support of the financial services sector and other troubled sectors, and geopolitical developments. Japan, as well as the other Asian countries, has historically been prone to natural disasters. The occurrence of a natural disaster, including subsequent recovery from a natural disaster, in the region could negatively impact the economy of the affected country or countries.

Derivatives Investments

We engage in a variety of transactions involving derivatives, such as futures, options, warrants and swap contracts. Derivatives are financial instruments whose value depends upon, or is derived from, the value of something else, such as one or more underlying investments, pools of investments, indexes or currencies. We may make use of "short" derivatives positions, the values of which move in the opposite direction from the price of the underlying investment, pool of investments, index or currency. The risk of loss from some short derivatives positions is theoretically unlimited. We may use derivatives both for hedging and non-hedging purposes. For example, we may use foreign currency transactions to increase or decrease a portfolio's exposure to a particular currency or group of currencies. We may also use derivatives as a substitute for a direct investment in the securities of one or more issuers. However, we may also choose not to use derivatives, based on our evaluation of market conditions or the availability of suitable derivatives. It is not possible to hedge fully or perfectly against any risk, and hedging entails its own costs. In addition, derivatives trading may involve other costs, such as the cost of posting collateral, which could reduce or negate the return from a derivative.

Derivatives involve special risks and may result in losses. The successful use of derivatives depends on our ability to manage these sophisticated instruments. Some derivatives are "leveraged," which means they provide a portfolio with investment exposure greater than the value of the portfolio's investment in the derivatives. As a result, these derivatives may magnify or otherwise increase investment losses to the portfolio, and an account investing in derivatives could lose more than the amount invested in them. The value of derivatives may move in unexpected ways due to the use of leverage or other factors, especially in unusual market conditions, and may result in increased volatility. Derivatives strategies that use hedging can cause the value of a portfolio to appreciate or depreciate at a greater rate than if such techniques were not used.

Derivatives may create investment leverage, which involves risks. If our judgments about the performance of various asset classes or investments prove incorrect, and a portfolio's exposure to underperforming asset classes or investments is increased through the use of leverage, a relatively small market movement may result in significant losses.

Other risks arise from the potential inability to terminate or sell derivatives positions. A liquid secondary market may not always exist for the portfolio derivatives positions. In fact, many over-the-counter

instruments (investments not traded on an exchange) will not be liquid. Some derivative contracts may be privately negotiated in the over-the-counter market. These contracts also involve exposure to credit risk, since contract performance depends in part on the financial condition of the counterparty, and counterparty risk, since the counterparty may be unable or unwilling to perform its obligations under the contract for reasons unrelated to its financial condition, such as operational issues, business interruptions or contract disputes. If a privately negotiated over-the-counter contract calls for payments, the portfolio must be prepared to make the payments when due. If a counterparty's creditworthiness declines or the counterparty is otherwise unable or unwilling to perform its obligations under the contract, the portfolio may not receive payments owed under the contract, or the payments may be delayed and the value of the agreements with the counterparty may decline, potentially resulting in losses to the client portfolio.

More broadly, clients investing in derivatives should be aware that the legal requirements for derivatives trading are complex and continue to evolve, both in the U.S. and internationally. For example, client derivative trading may require public or non-public regulatory reporting in the U.S., Europe, and other jurisdictions, and local law may impose other related obligations (such as valuation and risk mitigation requirements) directly on the client. Derivatives must in some cases be "cleared" through a clearinghouse and/or traded on an exchange or similar facility, and even bilateral, "over the counter" positions may be subject to collateralization and other operational arrangements. Each of these trading requirements presents additional operational, legal, and investment issues for relevant accounts. Increasing derivatives regulation could reduce liquidity, increase costs or otherwise impact the effectiveness of strategies that make significant use of derivatives.

»**Options strategies.** Some portfolios may employ an options strategy of writing (selling) call options and buying put options on individual portfolio securities and on equity indices. There is no guarantee that an options strategy will produce premium income or reduce portfolio volatility to the extent desired. A transaction in options may be unsuccessful because of market behavior or unexpected events. For example, unusual market conditions or the lack of a ready market for any particular option at a specific time may impair a portfolio's ability to enter into new positions or close out existing positions, which may reduce the effectiveness of the options strategy. A portfolio also risks losing all or part of the cash paid for purchasing call and put options if the portfolio does not exercise the options before they expire.

Short Sales

In certain strategies, we may engage in short sales of securities either as a hedge against potential declines in value of a portfolio security or to realize appreciation when a security that the account does not own declines in value. Short sales are transactions in which a fund or other client sells a security it does not own to a third party by borrowing the security in anticipation of purchasing the same security at the market price on a later date to close out the short position. The potential loss from a short sale is theoretically unlimited since the potential increase in the market price of the security sold short is not limited. The successful use of short sales is subject to our ability to accurately predict movements in the market price of the security sold short. A portfolio's investment strategy of reinvesting proceeds received from selling securities short may effectively create leverage, which can amplify the effects of market volatility and make a portfolio's returns more volatile. This is because leverage tends to magnify the effect of any increase or decrease in the value of the portfolio's securities positions. The use of leverage may also cause a client to liquidate positions at undesirable prices in order to satisfy its obligations.

Real Estate Investment Trusts (REITs)

A REIT pools investors' funds for investment primarily in income-producing real estate properties or real estate-related loans (such as mortgages). The real estate properties in which REITs invest typically include properties such as office buildings, retail and industrial facilities, hotels, apartment buildings and healthcare facilities. We will invest in publicly-traded REITs listed on national securities exchanges. The yields available from investments in REITs depend on the amount of income and capital appreciation generated by the related properties. Investments in REITs are subject to the risks associated with direct ownership in real estate, including economic downturns that have an adverse effect on real estate markets.

Commodities Risks

Commodities are real assets such as oil, industrial metals, and precious metals such as gold or silver. The value of commodities may be affected by events that have less impact on non-commodity investments. Portfolios may gain exposure to physical commodities through investment in a wholly-owned and controlled subsidiary. Portfolios may also invest directly or indirectly in commodity-linked derivative Instruments. Exposure to the commodities markets may subject an investor to greater volatility than investments in traditional securities and is typically achieved through derivative instruments or commodity-linked notes. Commodities trading involves substantial risk of loss. There are additional risks involved with trading securities in a margin account, including the risk of losing more funds than the amount deposited. Commodity-linked notes are subject to the same risks as commodities, such as weather, disease, political, tax and other regulatory developments and other factors affecting the value of commodities. Commodity-linked investments may be more volatile and less liquid than the underlying measure(s), may be leveraged, and have substantial risk of loss and are subject to the credit risks associated with the issuer or counterparty.

Specifically, in the commodity futures markets, producers of the underlying commodity may decide to hedge the price risk of selling the commodity by selling futures contracts on one day to lock in the price of the commodity at delivery on the next day. In order to induce speculators to purchase the other side of the same futures contract, the commodity producer generally must sell the futures contract at a lower price than the expected future spot price of the commodity. Conversely, if most hedgers in the futures market are purchasing futures contracts to hedge against a rise in prices, then speculators will only sell the other side of the futures contract at a higher futures price than the expected future spot price of the commodity. The changing nature of the hedgers and speculators in the commodities markets will influence whether the prices of commodity-linked derivatives are above or below the expected future spot price, which can have significant implications for a client account. Commodities markets (and commodity-linked derivative instruments) may be subject to temporary distortions and other disruptions due to, among other factors, lack of liquidity, the participation of speculators and government regulation and intervention.

Convertible securities

Convertible securities include bonds, preferred stocks and other instruments that pay interest or dividends and that can be converted into or exchanged for common stocks or other equity securities, or equivalent value, at a particular price or rate (a “conversion price”). Convertible securities generally have less potential for gain or loss than common stocks, but may have more potential for gain or loss than debt securities. In general, a convertible security performs more like a stock when the underlying stock’s price is near or higher than the conversion price (because it is assumed that it will be converted into the stock) and more like a bond when the underlying stock’s price is lower than the conversion price (because it is assumed that it will not be converted). Convertible securities tend to provide higher yields than common stocks. However, a higher yield may not protect investors against the risk of loss or adequately mitigate any loss associated with a decline in the price of a convertible security. Convertible securities are subject to credit risk, which is the risk that an issuer of an account’s investments may default on payment of interest or principal. Credit risk is generally greater for below-investment-grade convertible securities. Generally, convertible securities may be less sensitive to interest rate changes than non-convertible bonds as a result of convertible securities’ convertibility and “put” features. Interest rate risk is generally greater for longer-term bonds and convertible securities whose underlying stock price has fallen significantly below the conversion price.

Privately placed, restricted and Rule 144A securities

We may invest in securities purchased in private placements or pursuant to Rule 144A under the Securities Act of 1933 (if available) that include restrictions on resale. Rule 144A securities are securities that are not registered for public sale, but can be sold to institutional investors in accordance with Rule 144A. Other privately placed securities may be sold only in private offerings, the terms of which may be individually

structured depending on the issuer and offering. Privately placed and Rule 144A securities may be subject to restrictions on resale or transfer as a matter of law or contract, and are normally resold only to institutional investors. There can be no assurance that we will be able to dispose of these securities readily and investments in private companies may have to be held until or after the company's initial public offering. Particularly given the smaller size of some emerging companies, in some cases, we could hold a substantial portion of an issuer's capital. In addition to impacting potential liquidity, large positions of this kind could raise additional legal requirements, such as public disclosure, specified holding periods or regulatory approvals, depending on the nature of our holding. In some cases, in order to comply with applicable law and/or to avoid position disclosure or other legal steps that we believe are not in the best interest of our clients, Putnam may choose, in its discretion, to purchase non-voting shares, to waive voting rights, or to take other steps that would not typically be needed in public investments. In addition, in connection with some investments in private securities, Putnam may enter on behalf of its clients into a voting agreement with the issuer relating to election of directors or other matters where it considers those agreements in its clients' best interests (for example, in order to gain exposure to an investment opportunity that may not be available absent the agreement). In these cases, Putnam will vote in accordance with its agreement, and its normal proxy voting procedures, described in Item 17, will not apply. Private securities may also require greater involvement by Putnam in the valuation process including the potential to make a determination of fair market value.

Collateralized Loan Obligations

We may invest directly or indirectly in collateralized loan obligations ("CLOs"). A CLO is an obligation of a trust or other special purpose vehicle typically collateralized by a pool of loans, which may include, among others, domestic and foreign senior secured loans, senior unsecured loans, commercial real estate loans, and subordinate corporate loans, including loans that may be rated below investment grade or equivalent unrated loans. CLOs may charge management and other administrative fees. Payments of principal and interest are passed through to investors in a CLO and divided into several tranches of rated debt securities, which vary in risk and yield, and typically at least one tranche of unrated subordinated securities, which may be debt or equity ("CLO Securities"). CLO Securities generally receive some variation of principal and/or interest installments and, with the exception of certain subordinated securities, bear different interest rates. If there are defaults or if a CLO's collateral otherwise underperforms, scheduled payments to senior tranches typically take priority over less senior tranches.

CLO Securities may be privately placed and thus subject to restrictions on transfer to meet securities law and other legal requirements. In the event that a client account does not satisfy certain of the applicable transfer restrictions at any time that it holds CLO Securities, it may be forced to sell the related CLO Securities and may suffer a loss on sale. CLO Securities may be considered illiquid investments in the event there is no secondary market for the CLO/CDO securities. CLOs are also subject to the typical risks associated with debt instruments and fixed income and/or asset-backed securities discussed elsewhere herein, including interest rate risk (which may be exacerbated if the interest rate payable on a structured financing changes based on multiples of changes in interest rates or inversely to changes in interest rates), prepayment risk, credit risk (including adverse credit spread moves), liquidity risk and market risk.

Holdings Limits

The laws of some non-U.S. countries may limit our ability to invest in securities of certain issuers organized under the laws of those foreign countries. These restrictions may take the form of prior governmental approval requirements, limits on the amount or type of securities held by foreign investors, and limits on the types of companies in which foreign investors may invest (such as limits on investment in certain industries). Some countries also limit the investment of foreign persons to only a specific class of securities of an issuer that has less advantageous terms than securities of the issuer available for purchase by domestic parties, or may directly limit foreign investors' rights (such as voting rights). Although securities subject to these restrictions may be marketable abroad, they may be less liquid than securities of the same class that are not subject to the restrictions. Non-U.S. laws may also impact the availability of derivatives or hedging techniques relating to a non-U.S. country's government securities. Legal holdings limits or pre-approval

requirements may also apply in the U.S. based on state laws applicable to specific kinds of companies, such as insurers or banks. In addition, U.S. and non-U.S. issuers may adopt similar, issuer-specific restrictions, in the form of bylaw provisions, so-called “poison pills” that are designed to limit hostile takeovers, or other limits, which may differ from background legal requirements. In each of these situations, our ability to invest significantly in desired issuers, or the terms of the investments, could be negatively impacted.

For purposes of some U.S. or non-U.S. holding limits or disclosure thresholds, all positions owned or controlled by the same person or entity, even if in different accounts, may be aggregated for purposes of determining whether the applicable limits or thresholds have been exceeded. As a result, even if a particular client account does not exceed applicable limits, it is possible that different clients managed by Putnam and its affiliates (including separate affiliates owned by Franklin Resources outside the Putnam Investments group, as described in Item 10) may be aggregated for this purpose. Putnam and its affiliates may choose, as a prudential matter, to limit trading in a particular issuer, country, industry, or other investment type at a level lower than the relevant legal threshold. Any modification of trading decisions that may be required to avoid exceeding relevant limits or triggering other legal requirements may adversely affect the performance of a client account.

Turnover

A client account pays transaction-related costs when Putnam buys and sells securities (or “turns over” the portfolio). A higher turnover rate may indicate higher brokerage commissions, transaction costs and taxes, which affect performance. The turnover for Putnam client accounts varies widely among strategies and portfolio managers and, even within a single account, will be higher or lower at different times depending on Putnam’s view of market opportunities. While Putnam generally seeks long-term outperformance rather than short-term opportunity, some Putnam client portfolios may have relatively high turnover.

Securities of Investment Companies

Some PIM managed accounts also purchase securities issued by open- or closed- end investment companies, including ETFs. Investments in these types of securities may involve the indirect payment of additional management fee and other expenses at the underlying funds levels. In addition, any investment in a fund will be dependent on the skills of the firm managing the fund. Putnam most often uses ETFs and other funds to equitize cash held in client accounts, or, in some instances, to gain market exposure through purchasing ETFs on particular securities indices. Putnam may also use other funds when there is a shortage of direct investments available, or when Putnam believes that investment companies offer attractive values.

Model Risk

We use proprietary models and data supplied by third parties. We use models and data to, among other things, identify and assess trends and market opportunities and provide risk management insights. If the quantitative models or data used in managing client portfolios prove to be incorrect or incomplete, investment decisions made in reliance on the models or data may not produce the desired results and may cause the portfolio to underperform its benchmark or other portfolios with a similar investment goal, and the client portfolio may realize losses. In addition, models may incorrectly forecast future behavior, leading to potential losses. Use of these models in unforeseen or certain low-probability scenarios (often involving a market disruption of some kind) also may result in losses for a client’s portfolio.

All models require data. Some of the models that we may use are typically constructed based on historical data, and the success of these models is dependent largely on the accuracy and reliability of the supplied historical data. If incorrect data is entered into a model, the resulting output will be incorrect.

Cyber Security Risk

Putnam, its investment funds, clients advised by Putnam and their service providers (“Affected Persons”) may be susceptible to operational and information security and related risks of cyber security incidents. In

general, cyber incidents can result from deliberate attacks or unintentional events. Cyber security attacks include, but are not limited to, gaining unauthorized access to digital systems (e.g., through "hacking" or malicious software coding) for purposes of misappropriating assets or sensitive information, corrupting data or causing operational disruption. Cyber-attacks also may be carried out in a manner that does not require gaining unauthorized access, such as causing denial-of-service attacks on websites (i.e., efforts to make services unavailable to intended users). Cyber security incidents affecting the Affected Persons have the ability to cause disruptions and impact business operations, potentially resulting in financial losses, including by: interference with a fund's ability to calculate its NAV; impediments to trading for a portfolio; the inability to transact business with the Affected Person; causing violations of applicable privacy, data security or other laws with resulting regulatory fines and penalties and reputational damage; any reimbursement or other compensation or remediation costs or legal fees or additional compliance costs. Similar adverse consequences could result from cyber security incidents affecting issuers of securities in which a fund or portfolio invests, counterparties with which a fund or portfolio engages in transactions, governmental and other regulatory authorities, exchange and other financial market operators, banks, brokers, dealers, insurance companies and other financial institutions and other parties. While Putnam has developed information risk management systems and business continuity plans that are designed to reduce the risks associated with cyber security, there are inherent limitations in any cyber security risk management systems or business continuity plans, including the possibility that certain risks have not been identified.

Item 9: Disciplinary Information

PIM entered into a Settlement Agreement with the SEC on September 27, 2018. The Settlement Agreement states: (i) a trader formerly employed by Putnam engaged in prearranged trades in certain mortgage-backed securities, (ii) as a result of these undisclosed prearranged trades PIM did not seek best execution, (iii) PIM did not ensure compliance with applicable policies regarding cross-trades and failed to supervise the former employee. The SEC found violations of Sections 203(e) (6), 206 (2) (4), and 207 of the Investment Advisers Act, and Section 17(a) of the Investment Company Act. The SEC entered a cease and desist order, and Putnam paid a \$1,000,000 fine and agreed to reimburse the clients that participated in the relevant trades in an aggregate amount of \$1,095,006.10.

Item 10: Other Financial Industry Activities and Affiliations

Other Putnam Companies

In addition to its SEC registration, PIM is also a commodity pool operator registered with the Commodity Futures Trading Commission (“CFTC”) and a member organization of the National Futures Association (“NFA”).

PIM is under common ownership with the other Putnam Advisers described in Item 4 of this brochure. The Putnam Advisers share portfolio management personnel and securities research and trading facilities, and allocate the costs among themselves. Other Putnam Advisers sub-advise some PIM client accounts. Client fees do not change when one Putnam Adviser acts as sub-adviser to another. Instead, other Putnam companies compensate the sub-adviser through sub-advisory fees or the allocation of related costs and revenue. Any sub-advisory relationship is subject to client approval (which Putnam may obtain through the initial investment management agreement or other account documents or at a later time). Even in the absence of formal delegations, one Putnam Adviser may perform administrative or ministerial tasks (such as trade processing and reporting) in connection with another Putnam Adviser’s accounts, subject to Putnam’s overall policies and legal requirements. Please see also “Services of Other Affiliates” in Item 4 above for information on relationships between the Putnam Advisers and other advisory affiliates.

Putnam also owns other related financial companies in the United States, including:

- ◆ Putnam Investor Services, Inc., a registered transfer agent which serves as the transfer agent to the Putnam Funds and some other clients; and
- ◆ Putnam Retail Management Limited Partnership (“PRM”), a registered broker/dealer which is the principal underwriter for the open-end Putnam Funds and distributor of Putnam 529 for AmericaSM. PRM and its personnel also offer some other Putnam investment funds to U.S. investors. PRM is compensated by other Putnam companies for these services.

PRM shares certain compliance and supervisory personnel with Franklin Distributors, LLC (“FD, LLC”), which is an SEC registered broker-dealer and member of the Financial Industry Regulatory Authority owned by Franklin Resources. FD, LLC is also registered with the CFTC as an introducing broker and is a member of the NFA. Like PRM, FD, LLC does not make recommendations to purchase or sell fund shares to retail investors.

FD, LLC assists PRM in the distribution of products and services offered by the Putnam Advisers in the United States.

Outside the United States, Putnam also owns the registered investment adviser PIL, as well as:

- ◆ Putnam Investments Canada ULC, a British Columbia unlimited liability company with various provincial securities licenses in Canada that manages or sub-advises Canadian separate accounts and investment funds, including a number of Canadian mutual funds and insurance segregated fund accounts;
- ◆ Putnam Investments Australia Pty Limited, an Australia financial services license holder that promotes Putnam products and services; and
- ◆ Putnam Investments Japan Co., Ltd., an Investment Advisory and Agency Business Operator under the Financial Instruments and Exchange Law of Japan that provides information and reporting regarding securities, arranges for investment mandates for other Putnam companies,

and provides related services in connection with Putnam's business in Japan.

These firms may promote Putnam products and services outside the United States and/or hire one or more of the Putnam Advisers to sub-advise non-U.S. client portfolios.

Affiliated Funds

Putnam also manages various affiliated funds, as described in Item 4. Putnam does not invest the assets of its discretionary client accounts or Putnam funds in other funds managed by Putnam without consent of the client or fund (which may, in some cases, be obtained through disclosure in the investment management agreement or a fund's offering documents), and generally structures these investments to avoid any duplication of Putnam advisory fees (such as through waivers of Putnam fees at either the investing fund or underlying fund level, depending on the specific facts). Subject to these requirements and any other applicable law, Putnam may use affiliated funds to manage portfolio cash (including cash collateral) efficiently, as underlying "building block" portfolios, or for other purposes.

Putnam Distribution Firms and Sales Personnel

In general, PRM and other Putnam sales organizations and personnel are a dedicated sales force offering only Putnam and other affiliates' products and services. Putnam companies do not generally offer advisory clients or prospects traditional financial planning or brokerage services, general investment advice, or recommendations or advice about other financial firms' products. Clients and potential clients should be aware, in choosing to begin a client relationship with a Putnam Adviser or invest in an investment fund offered by Putnam, that Putnam sales personnel and various Putnam companies are compensated for their distribution activities. This compensation may include commissions based on the successful sale of particular Putnam funds or strategies/services. Accordingly, Putnam personnel have an incentive to sell Putnam products and services.

Other Affiliates

PIM is an indirect wholly-owned subsidiary of Franklin Resources, a holding company with its various subsidiaries that operates under the Franklin Templeton and/or subsidiary brand names. In the future, PIM may have certain business arrangements with related persons/companies that are material to its advisory business or to PIM clients, including those described in this Item 10 ("Other Financial Industry Activities and Affiliations"). In some cases, these business arrangements will, from time to time, create a potential conflict of interest, or appearance of a conflict of interest between the Putnam Advisers and a client. Please see Item 4 ("Advisory Business") for additional information on services of affiliates.

Recognized conflicts of interest are discussed in Item 6 ("Performance-Based Fees and Side-By-Side Management") above and Item 11 ("Code of Ethics, Participation or Interest in Client Transactions and Personal Trading") and Item 12 ("Brokerage Practices") below. The Putnam Advisers have arrangements with one or more of the following types of related persons that may be considered material to their advisory business or to their clients.

Related Service Providers for Certain Separate Accounts and Model Programs

PIM expects to engage its affiliate, Franklin Templeton Private Portfolio Group, LLC ("FTPPG") to act as a service provider to PIM with respect to a limited number of separate accounts, typically with high net-worth individuals. Under this engagement, FTPPG would provide operational support on behalf of PIM (the "Support Services"). FTPPG has retained Market Street Advisors, Inc., dba "Archer," a company not affiliated with PIM or FTPPG, to provide some or all of the Support Services as its delegate with respect to separate accounts. PIM expects to engage FTPPG to provide PIM with Support Services with respect to PIM's non-discretionary advisory arrangements for Model Portfolio programs. In exchange for the Support

Services for separate accounts, PIM would expect to pay FTPPG a blended fee depending on the Account's assets under management and Account type. Such fees would be paid by PIM out of its own resources.

Conflicts of Interest

Being part of a larger corporate group could involve conflicts of interest if, for example, an asset manager were to use affiliated products and services when those products and services may not be in its clients' best interests. Many U.S. and non-U.S. laws aim to limit these conflicts of interests – for example, by preventing a money manager from entering into trades between its clients and its affiliates where the client might be disadvantaged. At Putnam we have policies and procedures designed to comply with these laws. In addition, we believe that our business relationships with our affiliates are carried out on market terms. In some key areas where potential conflicts may arise, we do not currently deal with our affiliates. For example, Putnam currently does not execute portfolio transactions for client accounts with any “affiliated” broker-dealers (as defined under relevant securities laws), and we do not generally invest in the stocks of our corporate affiliates that are public companies. We may, however, deal with or invest in companies whose relationship with Putnam is immaterial (for example, where our parent company has a very small indirect interest that would not make the company an “affiliate” under applicable law). While we do not expect our policies to have any material impact on our management of client accounts, it is possible that refraining from investing in our affiliates could cause clients to forego attractive investment opportunities in some strategies.

Item 11: Code of Ethics, Participation or Interest in Client Transactions and Personal Trading

Code of Ethics Summary

Putnam Investment Management, LLC an indirect, wholly owned subsidiary of Franklin Resources, has adopted the Franklin Resources Code of Ethics and Business Conduct (the “**Code of Ethics**”), which is applicable to all officers, directors, and employees of Franklin Resources and its U.S. and non-U.S. subsidiaries and affiliates, including Putnam Investment Management, LLC (each, an “Adviser” and collectively, the “Advisers”). The Advisers are also subject to the Franklin Templeton Personal Investments and Insider Trading Policy (the “**Personal Investments Policy**”), which serves as a code of ethics adopted by Franklin Resources pursuant to Rule 204A-1 under the Advisers Act and Rule 17j-1 of the 1940 Act. A brief description of the main provisions of the Personal Investments Policy follows.

The Personal Investments Policy states that the interests of the Advisers’ clients are paramount and come before any employee. All Covered Employees (as defined below) are required to conduct themselves in a lawful, honest and ethical manner in their business practices and to maintain an environment that fosters fairness, respect and integrity.

“**Covered Employees**” include the Advisers’ partners, officers, directors (or other persons occupying a similar status or performing similar functions), and employees, as well as any other person who provides advice on behalf of the Advisers and are subject to the supervision and control of the Advisers. The personal investment activities of Covered Employees must be conducted in a manner that avoids actual or potential conflicts of interest with the clients of the Advisers. Covered Employees are required to use their positions with the Advisers and any investment opportunities they learn of because of their positions with the Advisers in a manner consistent with their fiduciary duties to use such opportunities and information for the benefit of the Advisers’ clients and with applicable laws, rules and regulations. In addition, the Personal Investments Policy states that information concerning the security holdings and financial circumstances of the Advisers’ clients is confidential and Covered Employees are required to safeguard this information.

Additionally, Access Persons, a subset of Covered Employees, are required to provide certain periodic reports on their personal securities transactions and holdings. “Access Persons” are those persons who have access to non-public information regarding the securities transactions of the Advisers’ funds or clients; are involved in making securities recommendations to clients; have access to securities recommendations that are non-public; or have access to non-public information regarding the portfolio holdings of funds for which an Adviser serves as an investment adviser or a sub-adviser or any fund whose investment adviser or principal underwriter controls an Adviser, is controlled by an Adviser or is under common control with an Adviser. The Advisers’ Access Persons must obtain pre-clearance from the Compliance Department before buying or selling any security (other than those not requiring pre-clearance under the Personal Investments Policy). The Personal Investments Policy also requires pre-clearance before investing in a private investment or purchasing securities in a limited offering. The Personal Investments Policy generally prohibits Access Persons from investing in initial public offerings (“IPOs”); however, such investments may be permissible in certain circumstances or jurisdictions with prior approval from the Compliance Department.

To avoid actual or potential conflicts of interest with the Advisers’ clients, certain transactions and practices are prohibited by the Personal Investments Policy. These include: front-running, trading parallel to a client, trading against a client, using proprietary information for personal transactions, market timing, and short selling Franklin Resources stock and the securities of Franklin Templeton closed-end funds.

The Personal Investments Policy requires prompt internal reporting of suspected and actual violations of the Personal Investments Policy. In addition, violations of the Personal Investments Policy are referred to

the Director of Global Compliance and/or the Chief Compliance Officer as well as the relevant management personnel.

The Advisers maintain a “restricted list” of securities in which the Advisers’ personnel generally may not trade. The restricted list is updated as necessary and is intended to prevent the misuse of material, non-public information by their employees. In addition to continuous monitoring, the Compliance Department will conduct forensic testing or auditing of reported personal securities transactions to ensure compliance with the Personal Investments Policy.

No Covered Employee or Access Person may trade while in possession of material, non-public information (“**MNPI**”) or communicate MNPI to others.

Information is considered material if there is a substantial likelihood that a reasonable investor would consider the information to be important in making his or her investment decision, or if it is reasonably certain to have a substantial effect on the price of the company’s securities. Information is non-public until it has been effectively communicated to the marketplace. If the information has been obtained from someone who is betraying an obligation not to share the information (e.g., a company insider), that information is very likely to be non-public.

The Advisers have implemented a substantial set of personal investing procedures designed to avoid violation of the Personal Investments Policy.

Copies of the Personal Investments Policy are available to any client or prospective client upon request by emailing GCSS at ***GlobalClientServiceSupportAmericas@franklintempleton.com***.

Affiliated Accounts

The Advisers and their affiliates sometimes create “seed” or “incubator” funds and accounts in order to develop a performance track record in new investment products and strategies before offering them to clients. Franklin Resources or a subsidiary funds these portfolios. Franklin Resources employees also invest in some seed portfolios. Franklin Resources and its related companies and employees also invest in registered investment companies and other investment funds that are offered to clients immediately from inception. Franklin Resources and any investing employees will benefit from the investment performance of seed portfolios and other Franklin Resources portfolios in which they invest. These two kinds of portfolios are called “affiliated accounts” below. In some cases, Franklin Resources and its affiliates and employees may own all or a substantial portion of a particular fund or account for an extended period.

Affiliated accounts often invest in the same securities, at or around the same time, as client accounts. The policy of PIM, PAC and PIL (each a “Putnam Adviser”) is to allocate trades to affiliated accounts in the same way as client accounts – neither favoring nor disfavoring them except where legally required. Affiliated accounts are normally included in a Putnam Adviser’s daily block trades to the same extent as client accounts, except that seed accounts do not participate in initial public offerings. For more information, please read “Potential Conflicts of Interest in Trading and Management” below.

Franklin Resources employees may also invest in the Putnam Funds in accordance with the terms of the prospectus.

Franklin Resources or an affiliate may discuss with its clients potential investment in investment funds for which a Putnam Adviser acts as an investment adviser and/or managing member/general partner or trustee.

Potential Conflicts of Interest in Trading and Management

Like other investment firms with multiple clients, each Putnam Adviser faces potential conflicts of interest when managing and trading on behalf of multiple client accounts. This section describes some of these potential conflicts, which the Putnam Advisers believe impact most financial firms with multiple clients and products. It is not a complete description of every conflict that could exist. As noted above, as of January 1, 2024, Putnam is a part of the Franklin Resources group, which includes a number of affiliated investment advisers managing client accounts across various asset classes. The overall scale and trading volume of Franklin Resources and its affiliates is greater than the scale of Putnam and its prior investment management affiliates, which could increase the possibility that a Putnam Adviser trades in the market at the same time as other affiliates, trades in securities of an affiliate's clients or service providers, or otherwise is subject to potential conflicts. Clients and prospective clients should also read the discussions of potential conflicts in proxy voting, brokerage allocation, and personal trading described in this brochure. In addition, while the Putnam Advisers' procedures are designed to address potential conflicts of interest, Putnam believes that all risks of these potential conflicts cannot be fully eliminated.

Differences in Account Fees and Affiliated Accounts

The management of accounts with different management fee rates and/or fee structures, including accounts with performance fees, raises potential conflicts of interest by creating an incentive to favor higher-fee or performance fee accounts. Similar potential conflicts also apply to accounts in which Franklin Resources companies or employees have proprietary or personal investments (regardless of those accounts' fee structures). The Putnam Advisers attempt to address these potential conflicts of interest through various compliance policies that are generally intended to place all accounts, regardless of fee structure, on the same footing for investment management purposes.

For more information about these accounts and the Putnam Advisers' approach to related potential conflicts of interest, please read Item 6 and the paragraphs about "Affiliated Accounts" above.

Client Trading and Guidelines

Other potential conflicts of interest may arise when various client accounts purchase or sell the same securities or other investments. Trade aggregation may create the potential for unfairness to client accounts if one account is favored over another— for example, by allocating a disproportionate amount of a security that is likely to increase in value to a favored account. As part of the Putnam Advisers' trade oversight procedures, trade allocations are sampled on a regular basis for consistency with Putnam's policies in an attempt to ensure fairness over time across accounts.

Another potential conflict of interest may arise based on the different investment objectives and strategies of various Putnam client accounts. For example, different accounts may have different investment horizons, objectives, policies or restrictions. Depending on investment objectives or other factors, a Putnam Adviser may make different investment decisions for different accounts. In addition, investment decisions are the product of many factors in addition to basic suitability for the particular account involved. As a result, a Putnam Adviser may buy or sell a particular investment for some accounts even though it could have bought or sold it for other accounts at the same time. A Putnam Adviser may also buy a particular investment for some accounts when it is selling the investment for other accounts. The market impact of client trading on other clients' holdings is impossible to predict; it may increase or reduce the price received or paid by clients. There may be circumstances when purchases or sales of portfolio investments for one or more accounts may have an adverse effect on other accounts. As noted above, the Putnam Advisers have implemented trade oversight and review procedures to monitor whether any account is systematically favored over time; however, there is no way for an asset manager to eliminate completely the potential impact of one client's trading on another client.

Under federal securities laws, a short sale of a security by one client of a Putnam Adviser within five business days prior to a public offering of the same securities (the timing of which is generally not known to Putnam in advance) may prohibit another client of a Putnam Adviser from participating in the public offering, which could cause the client to miss an otherwise favorable investment opportunity or to pay a higher price for the securities in the secondary markets.

Different client accounts managed by the Putnam Advisers may hold securities from multiple parts of a company's capital structure, such as bank loan participations, senior or subordinated debt, convertible securities, and equity. In some situations, such as if the credit quality of the issuer deteriorates, the interests of holders of different instruments may conflict, and the Putnam Advisers may owe conflicting fiduciary duties to several client accounts. In these cases, each Putnam Adviser will endeavor to carry out its obligations to all of its clients to the fullest extent possible, recognizing that in some cases some clients may achieve a lower economic return, as a result of these conflicting client interests, than if the Putnam Adviser's client accounts collectively held only a single category of the issuer's securities.

Like other asset managers, the Putnam Advisers may from time to time come into possession of material non-public information about the issuers of securities that it has purchased (or may consider purchasing) on behalf of clients. While the Putnam Advisers generally seek to avoid receiving this type of information, we may sometimes obtain or be provided with the information despite our efforts to avoid doing so. In addition, we may be presented with investment opportunities that involve the receipt of material non-public information. In those cases, we would restrict trading in securities affected by such investment opportunity until such time as our policies would permit us to transact in such securities, which may apply for varying periods of time. The Putnam Advisers may similarly restrict trading activity based on receipt of material non-public information by a Franklin Resources affiliate. In some cases, the Putnam Advisers may manage receipt of this information by use of "information barriers" between different investment professionals or teams.

Our policies prohibit us from using material non-public information in trading on behalf of clients. Trading restrictions may impact all clients, and could reduce client returns.

Short Sales

Some Putnam Adviser client accounts sell stocks or other investments short. Short selling may give rise to potential conflicts of interest if, for example, a Putnam Adviser buys a particular security for some accounts when other accounts are selling the security short. In an attempt to mitigate these potential conflicts, the Putnam Advisers have implemented policies and procedures designed to promote equitable treatment and fair dealing among accounts with similar mandates. For example, trade allocations are sampled on a regular basis as part of the Putnam Advisers' trade oversight procedures in an attempt to ensure fairness over time across accounts. In addition, the Putnam Advisers have implemented specific restrictions (with limited exceptions) on the use of long and short positions on the same security within a group of similarly managed accounts.

Cross Trading

Where legally permitted, the Putnam Advisers may seek to transfer a security from one client to another directly through a "cross" trade, which can save commissions and other transaction costs for both clients. Cross trades could involve a potential conflict of interest if, for example, one account is permitted to sell a security to another account at a higher price than an independent third party would pay, or if cross trades result in more attractive investments being allocated to higher-fee or performance fee accounts. To mitigate these potential conflicts, the Putnam Advisers engage in cross trades only when the portfolio manager believes they would benefit each participating account. Cross trades typically involve the Putnam Funds and are typically carried out in accordance with the provisions of Rule 17a-7 under the Investment Company Act of 1940 (in addition to any other applicable law) at an independent current market price, and typically do not involve a commission or sales charge (although customary transaction fees such as custody charges may apply).

To address the risk of inadvertent or prearranged cross trades involving fixed income securities with potentially limited trading markets and/or relatively few active dealers, the Putnam Advisers prohibit (on an automated basis to the extent practicable) the purchase by Putnam Adviser client accounts of certain fixed income securities from a dealer on the same or two succeeding trading days following a sale of such securities by one or more Putnam Adviser client accounts to that dealer. This prohibition does not apply to equity securities or to classes of fixed income securities that in the Putnam Advisers' judgment are more liquid or less susceptible to inadvertent or disguised cross-trading. The prohibition also does not apply to certain creation or redemption orders placed for the Putnam fixed income exchange-traded funds. The classes of securities subject to this prohibition may be adjusted from time to time by the Putnam Advisers' Chief Compliance Officer based on changes in this assessment.

Repurchases that would be subject to this prohibition are eligible for approval by senior Fixed Income professionals or the Putnam Advisers' Chief Compliance Officer if they meet certain specified exception criteria that are intended to require demonstration that the repurchase should not be viewed as an inadvertent cross trade. This prohibition may cause Putnam to forego purchase opportunities that a Putnam Adviser may otherwise believe are attractive, even if an exception to the prohibition is potentially available, to defer a purchase until the prohibition period has elapsed or to attempt to purchase the applicable security from a different dealer at a higher (or lower) price than might have been available from the dealer to which Putnam Adviser client accounts had previously sold the security.

Client and Other Business Partner Securities

Given the breadth of the Putnam Advisers' investment strategies and client base, we from time-to-time purchase securities issued by a client or another company with a business relationship with the Putnam Advisers or their affiliates, such as a service provider, broker dealer, or other business partner. Any investment in these securities will be based on its investment merits and is also subject to applicable law and client guidelines, which may limit investments in a client or its affiliates or in securities-related businesses.

Trade and Guideline Errors; Compliance Review

Investment management is complex. On occasion, a Putnam Adviser may make an error in executing securities transactions or in complying with a client's guidelines – for example, by buying a position where we intended to sell it, or by purchasing an ineligible security for an account. Where a client suffers a loss and the Putnam Adviser believes the error is one for which we should make the client whole, we generally correct the error by placing the client account, to the extent practical, in the same position (net of any associated gains) as it would have been if there had been no error. Depending on the circumstances, and subject to applicable law and client agreements, Putnam may take various steps, including canceling the trade, correcting an allocation, or buying or selling a position, to achieve this result. We do not maintain an "error account" on our own books, so any relevant corrective trading is done in the client's account. We generally notify separate account clients (or the relevant governance body in the case of Putnam-sponsored or Putnam-branded investment funds) of any material error correction that involves a guideline breach and/or reimbursement to the client, but the form and timing of this notification may differ based on the particular account and the facts and circumstances.

While most errors are straightforward, and we routinely reimburse client accounts for most trade and guideline errors (to the extent they result in a loss) when they do arise, not all mistakes require compensation by the Putnam Advisers. In some cases, a third party such as the broker on the trade may take responsibility for a particular error. In addition, in some cases, an element of subjective judgment is required to determine whether an error has taken place, whether it requires compensation, and how to calculate the loss involved. With the assistance of the Compliance Department and other relevant professionals, the Putnam Advisers carefully review errors to determine whether we have breached our standard of care and, if so, what compensation may be due. In cases where a correction of an error results in a net gain, the client retains that gain.

Clients should also be aware that the need to review a guideline or relevant portfolio restriction (including an applicable law) carefully may in some cases create a potential opportunity cost. The Putnam Advisers and their affiliates sometimes choose, as a prudential matter, to limit certain accounts from trading in a particular instrument while reviewing and interpreting relevant law or contractual limitations or, where necessary,

notifying the client and, in certain cases, obtaining client consent, and this delay could cause some accounts to miss investment opportunities. In certain situations where a Putnam Adviser is unable to confirm with confidence that a particular account is permitted to invest in a particular opportunity, or where client notification or consent is needed, but cannot practically be arranged in a timely manner, the Putnam Adviser may be unable to proceed with the investment for that account, even if other clients do participate. Because any such delay or missed investment opportunity arises from the need to ensure guideline compliance, the Putnam Advisers do not regard these situations as errors.

Item 12: Brokerage Practices

Selection of Broker Dealers

Putnam places orders for the purchase and sale of portfolio investments for its client accounts through a substantial number of brokers and dealers. In seeking the best execution reasonably available under the circumstances, Putnam, having in mind its clients' best interests, selects broker-dealers to execute trades considering all factors it believes to be relevant. These can include factors such as:

- ◆ transaction price
- ◆ the size and type of the transaction
- ◆ the nature of the market for the security or other investment
- ◆ the amount of the commission
- ◆ research and brokerage products and services provided by a broker-dealer (except that research is not a factor in selecting broker-dealers in the case of PIL, except with respect to minor non-monetary benefits as defined by the FCA Rules)
- ◆ the timing of the transaction (taking into account market prices and trends, the reputation, experience and financial stability of the broker-dealer involved)
- ◆ the benefit of any capital committed by a broker or dealer to facilitate the efficient execution of the transaction, and
- ◆ the quality of service rendered by the broker-dealer in other transactions.

Putnam currently does not execute portfolio transactions for client accounts with any “affiliated” broker-dealers (as defined under relevant securities laws). For more information, see “Conflicts of Interest” in Item 10.

Transactions on global stock exchanges, commodities markets and futures markets and other agency transactions involve the payment of negotiated brokerage commissions. Commissions vary among different brokers and different trading platforms. A particular broker may charge different commissions according to factors such as the difficulty and size of the transaction and the trading venue. Although client accounts do not typically pay commissions for principal transactions in the over-the-counter markets, including the markets for most fixed income securities and some derivatives, an undisclosed amount of profit or “mark-up” is included in the price the client pays. In underwritten offerings, the price paid by the client includes a disclosed, fixed commission or discount retained by the underwriter or dealer.

Where practicable, Putnam places orders to purchase and sell securities on an aggregated basis for all clients of the Putnam Advisers. Client account trades may also be aggregated with trades for Putnam affiliated accounts on terms no less advantageous than those of the affiliated accounts or other Putnam clients. However, PIL will only place trades at an execution-only rate, whereas other Putnam accounts may pay a “bundled” or “full service” rate. Putnam may aggregate trades in PIL accounts with other Putnam accounts that pay a bundled rate so long as all participating accounts pay the same execution rate. To the extent that the bundled rate for non-PIL accounts includes an additional amount for research products and services, the PIL and other Putnam accounts would not be paying the same total commission rate.

Soft Dollars

In the case of a broker-dealer that provides to Putnam any “brokerage and research services,” as defined in Section 28(e) of the Securities Exchange Act of 1934, as amended (the “1934 Act”) and discussed below, Putnam may cause the client to pay a broker-dealer an amount of disclosed commission for effecting agency transactions (on stock exchanges or otherwise) even though the commission is in excess of the commission another broker-dealer would have charged for effecting the transaction. For those funds sub-advised by PIL and where PIL places trades on behalf of those funds, the rules of the United Kingdom’s Financial Conduct

Authority (the FCA Rules) apply with respect to the receipt of investment research. Under the FCA Rules, PIL may not obtain research using brokerage commissions paid by the funds sub-advised by PIL, except with respect to minor non-monetary benefits as defined by the FCA Rules. PIL will use only “hard dollars” (i.e., from its own resources), to acquire external research used by London-based personnel, including fixed income personnel, except with respect to minor non-monetary benefits as defined by the FCA Rules. To the extent that Putnam may so cause the client to pay any such greater commissions, it will do so only when the safe harbor of Section 28(e) of the 1934 Act applies. It is the position of the staff of the SEC that Section 28(e) of the 1934 Act does not apply to the payment of such greater commissions in “principal” transactions.

Subject to the overriding requirements to seek best execution under the circumstances, Putnam receives brokerage and research products and services from broker dealers, including both the broker dealers with which Putnam places its clients’ portfolio transactions and other third parties, which may include other broker-dealers. These products and services are sometimes called “soft dollar” purchases. Research products and services received from executing broker-dealers are sometimes called “proprietary research.” Except with respect to PIL, Putnam may also allocate equity trades to generate “soft dollar credits” used to pay for brokerage services and trading systems and investment research reports and other research products and services from third-party providers when, in Putnam’s judgment, trading through the firm generating the research would not be feasible (for instance, where the firm is not a broker-dealer) or in the account’s best interest (for instance, where the firm has not satisfied Putnam’s internal eligibility criteria for trading counterparties). Such products and services are referred to as “third-party research” or “third-party brokerage.” In addition to generating soft-dollar credits to pay for third-party services, Putnam may instruct executing brokers to “step out” a portion of the trades placed with them to other broker-dealers providing brokerage and research services.

The proprietary and third-party products and services that Putnam may receive in connection with client portfolio transactions include, among others:

- ◆ trading systems and other brokerage services
- ◆ economic and political analysis
- ◆ market data and statistical information, including benchmark data and trade data
- ◆ fundamental and macro investment research
- ◆ industry and company reviews
- ◆ evaluations of investments, strategies, markets and trading venues
- ◆ recommendations as to the purchase and sale of investments
- ◆ performance measurement services
- ◆ meetings with management of current or prospective portfolio companies or with industry experts

Some of these products and services obtained through soft dollar credits are “mixed-use;” i.e., they may be used both for investment / brokerage and non-investment / brokerage -related purposes. In these cases, Putnam will use its own resources to pay for that portion of the mixed-use product or service that in its good-faith judgment does not relate to investment or brokerage purposes.

Use of soft dollars, while common in the asset management industry, may involve potential conflicts of interest. Research products and services provided by broker-dealers are supplemental to Putnam’s own research efforts and relieve Putnam of the possible expense of generating the research internally. Management fees paid by clients are not reduced because Putnam receives brokerage and research products and services, even though Putnam might otherwise be required to purchase some of these products and services for cash. Putnam may have an incentive to select or recommend a broker-dealer based on its interest in receiving the research or other products or services, rather than on its clients’ interest in paying the lowest commission.

Because of the nature of Putnam’s trading process, it is not possible to trace trades in any account to specific products and services. An aggregated trade with a broker-dealer providing proprietary research or a trade that generates soft dollar credits by its nature represents commissions of multiple clients. Brokerage

and research products and services acquired will be paid out of the aggregate of soft dollar credits generated by various trades over time. Clients do not receive a direct monetary benefit from brokerage and research products and services; however, these products and services may be useful to Putnam in providing investment advice to all its clients. Likewise, research products and services made available to Putnam from brokerage firms effecting securities transactions for a client may be utilized by Putnam in managing the accounts of other clients. Some of these brokerage and research products and services are of value to Putnam and its affiliates in advising multiple clients, although not all of these services are necessarily useful and of value in managing any particular account. There may be no correlation between the amount of brokerage commissions generated by a particular client and the indirect benefits received by that client.

Due in part to the FCA Rules, Putnam is prohibited from using brokerage commissions from transactions placed on behalf of PIL clients to generate soft dollar credits. In addition, Putnam may negotiate prohibitions or limitations on the use of soft dollars at the request of other clients. In certain but not all cases, for administrative reasons, the entirety of an account (including an affiliated account) may be as treated as PIL-managed for this purpose, even though PIL may normally manage only a portion of the account). Research and brokerage products and services may be used to benefit all clients, including, subject to the requirements of the United Kingdom's Financial Conduct Authority, PIL clients and other clients that prohibit Putnam from using, or limit Putnam's use of, brokerage commissions generated from such clients' trades to purchase brokerage and research products and services.

Senior investment personnel of Putnam determine Putnam's commission allocation policies, the brokerage and research products and services to be obtained, and the amount of commissions appropriate to allocate to the acquisition of these products and services. For brokerage and research products and services (other than market data, certain corporate access services and services provided by firms who do not agree to be subject to a research vote process), these determinations are generally based on a voting process in which investment personnel in the equities and global asset allocation divisions identify products and services for purchase with soft dollars.

PIL investment personnel, including fixed income personnel, participate in the voting process noted above. PIL pays in "hard dollars" (i.e., from its own resources) for external research used by London-based personnel, including fixed income personnel, except for minor non-monetary benefits as defined by the FCA Rules. PIL also pays for market data and corporate access services for PIL employees in hard dollars.

In addition, Putnam's Soft Dollar Oversight Committee, which reports to Putnam's Trade Management Oversight Committee, approves all soft dollar purchases of market data, soft-dollar purchases made other than through the voting process and mixed-use allocations and monitors compliance with annual soft dollar and market data budgets.

Other Products and Services

Putnam may receive products and services from broker-dealers other than brokerage and research services at reduced prices or for free. Putnam will not receive such products or services using commissions from client portfolio transactions or otherwise in connection with particular client trades or a commitment to direct client trades to the broker-dealer. These products and services may include analytical software for portfolio modeling; quotations and other pricing information for securities held in Putnam client portfolios; capital introduction services for Putnam's private funds, and risk and security analyses and databases. Putnam may also use its own resources to acquire any of these products and services, as well as research and brokerage products and services eligible for purchase with soft dollars.

Directed Brokerage; Client Counterparty Limits

Clients may request that Putnam execute transactions through a specified broker-dealer in order to recapture commissions or obtain other products or services for their accounts. This kind of direction ("directed brokerage") is subject to best execution. As a condition to accepting direction from a client, Putnam generally requires assurances that the client is receiving services of value and a description of

such services. Consistent with SEC guidelines, Putnam may disaggregate directed brokerage trades from the trades for our other client accounts when Putnam believes disaggregation is necessary or advisable to avoid disadvantaging other clients. Disaggregated trades may be transacted after other client trades in a specific security and executed at prices and for commission rates that may be less advantageous than those of aggregated trades.

Some clients may limit the counterparties with which Putnam can place account trades by imposing additional restrictions (such as a client specific approved broker list) beyond the requirements of Putnam's own counterparty policies. Clients should be aware that limitations of this kind have the potential to affect trade execution and impact performance.

Retail SMAs

Under certain Dual Contract Programs where a client has contracted with the Program Sponsor and/or designated broker for certain services (typically custody, financial advisory and certain trading, but excluding investment management), clients are not charged separate equity commissions on each trade so long as the Program Sponsor (or a broker-dealer designated by the Program Sponsor) executes the trade. In these circumstances, a portion of the fee paid to the Program Sponsor generally is considered as in lieu of commissions or other transaction costs. When trading equity securities for Dual Contract Clients, PIM will typically trade directly through the Program Sponsor or Program Sponsor's designated broker-dealer. Where permitted by program terms, PIM may execute a transaction through a broker-dealer other than the Program Sponsor (or Program Sponsor's designated broker-dealer) where PIM believes that such trade would result in the best price and execution under the circumstances. For example, PIM may trade away from the Program Sponsor (or Program Sponsor's designated broker-dealer) for certain asset classes depending on liquidity and market conditions. In such circumstances, the client would incur transaction and other costs and fees. In some Dual Contract Programs, PIM may be prohibited from effecting transactions away from the Program Sponsor (or Program Sponsor's designated broker-dealer). In this circumstance, Retail SMAs may be excluded from potentially attractive trading opportunities. Clients should consult with their financial advisors regarding the terms and features of their Retail SMA program.

Equity Allocation Policies

In general, Putnam allocates market equity trades pro rata among clients based on the relative size of orders for a security placed by portfolio managers for each account. The Trading Department manages the flow of orders to the securities markets with the objective of minimizing market impact. Subject to specific client instructions or portfolio needs, the Trading Department may choose to take several days to implement an order. All clients trading a security in any day will (within a block order) normally receive the average price received or paid by all Putnam clients for the day. Putnam maintains separate "program" and "block trading" desks for equities. Block trading represents normal trading within the equity marketplace. Program trades are typically highly structured trades of a large number of transactions at one time. These desks normally operate independently. In some circumstances, the same security may be traded on the Program and block trading desks on the same day at a different price. Generally, if the Trading Department believes that the securities in a program trade are material to the block trade, securities in the program trade will be withdrawn from the program trade and included in the block trade.

Smaller trades for a client account, which the Trading Department believes will not have a significant market impact or otherwise materially affect execution, are not subject to these procedures. These smaller trades may be executed independently of the Trading Department's primary trading desk, or, if executed through the primary trading desk, may receive varying allocations intended to reduce the administrative burden on Putnam and its clients' custodian banks.

As a non-discretionary adviser to wrap fee "model provider" programs, PIM will release its model portfolio holdings information to the sponsor consistent with sponsor procedures. In some cases, PIM provides information on its model portfolio holdings on a daily basis. PIM communicates changes to the model portfolios to the sponsor or overlay managers and the sponsor or overlay manager is solely responsible for

adjusting existing model provider program accounts to conform to model portfolio changes. All trades within the model provider program are executed by the sponsor or overlay manager, as the case may be, with the broker dealer of their choice, based on their judgment. As such, the sponsor or overlay manager has sole responsibility for pursuing best execution for wrap fee accounts.

For Retail SMA accounts, PIM communicates changes to the Retail SMA portfolios to the relevant SMA Service Provider, and the SMA Service Provider is responsible for executing the necessary trades with the Program Sponsor (or the Program Sponsor's designated broker).

At times, some sponsors or overlay managers may place transactions pursuant to PIM's model portfolio recommendations and the SMA Service Provider may place transactions pursuant to PIM's instructions for Retail SMA accounts after or at the same time that PIM places the same or a similar transaction as a discretionary investment manager, for the benefit of its other Putnam client accounts. This process could result in varying levels of execution for wrap fee accounts and Retail SMA accounts versus other clients and could lead to competing orders for the same security in the market, potentially harming execution quality. This may also have an adverse effect on the prices paid or received in the market for such transactions and, as a result, some accounts may experience a short-term benefit or detriment. The actual percentage weighting of each holding in a model may vary from the percentage weighting held by accounts managed in accordance with that model.

For wrap fee "model provider" programs and Retail SMA programs, in order to treat all clients fairly and equitably, PIM provides updated models to the sponsor or overlay manager, or, in the case of Retail SMAs, to Vestmark, concurrently with the receipt of orders on the trading desk for the model portfolio and other funds and accounts in the same strategy or in line with the sponsor or overlay manager's or Retail SMA Program Sponsor's delivery requirements (e.g. accepting instructions or recommendations only once daily or only during particular times of the day). In addition, Putnam has implemented policies and procedures designed to promote equitable treatment of trading by model SMA accounts, Retail SMA accounts and other client accounts by, among other things, monitoring the cross-over of issuer names and/or holdings between model provider accounts, Retail SMA accounts and any managed accounts managed using a substantially similar strategy.

Putnam has adopted procedures to manage trading in derivatives whose underlying security is also currently being traded. When derivatives trading is both regarded as significant by the Trading Department and is in the same direction as the securities trading, (for example, both are going "long" or trading to gain exposure to an issuer), trading activity is allocated between securities and derivatives trading based on the ratio of the size of the securities trade pending to the notional value of the derivatives trade adjusted by the latter's "delta" (the relationship of the value of the option or other derivative to movements in the underlying security's price). The Trading Department will normally alternate between the securities and derivatives desks (with the larger order trading first), completing a portion of one desk's trades and then permitting the completion of an equal percentage of the second desk's trades.

Syndicate Allocation Policy

As a general policy, if the orders of all Putnam clients seeking to participate in an underwritten offering of equity securities cannot be satisfied by the total allocation made available to Putnam clients by the underwriters, shares will be allocated among the Putnam clients based on their total assets (the "General Policy"), subject to the following exceptions:

The General Policy may be modified in the case of regional or specialty funds in offerings of securities which fall within the special focus of those funds. In those cases, the regional or specialty funds may be weighted at 150% of assets for purposes of the allocation, provided that the allocations to those funds may not be increased above 50% of the amount allocated to Putnam by the incremental weighting. A specialty or regional account is one that focuses on a relatively narrow area of the overall securities markets. For example, a European equity fund is a specialty account as to equities of European corporations and a utilities fund is a specialty account for offerings of utilities companies. The Putnam Trading Department, with the approval of the Compliance Department, approves categories of specialty accounts.

In some circumstances, exceptions may be made to these policies to permit Putnam clients with relatively smaller total assets to participate more meaningfully in underwritten offerings of equity securities. Before an exception is made, Putnam will ensure that the exception will produce an allocation that is fair and equitable to the Putnam client accounts seeking to participate in the offering, taking into consideration the portfolio composition of such accounts, allocation of previous offerings, and other relevant factors. If an exception is made, some accounts participating in the offering may receive a smaller allocation of securities than they would have otherwise.

Underwritten offerings of convertible fixed income instruments (convertible bonds and preferred shares) are subject to the same procedures as equities unless the only accounts participating in the offering are convertible and high yield fixed income accounts. In that case, allocation of convertible instruments is subject to the fixed income allocation procedures described below.

In secondary offerings of equity securities, Putnam may allocate securities among participating client accounts of a portfolio manager so that each account holds as close to the same relative amount of the security as a percentage of net assets as possible. Putnam will first calculate the number of shares to which the participating client accounts of the portfolio manager would be entitled based upon the offering allocation policies described above (the "allotted shares"). Putnam will then allocate the allotted shares among participating client accounts of the portfolio manager so that, to the extent possible, each of the participating client accounts would hold the same relative amount of the security as a percentage of net assets.

Fixed Income Allocation Policies

Putnam's fixed income allocation procedures are designed to ensure fairness and objectivity across all funds and accounts while recognizing differences in objectives, sector target weights, cash flows, and investment guidelines. The allocation procedures generally require clients within an "investment mandate" to receive ratable allocations, based on their respective assets, of securities in each trade in which those accounts participate, taking into consideration the accounts' respective investment objectives, sector target weights, benchmarks, risk profiles, guideline restrictions, current holdings, sizes and cash flows. Accounts or dedicated portions of accounts with broadly similar investment objectives, sector target weights, policies, risk profiles and benchmarks are grouped together as having the same investment mandate. A mandate may consist of only one account. Typically, the portfolio managers for the accounts comprising an investment mandate will determine a target weight for a security or sector to be purchased or sold, meaning that the managers determine a percentage of the accounts' assets that the security or sector should represent. Target weights for a particular security or sector may be set for more than one investment mandate. If the target weight for a security exceeds the amount of the security available for purchase, the amount purchased will normally be allocated *pro rata* among the participating accounts, regardless of which investment mandate the accounts are in, based on the accounts' respective target weights. Where the portfolio managers are unable to sell sufficient amounts of a security to achieve the target weight, pro-rata across participating investment mandates, and among the accounts in an investment mandate, will be effected in a similar fashion.

Target weights for a security or sector may vary from mandate to mandate and allocations will normally reflect these varying target weights and any client limitations and guidelines. Participating accounts that have a specialized investment strategy may be given priority in the allocation process, which is reflected in their target weights, with respect to some securities that are included in their investment mandate. Tactical (or opportunistic) trades, which result from the identification of an attractive bid or offer, are allocated *pro rata* based on assets (for purchases) and *pro rata* based on holdings (for sales) across appropriate portfolios, rather than to a specific target weight.

There may be times when some accounts do not participate in trades due to guideline constraints, account or transaction size, risk tolerance, or cash flow considerations. A portfolio manager may allocate a security only to clients in one investment mandate if the portfolio manager believes that, as an investment matter, the security should only be allocated to clients in that mandate. In addition, if the allocation process results

in a very small allocation (generally less than \$5,000 par) to one or more accounts, in order to save administrative expense and avoid charges for tiny positions, these small amounts can be reallocated to other clients. Putnam's Compliance Department monitors trading activity for client accounts for consistency with Putnam's allocation procedures.

Derivative instruments and their underlying securities may be used to manage target weights for portfolio characteristics such as duration, for hedging strategies, as a substitute for cash investments, or for other investment purposes.

Any of the foregoing procedures could in some circumstances adversely affect the price we pay or receive or the size of the position we purchase or sell (including prohibiting us from purchasing a position) or may limit the rights that we may exercise with respect to an investment.

Foreign Currency Transactions

Accounts that invest outside their base currency (such as Putnam Funds that invest outside the U.S.) typically require the execution of foreign currency exchange (FX) transactions. In some cases, where two Putnam client accounts have matching currency needs (for example, one client must purchase \$10 million in Euro and another must sell \$15 million in Euro) and the other details of the required trades match, we will execute a net transaction by submitting only one order (to sell \$5 million in Euro) to the relevant broker-dealer. Net transactions of this type do not constitute a cross-trade as described in Item 11.

Putnam executes most material FX transactions, including trades required to complete security purchases and sales as well as standalone FX trades, with third party brokers through its currency desk. These trades are subject to Putnam's best execution policies, which are described in this Item 12. In some circumstances described below, Putnam does not perform FX trading due to practical and legal impediments. First, local currency controls or other regulations in some countries, primarily in emerging markets, permit only a locally licensed firm such as a local sub-custodial bank to execute FX transactions, or otherwise make it impracticable for Putnam to execute FX transactions. In these countries, Putnam does not provide FX trading of any kind. Instead, the client's or fund's custodial bank (through a sub-custodial affiliate or third party sub-custodian) generally executes the necessary FX transactions.

Second, for operational and administrative reasons, Putnam will direct a client's custodian bank to repatriate all non-U.S. dollar portfolio income (such as dividends or bond interest payments), regardless of the country or market of origin, to the operating currency of the account. Income transactions are typically not material to a client account, and these transactions may as a general matter benefit from aggregation with other small transactions by a custodial bank.

Putnam seeks to monitor execution levels on foreign currency transactions performed in the situations described above by State Street Bank and Trust Company, the custodian for the Putnam Funds, Putnam 529 for America, and some other Putnam clients. For other clients, because the counterparty executing FX trades is the client's custodian, the client generally negotiates fees/commission rates on transactions executed by such custodian. Unless otherwise discussed and agreed with the client, Putnam does not evaluate the FX execution services provided by the custodian to its client.

Currency Allocation Policies

To ensure that all accounts with an active currency management strategy are treated fairly, all trades that share a common currency and direction are traded as a block regardless of account strategy or base currency of the account. Typically, allocations are based on the initial client order. A general exception to block trading occurs in the instance of particular accounts that have restrictions in place limiting trading activity to specific counterparties. In general, the largest trading block, which is comprised of accounts with no counterparty restrictions, is traded first. Smaller blocks which are comprised of accounts that cannot trade with the large block counterparty but are allowed to trade with multiple counterparties, are traded second. The final accounts to be traded are those restricted to a single counterparty. These single

counterparty accounts are rotated in order of execution on a reasonable efforts basis.

Futures and Swaps Allocation Policies

Under CFTC rules, Putnam maintains procedures and policies on allocation of bunched orders for futures and swaps subject to the CFTC's jurisdiction (which include certain options and foreign exchange forwards). When Putnam wishes to place parallel futures or swaps transactions for multiple clients, Putnam normally submits combined or "bunched" orders instead of separate orders on behalf of each client. Doing so generally increases the efficiency and timeliness of order placement, thereby facilitating best execution.

Putnam's procedures are designed to ensure that no eligible client account is favored over any other client. Putnam allocates any purchases or sales in a bunched order on a pro-rata basis based on order size to the client accounts in proportion to the size of the order placed for each account. If more than one execution is required, it may be possible to average price the fills. If the fills are average priced, each account participating in the order will receive the same price for the day. If it is not possible to average price, Putnam allocates the fills pro-rata to ensure equitable distribution of prices.

Except in limited cases, trades are allocated at Putnam at the time of execution. Putnam submits the specific allocation to the futures commission merchant clearing trades (or the counterparty, or swap execution facility, as applicable) by the end of the day or as otherwise required by CFTC rules.

In accordance with applicable CFTC regulations permitting post execution notification to the futures commission merchant or trade counterparty of allocation of bunched orders, clients whose accounts use futures or swaps are entitled to review the general nature of the allocation methodology, whether any interested accounts are included in such orders, and summary or composite data to compare a client's results on bunched order transactions with those of other clients participating in such transactions. This information is available to clients upon request.

Item 13: Review of Accounts

The Putnam Advisers' portfolio managers generally review client portfolios daily with the assistance of portfolio associates/trading assistants who review and coordinate portfolio trading. These investment professionals use computer analyses which are prepared daily to monitor portfolio composition. Any material issues identified during the portfolio review are addressed by the portfolio manager and escalated to their group head or Chief Investment Officer, as appropriate. The number of accounts that each portfolio manager is responsible for varies from portfolio manager to portfolio manager. For most accounts, analysis of portfolio risk and attribution is also run daily. In addition, the Franklin Resources Compliance Department tests each portfolio daily for compliance with various investment guidelines and restrictions through its automated system or, in cases where rules cannot be automated, through frequent manual processes.

Portfolio Managers and senior investment personnel provide periodic reports to the Putnam Funds' Trustees, who meet frequently throughout the year. With respect to the review of the portfolios with sub-advisory clients, formal client meetings generally are held on a face-to-face basis, video conference or by telephone annually, or more frequently at the request of clients. These meetings are attended by the portfolio manager, the account manager or senior investment or management personnel, as appropriate. Further, informal meetings and video/telephone discussions may also take place. In addition, client service managers are assigned to meet the individual reporting and administration requirements of each sub-advisory client. Client service managers work with account managers and relevant internal experts to provide additional attention and responsiveness to client requests. Upon specific request, investment personnel may also present risk and stress test scenarios on a financial advisor's or other party's investment portfolio. This analysis is for informational purposes only, is not investment advice and is not customized or individualized based on a client's particular needs. A Putnam Adviser is not acting as a fiduciary under applicable law in providing this type of analysis.

The Putnam Advisers and affiliates supply the Trustees of the Putnam Funds with periodic reports covering such subjects as portfolio structure and performance data, and such other information as the Trustees may reasonably require. Representatives of the Putnam Advisers also meet frequently with the Trustees of the Putnam Funds, or committees of the Trustees, to review portfolio performance, compliance and regulatory matters, and other matters of interest to the Trustees.

529 Plan clients and investment company clients for whom PIM serves as sub-adviser typically receive a comprehensive client communication package, which is generally mailed by the 15th business day after quarter-end. PIM client communication packages typically include the following information:

- ◆ **Portfolio Commentary** for each portfolio managed, discussing market events during the quarter, investment strategy, performance highlights, and portfolio outlook and positioning.
- ◆ **Portfolio Appraisal and Performance Summary**, including portfolio performance, portfolio holdings and transactions executed during the period. Market values of the period end's holdings are generally reported, along with cost and proceeds for portfolio purchase and sale transactions.
- ◆ **Capital Markets Outlook**, a quarterly market commentary from our Global Asset Allocation team.

Specific preliminary information, such as performance returns and certain portfolio data, is also available via a client-specific (secure) website within the first five days after month-end. Other reporting requests are discussed with the client during the funding process.

Item 14: Client Referrals and Other Compensation

Putnam Retail Management Limited Partnership will from time to time, at its expense, provide additional promotional incentives or payments to dealers that sell shares of the Putnam Funds. Among other payments explicitly set forth in the prospectuses and Statements of Additional Information (“SAIs”) of the Putnam Funds, these incentives or payments may include payments for travel expenses, including lodging, incurred in connection with trips taken by invited registered representatives for meetings or seminars of a business nature. In some instances, these incentives or payments may be offered only to certain dealers who have sold significant amounts of shares.

Putnam Retail Management Limited Partnership also compensates its wholesalers for mutual fund, certain ETF sales and SMA account sales (both model and Retail SMA) attributable to sales in their territories.

As noted in Item 10, some sales personnel are eligible to receive a bonus reward for new client mandates managed by a Putnam Adviser. In other cases, sales activity, while not the basis for specific rewards, is part of the overall mix of work that drives sales personnel compensation.

Franklin Resources employees, including portfolio managers, may receive limited gifts and entertainment from third parties. Under our policies and procedures, any gifts and entertainment must be of a reasonable value so they do not influence the nature of the investment advice given to clients, the selection of broker-dealers to execute portfolio trades, or other business decisions.

Like other money managers, Franklin Resources has multi-faceted relationships with a variety of investment consulting firms that may from time to time recommend or introduce the Putnam Advisers to their clients. These consultants, acting as their clients’ agents, perform due diligence, product analysis, and other manager review and selection services on the Putnam Advisers and their competitors. In addition, some consultants are themselves clients of Putnam Advisers, such as when they retain PIM or another Putnam Adviser as a manager under a discretionary “outsourced chief investment officer” (OCIO) program or with respect to a pooled fund sponsored by the consultant for investment by its clients. Investment consultants are typically paid by their clients, not by the Putnam Advisers or their affiliates. However, affiliates of the Putnam Advisers may from time to time separately purchase various products and services from the consultants (such as research, access to competitive universe databases, manager performance analytics, access to investment conferences/forums, and business or product consulting engagements), which could be deemed to create a conflict of interest for the consultants. For more information, speak with your account manager.

See also “Other Products and Services” in Item 12 regarding other services received from broker-dealers.

Item 15: Custody

The overwhelming majority of the Putnam Advisers' separate account clients, including Retail SMA clients, and investment funds maintain custody arrangements with independent qualified custodians to safeguard their funds and securities. However, PIM may sometimes have "custody" (as defined in Rule 206(4)-2 under the Investment Advisers Act of 1940) of client funds and securities, even though it does not actually hold or maintain them.

Where a Putnam Adviser has "custody" of a separate account (based, for example, on automatic billing practices) it will seek to confirm that the client receives required account statements at least quarterly directly from its qualified custodian. As described in Item 13, the Putnam Adviser itself also sends clients a portfolio appraisal. Clients should carefully review and compare the account statement from the custodian and the Putnam Adviser's portfolio appraisal.

Item 16: Investment Discretion

Putnam typically has discretionary authority to manage client accounts on a continuous basis. As described in Item 4, a separate account client may impose any reasonable limitations or restrictions regarding the management of its portfolio by agreeing on specific requirements with Putnam in writing. In contrast, the investment program of a pooled investment fund cannot be tailored to the individual needs of any particular investor.

In order to trade and manage a client's separate account at an outside custodian, Putnam must be granted written authorization by the client. This authorization is included in the investment management agreement, and Putnam does not typically require that clients enter into a separate power of attorney in order for Putnam to manage their assets. For accounts that may trade derivative instruments, Putnam generally requires that clients execute additional account and investment documents directly and provide additional client information (such as a legal entity identifier (LEI) and additional information on the client's legal status) in order to permit Putnam to comply with applicable legal requirements.

In addition to the situations above, Putnam may occasionally request that clients execute a limited power of attorney or trading authorization when additional evidence of Putnam's authority to act on behalf of the client is required (for example, in dealing with the bankruptcy of the issuer of a portfolio security or a counterparty or when trading in derivative instruments under the client's investment documentation). For more information, please contact Putnam.

PIM's management of the Putnam Funds is subject to the ongoing oversight of the Putnam Funds' Trustees, including policies that they may from time to time establish. PIM consults with the Trustees on a variety of significant matters relating to the Putnam Funds, including some strategic investment matters.

Putnam Investments, LLC, the previous parent company of Putnam Holdings, became a signatory to the United Nations backed Principles for Responsible Investment ("PRI") in April 2011. Devised by the world's largest institutional investors, the PRI reflects the view that an economically efficient, sustainable global financial system is necessary for long-term value creation. As a PRI signatory, Putnam is committed to understanding how ESG factors may influence performance, generate alpha, and/or mitigate risk in client portfolios. We believe that incorporating ESG considerations into the investment process has the potential to enhance what asset management can accomplish, and that ESG analysis can be an important component of the research process.

The six Principles for Responsible Investment, created by the PRI, are a voluntary and aspirational set of investment principles that offer a menu of possible actions for incorporating ESG issues into investment practice. Becoming a PRI signatory is not a legally binding commitment, and does not require the application of specific ESG restrictions in the investment process. As a fiduciary on behalf of our asset management clients, Putnam generally looks at the entire investment universe to identify attractive securities, subject to applicable sanctions regimes and other laws that may prohibit some investments. As a general matter, we do not require that portfolios limit their universe or their investments in any company, industry, or country based on ESG criteria (except as stated in a fund's prospectus or as mutually agreed upon with a client). Rather, we expect sustainability-related insights to be a component of the research processes that are used to arrive at investment decisions.

ESG investing is an evolving process, both for Putnam and the industry as a whole. Our research and investing work will vary across asset classes and sectors, as well as by individual portfolio manager and analyst team. In the context of a specific portfolio, strategy, or investment decision, multiple factors impact our views, and we may make decisions that are inconsistent with the PRI, or appear to be so, when we consider it consistent with our overarching fiduciary duty to clients.

Item 17: Voting Client Securities

Summary of Proxy Voting Guidelines and Procedures

Many of the Putnam Advisers' investment management clients, including the Putnam Funds, have delegated to the Putnam Advisers the authority to vote proxies for shares held in the client accounts the Putnam Advisers manage. The Putnam Advisers believe that the voting of proxies can be an important tool for institutional investors to promote best practices in corporate governance and votes all proxies in the best interests of its clients as investors. In Putnam's view, strong corporate governance policies, most notably oversight of management 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.

The Putnam Advisers' voting policies are rooted in our views that (1) strong, independent corporate governance is important to long-term company financial performance, and (2) long-term investors' active engagement with company management, including through the proxy voting process, strengthens issuer accountability and overall market discipline, potentially reducing risk and improving returns over time. Our voting program is offered as a part of our investment management services, at no incremental fee to Putnam, and, while there can be no guarantees, it is intended to offer potential investment benefits over a long-term horizon. Our voting policies are designed with investment considerations in mind, not as a means to pursue particular political, social, or other goals. As a result, we may not support certain proposals whose costs to the issuer (including implementation costs, practicability, and other factors), in the Putnam Adviser's view, outweigh their investment merits.

In order to implement these objectives, the Putnam Advisers have adopted a set of procedures and guidelines which are summarized below. The guidelines and procedures cover all accounts for which the Putnam Advisers have Putnam has proxy voting authority. Certain other clients may from time to time elect to vote their own proxies by retaining the right to vote all proxies in the investment management agreement rather than giving the Putnam Advisers authority to do so.

Procedures

The Putnam Advisers have appointed a Proxy Committee composed of senior investment and Sustainability Strategy professionals from the Putnam Equity group. The Proxy Committee is responsible for setting general policy as to proxy voting. The Committee reviews procedures and the guidelines at least annually, approves any amendments considered to be advisable and considers special proxy issues as they may from time to time arise. With respect to the Putnam Funds, the Board of Trustees separately approves the guidelines. The proxy guidelines and procedures are administered through a proxy voting team in the Sustainable Strategy group within the Putnam Equity group. The Proxy Voting Team:

- coordinates the Proxy Committee's review of any new or unusual proxy issues,
- manages the process of referring issues to portfolio managers for voting instructions,
- oversees the work of any third-party vendor hired to process proxy votes,
- coordinates responses to investment professionals' questions on proxy issues and proxy policies,
- maintains required records of proxy votes on behalf of the appropriate Putnam client accounts, and
- prepares and distributes reports required by Putnam Adviser clients.

Putnam has engaged a third-party service, Glass Lewis & Co. ("Glass Lewis"), to process proxy votes for its client accounts. Although Glass Lewis may supply proxy related research to Putnam and may share with Putnam its recommendations for voting, Glass Lewis does not make any decisions on how to vote client proxies.

Proxy Voting Guidelines

The Putnam Advisers maintain written voting guidelines (“Guidelines”) setting forth voting positions determined by the Proxy Committee on those issues believed most likely to arise day to day. (For purposes of this Item, the term “Putnam” refers to the Putnam Advisers collectively.) 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. The Guidelines are summarized below.

In light of our views on the importance of issuer governance and investor engagement, which we believe are applicable across our various strategies and clients, regardless of a specific portfolio’s investment objective, Putnam will normally vote all proxies in accordance with the Guidelines except in limited circumstances, such as when client securities are on loan under a securities lending arrangement. However, if the portfolio managers of client accounts holding the relevant stock believe that following the Guidelines in a specific case would not be in clients’ best interests, they may request that the Proxy Voting Team not follow the Guidelines in that case. The request must be in writing and include an explanation of the rationale for doing so. The Proxy Voting Team will review the request with the Proxy Committee or its Chair prior to implementing it.

Some clients wish to have Putnam vote proxies under proxy guidelines which vary from the Guidelines or may wish to direct Putnam’s vote on a particular matter. There may be legal limits on a client’s ability to direct Putnam as to proxy voting and on Putnam’s ability to follow such instructions. Putnam may accept instructions to vote proxies under client specific guidelines subject to review and acceptance by the portfolio management team involved and the Legal and Compliance Division.

Putnam may vote any referred items on securities held solely in accounts managed by the Global Asset Allocation (“GAA”) team within Franklin Templeton Investment Solutions (and not held by any other investment product team) in accordance with the recommendation of Putnam’s third-party proxy voting service provider. The Proxy Manager will first give the relevant portfolio manager(s) on the GAA team the opportunity to review the referred items and vote on them if they so choose. If the portfolio manager(s) on the GAA team do not decide to make any active voting decision on any of the referred items, the items will be voted in accordance with the service provider’s recommendation. If the security is also held by other investment teams at Putnam, the items will be referred to the largest holder who is not a member of the GAA team.

Conflicts of Interest

A potential conflict of interest may arise when voting proxies of an issuer which has a significant business relationship with Putnam. Putnam’s policy is to vote proxies based solely on the investment merits of the proposal and in the best interests of our clients. In order to guard against conflicts Putnam has adopted a number of procedures designed to ensure that the proxy voting process is insulated from these conflicts. For example, investment professionals do not report to Franklin Resources’ sales or marketing businesses. In addition, there are limits on the ability of Franklin Resources employees who are not Putnam Adviser investment professionals to contact portfolio managers voting proxies. Putnam Adviser investment professionals responding to referral requests must disclose any contacts with third parties other than normal contact with proxy solicitation firms and affirm that any potential personal conflicts of interest have been disclosed to the Compliance Department. In addition, the Proxy Voting Team reviews business relationships with companies that have voting items referred to any portfolio management team to consider any potential conflicts and, where appropriate, ensures that potential conflicts are documented and appropriately escalated. The Guidelines may only be overridden with the written recommendation of the relevant investment professionals and approval of the Proxy Committee or its Chair.

Summary of Proxy Voting Guidelines

The Guidelines summarize Putnam's positions on various issues of concern to investors and indicate how client portfolio securities will be voted on proposals dealing with a particular issue. The summary below does not address all topics covered by the Guidelines and is qualified by reference to the actual procedures and Guidelines, which are available to clients from Putnam on request.

The Guidelines focus on board governance issues. Normally, if a board meets current best practices such as the maintenance of a majority of independent directors and the independence of key committees such as audit, compensation and nomination, Putnam will support the board's proposals. Boards which do not meet these standards will have their proposals subjected to higher scrutiny. There are a number of exceptions to this approach. With respect to some major business transactions such as mergers, proposals will be reviewed on a case-by-case basis. In a number of areas, such as the introduction of anti-takeover devices, the Guidelines will normally provide for voting against the introduction of anti-takeover devices whether or not supported by an independent board. The central provisions of the Guidelines are set forth below:

Board of Directors

Proxies will normally be voted for the election of the company's nominees for directors and for board-approved proposals on other matters relating to the board of directors (provided that such nominees and other matters have been approved by an independent nominating committee), except that Putnam will withhold votes for the entire board of directors if:

- The board does not have a majority of independent directors;
- The board does not have nominating, audit and compensation committees composed solely of independent directors; or
- The board has more than fifteen members or fewer than five members, absent special circumstances.

Putnam will withhold votes from incumbent nominees to the board if:

- The board has not acted to implement a policy requested in a shareholder proposal that received the support of a majority of the shares of the votes actually cast on the matter at its previous two annual meetings, or
- The board adopted, renewed or made a material adverse modification to a shareholder rights plan (commonly referred to as a "poison pill") without shareholder approval during the current or prior calendar year.

If the board does not meet these standards Putnam may refer items that would normally be supported for case-by-case review. Putnam may withhold votes for directors under other circumstances such as when a director who is considered an independent director by the company receives compensation from the company other than for service as a director (such as investment banking, consulting, legal or financial advisory fees) or when a director attends less than 75% of board and committee meetings (Putnam may refrain from voting against/withholding on a case-by-case basis if a valid reason for the absences exists such as (illness, personal emergency, potential conflict of interest etc.). In addition, Putnam will withhold votes:

- for any nominee for director of a public company (Company A) who is employed as a senior executive of another public company (Company B) if a director of Company B serves as a senior executive of Company A (these arrangements are commonly referred to as "interlocking directorates"); and
- Putnam will vote on a case-by-case basis for any non-executive nominee who serves on more than four (4) public company boards (boards of affiliated registered investment companies and other similar entities such as UCITS are counted as one board), except where Putnam would otherwise be withholding votes for the entire board of directors.
- Putnam will **withhold** votes from any nominee for director who serves as an executive officer of

any public company (“home company”) while serving on more than two (2) public company boards other than the home company board. For the purpose of this guideline, boards of affiliated registered investment companies and other similar entities such as UCITS will count as one board.

Numerous studies of gender diversity on boards have shown that diverse boards are associated, over the long term, with, among other things, higher financial returns and lower volatility. Putnam will withhold votes from the chair of the Nominating Committee of a company if:

- there are no women on the board,
- in the case of a board of seven members or more, there are fewer than two women on the board, or
- there is no apparent racial or ethnic diversity on the board and the board has not provided sufficient disclosure regarding its plan to achieve racial or ethnic diversity.
- Putnam will vote **against** the Nominating Committee Chair for companies that have not provided any disclosure of both the board’s diversity (e.g., race or ethnicity) at the aggregate board or individual director level and the company’s policies, or plans to establish such policies, regarding the consideration of diversity in identifying director nominees. Putnam expects companies to provide both disclosure of diversity within their current board composition as well as its policies regarding its approach to board diversity

Board independence depends not only on its members’ individual relationships, but also the board’s overall attitude toward management. Putnam believes that independent boards generally are committed to good corporate governance practices and, by providing objective independent judgment, enhance shareholder value. Putnam may withhold votes on a case-by-case basis from some or all directors that, through their lack of independence, have failed to observe good corporate governance practices or, through specific corporate action, have demonstrated a disregard for the interest of shareholders.

Putnam will normally vote on a case-by-case basis in contested elections of directors.

Executive Compensation

Putnam will normally vote on a case-by-case basis on proposals relating to executive compensation. However, where the board of directors meets appropriate independence standards, Putnam will vote for stock option and restricted stock plans that will result in an average annual dilution of 1.67% or less (based on the disclosed term of the plan and including all equity-based plans). Putnam will vote against stock option and restricted stock plans that will result in an average annual dilution of greater than 1.67% (based on the disclosed term of the plan and including all equity plans). Putnam will vote against any stock option or restricted stock plan where the company’s actual grants of stock options and restricted stock under all equity-based compensation plans during the prior three (3) fiscal years have resulted in an average annual dilution of greater than 1.67%. Putnam may review plans on a case-by-case basis where average annual dilution cannot be calculated. Whatever the composition of the board, Putnam will review proposals to reprice options on a case-by-case basis if specific criteria are met. Putnam will vote against stock option plans that permit replacing or repricing of underwater options and will vote against stock option plans that permit issuance of options with an exercise price below the stock’s current market price. Putnam will also vote against stock option plans/ restricted stock plans with evergreen features providing for automatic share replenishment.

Putnam may vote against executive compensation proposals on a case-by-case basis where compensation is excessive by reasonable corporate standards, where a company fails to provide transparent disclosure of executive compensation, or where Putnam would otherwise be withholding votes for the entire board of directors. In voting on proposals relating to executive compensation, Putnam will consider whether the proposal has been approved by an independent compensation committee of the board. Additionally, Putnam will generally vote in favor of the annual presentation of advisory votes on executive compensation (“say on pay”). Putnam will generally vote for advisory votes on executive compensation but will generally

vote against an advisory vote if the company fails to effectively link executive compensation to company performance according to benchmarking performed by the independent proxy voting service provider. Putnam will vote against proposals regarding severance agreements between a company and executives where the company has adopted a policy to seek advisory shareholder approval of agreements, plans or policies that would provide for severance compensation in excess of 299% of an executive officer's base salary and annual target bonus.

Acquisitions, Mergers and Similar Transactions

Putnam will normally evaluate business transactions such as acquisitions, mergers, reorganizations involving business combinations, liquidations and sale of all or substantially all of a company's assets, on a case-by-case basis. Putnam will vote on a case-by-case basis on proposals seeking to change a company's state of incorporation. However, Putnam will vote for mergers and reorganizations involving business combinations designed solely to reincorporate a company to Delaware.

Anti-Takeover Provisions

Putnam will normally vote against proposals to adopt anti-takeover measures such as supermajority voting provisions, issuance of blank check preferred stock (except for REITs where measures will be voted on a case-by-case basis) and the creation of a separate class of stock with disparate voting rights. However, Putnam will vote on a case-by-case basis on proposals to issue blank check preferred stock if appropriate "de-clawed" language is present (appropriate de-clawed language will include cases where the company states that it will not use preferred stock for anti-takeover purposes, or in order to implement a shareholder rights plan, or discloses a commitment to submit any future issuances of preferred stock to be used in a shareholder rights plan/anti-takeover purpose to a shareholder vote prior to its adoption.). Additionally, Putnam will vote on a case-by-case basis on proposals to ratify or approve shareholder rights plans (commonly referred to as "poison pills") and on proposals to adopt fair price provisions. Putnam will normally oppose classified boards except in special circumstances where having such a board would be in shareholders' best interests.

Shareholder Proposals, including on Environmental & Social Issues

Shareholder proposals are non-binding votes that are often opposed by management. Some proposals relate to matters that are financially immaterial to the company's business, while others may be impracticable or costly for a company to implement. At the same time, well-crafted shareholder proposals may serve the purpose of raising issues that are material to a company's business for management's consideration and response. Putnam seeks to weigh the costs of different types of proposals against their expected financial benefits. More specifically, Putnam will normally vote in accordance with the recommendation of the company's board of directors on shareholder proposals unless the proposal reflects specific policies enumerated in the Guidelines. For example, Putnam will normally vote in favor of shareholder proposals to declassify a company's board, require shareholder approval of shareholder rights plans. Additionally, Putnam will normally support proposals requiring the Chairman's position be filled by an independent director, unless the board has an independent lead-director and Putnam is supporting the nominees for director, in which case Putnam will vote on a case-by-case basis.

Putnam believes that sustainable environmental practices and sustainable social policies are important components of long-term value creation. Companies should evaluate the potential risks to their business operations that are directly related to environmental and social factors (among others). In evaluating shareholder proposals relating to environmental and social initiatives, Putnam takes into account (1) the relevance and materiality of the proposal to the company's business, (2) whether the proposal is well crafted (e.g., whether it references science-based targets, or standard global protocols), and (3) the practicality or reasonableness of implementing the proposal.

Putnam may support well-crafted and well-targeted proposals that request additional reporting or disclosure on a company's plans to mitigate risk to the company related to the following issues and/or their strategies related to these issues: Environmental issues, including but not limited to, climate change,

greenhouse gas emissions, renewable energy, and broader sustainability issues; and Social issues, including but not limited to, fair pay, employee diversity and development, safety, labor rights, supply chain management, privacy and data security.

Putnam will consider factors such as (i) the industry in which the company operates, (ii) the company's current level of disclosure, (iii) the company's level of oversight, (iv) the company's management of risk arising out of these matters, (v) whether the company has suffered a material financial impact. Other factors may also be considered.

Putnam will consider the recommendation of its third-party proxy service provider and may consider other factors such as third-party evaluations of ESG performance.

Putnam will vote on a case-by-case basis on proposals relating to a company's use or potential use of artificial intelligence tools or applications.

Additionally, Putnam may vote on a case-by-case basis on proposals which ask a company to take action beyond reporting where a third-party proxy service provider has identified one or more reasons to warrant a vote FOR.

Non-U.S. Companies

Putnam recognizes that the laws governing non-U.S. issuers will vary significantly from U.S. law and from jurisdiction to jurisdiction. It may not be possible or even advisable to apply the Guidelines mechanically to non-U.S. issuers. However, Putnam believes that shareholders of all companies are protected by the existence of a sound corporate governance and disclosure framework. Accordingly, Putnam will seek to vote proxies of non-U.S. issuers in accordance with the Guidelines where applicable.

Many non-U.S. jurisdictions impose significant burdens on voting proxies. For example, some jurisdictions require that shares must be frozen for specified periods of time to vote via proxy ("share blocking") or that shares must be reregistered out of the name of the local custodian or nominee into the name of the client for the meeting and then reregistered back. In addition, other practical administrative challenges, such as late receipt of ballots and other information, often impact Putnam's normal voting process.

Putnam's policy is to weigh the benefits to clients from voting in these jurisdictions against the detriments of doing so. For example, in a share blocking jurisdiction, it will normally not be in a client's interest to freeze shares simply to participate in a non-contested routine meeting. More specifically, Putnam will normally not vote shares in non-U.S. jurisdictions imposing burdensome proxy voting requirements, except in significant votes (such as contested elections and major corporate transactions) where directed by portfolio managers. Putnam maintains additional policies for specific non-U.S. markets.

In rare cases, Putnam's voting rights may also be directly limited by non-U.S. law. For example, some countries limit aggregate foreign ownership of companies in particular industries (such as aviation or energy) due to economic or security concerns. Where this limit is exceeded, shares held by foreign investors, including Putnam, may not carry voting rights.

More Information

Putnam will make its reasonable best efforts to vote all proxies except when impeded by circumstances that are reasonably beyond its control and responsibility. This may happen when the custodian makes an error or the client has not established robust custodial proxy voting services. Putnam also does not recall shares on loan to vote proxies.

Putnam may also determine to waive its voting rights or to enter into a voting agreement in connection with some specific equity investments, including privately placed securities. In these situations, the voting policy described above will not apply. For more information, please see Item 8. Clients who want more information about Putnam's proxy voting policies, including a copy of the Guidelines and related policies or a statement of how proxies were voted for the client's account, should contact their account executive or client service manager.

Item 18: Financial Information

Not applicable.

Appendix A: Privacy Notice

We provide investment advisory services to retail investors as a sub-manager through the Morgan Stanley Smith Barney LLC Select UMA® wrap fee investment advisory program, as well as to retail investors through managed account programs sponsored by broker-dealers and other financial intermediaries. This Privacy Notice is specific to the Programs.

As a non-discretionary adviser to model provider programs sponsored by brokerage firms, banks and other organizations (each a “Sponsor”), and as an investment adviser to retail separately managed account clients through managed account programs sponsored by broker-dealers and other financial intermediaries, also referred to as Sponsors, as described in Item 4, PIM may obtain or otherwise have access to non-public personally identifiable financial information of an individual, including a Sponsor’s customers. In such cases, PIM has a duty to ensure that there are safeguards in place to protect that information from unauthorized access, use or disclosure.

Franklin Resources has adopted an enterprise-wide information security program (“ISP”) that applies to certain of its indirect subsidiaries, including PIM. The ISP is designed to: (i) ensure the confidentiality and availability of proprietary systems and information including non-public personal information; (ii) protect against threats to the security of such information; (iii) protect against unauthorized access to or use of such information that could result in substantial harm or inconvenience to a Putnam Adviser or any Putnam Adviser customer, employee or business partner; and (iv) ensure the proper disposal of information, including non-public personal information.

We operate on a global basis and we may share non-public personal information among Franklin Resources entities. However, access to non-public personal information is provided only to those employees who need it, and in accordance with applicable law. We regularly review system access rights and privileges to ensure that the access is necessary and appropriate to satisfy PIM’s contractual obligations to its advisory clients.

Importantly, we do not sell non-public personal information about our clients or customers. We may share non-public personal information with third parties where required by law or where it is necessary to satisfy a contractual obligation to the Sponsor. We expect all third parties with whom we share non-public personal information to have implemented appropriate measures to safeguard that information.

For more information about our privacy policy and information security, please visit <https://www.putnam.com/policies/>.