

<b>FUND SYMBOLS</b>	<b>CLASS A</b>	<b>CLASS B</b>	<b>CLASS C</b>	<b>CLASS M</b>	<b>CLASS R</b>	<b>CLASS R6</b>	<b>CLASS Y</b>
Putnam Global Communications Fund	PGBZX	PGBBX	PGBNX	PGBMX	PGBTX	--	PGBYX
Putnam Global Consumer Fund	PGCOX	PGCKX	PGCNX	PGCMX	PGCIX	--	PGCYX
Putnam Global Financials Fund	PGFFX	PGFOX	PGFDX	PGFMX	PGFRX	--	PGFYX
Putnam Global Health Care Fund	PHSTX	PHSBX	PCHSX	PHLMX	PHSRX	--	PHSYX
Putnam Global Industrials Fund	PGIAX	PGIVX	PGIEX	PGIHX	PGIOX	PGWTX	PGILX
Putnam Global Natural Resources Fund	EBERX	PNRBX	PGLCX	PGLMX	PGNRX	--	PGRYX
Putnam Global Technology Fund	PGTAX	PGTPX	PGTDX	PGTMX	PGTRX	PTTEX	PGTYX
Putnam Global Utilities Fund	PUGIX	PUTBX	PUTCX	PUTMX	PULRX	--	PUTYX

**Putnam Global Communications Fund**  
**Putnam Global Consumer Fund**  
**Putnam Global Financials Fund**  
**Putnam Global Health Care Fund**  
**Putnam Global Industrials Fund**  
**Putnam Global Natural Resources Fund**  
**Putnam Global Technology Fund**  
**Putnam Global Utilities Fund**

## FORM N-1A

### PART B

#### STATEMENT OF ADDITIONAL INFORMATION (SAI)

**December 30, 2018**

This SAI is not a prospectus. If a fund has more than one form of current prospectus, each reference to the prospectus in this SAI includes all of the fund's prospectuses, unless otherwise noted. The SAI should be read together with the applicable prospectus. For a free copy of each fund's annual report or a prospectus dated 12/30/18, as revised from time to time, call Putnam Investor Services at 1-800-225-1581, visit Putnam's website at putnam.com or write Putnam Investments, P.O. Box 219697, Kansas City, MO 64121-9697.

Part I of this SAI contains specific information about the funds. Part II includes information about these funds and the other Putnam funds.

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## SAI

### PART I

#### FUND ORGANIZATION AND CLASSIFICATION

Putnam Global Communications Fund, Putnam Global Consumer Fund, Putnam Global Financials Fund, Putnam Global Industrials Fund and Putnam Global Technology Fund are each a non-diversified series of Putnam Funds Trust, a Massachusetts business trust organized on January 22, 1996 (the "Trust") (although, as indicated below, Putnam Global Financials Fund has adopted non-fundamental investment restrictions requiring the fund to be managed as a "diversified" investment company). Putnam Global Health Care Fund is a Massachusetts business trust organized on January 28, 1982. Putnam Global Natural Resources Fund is a Massachusetts business trust organized on February 1, 1985, as the successor to Eberstadt Energy-Resources Fund, Inc., a Maryland corporation organized in May, 1980. Putnam Global Utilities Fund is a Massachusetts business trust organized on September 20, 1990. Putnam Global Health Care Fund, Putnam Global Natural Resources Fund, and Putnam Global Utilities Fund are referred to herein collectively as the "Non-Series Funds." A copy of the Trust's and each Non-Series Fund's Amended and Restated Agreement and Declaration of Trust (the "Agreement and Declaration of Trust"), which is governed by Massachusetts law, is on file with the Secretary of The Commonwealth of Massachusetts. Prior to November 30, 2018, Putnam Global Communications Fund was known as Putnam Global Telecommunications Fund.

For all funds except the Non-Series Funds:

Each fund is an open-end management investment company with an unlimited number of authorized shares of beneficial interest. The Trustees may, without shareholder approval, create two or more series of shares representing separate investment portfolios. Any series of shares may be divided without shareholder approval into two or more classes of shares having such preferences and special or relative rights and privileges as the Trustees determine. Each fund offers classes of shares with different sales charges and expenses.

Each share has one vote, with fractional shares voting proportionally. Shares of all series and classes will vote together as a single class on all matters except (i) when required by the Investment Company Act of 1940 or when the Trustees have determined that a matter affects one or more series or classes materially differently, shares are voted by individual series or class; and (ii) when the Trustees determine that such a matter affects only the interests of a particular series or class, then only shareholders of that series or class are entitled to vote. The Trustees may take many actions affecting the fund without shareholder approval, including under certain circumstances merging your fund into another Putnam fund. Shares are freely transferable, are entitled to dividends as declared by the Trustees, and, if the fund were liquidated, would receive the net assets of the fund.

Each fund may suspend the sale of shares at any time and may refuse any order to purchase shares. Although each fund is not required to hold annual meetings of its shareholders, shareholders holding at least 10% of the outstanding shares entitled to vote have the right to call a meeting to elect or remove Trustees, or to take other actions as provided in the Agreement and Declaration of Trust.

For Putnam Global Health Care Fund, Putnam Global Natural Resources Fund, and Global Utilities Fund only:

Each fund is an open-end non-diversified management investment company with an unlimited number of authorized shares of beneficial interest. The Trustees may, without shareholder approval, create two or more series of shares representing separate investment portfolios. Any series of shares may be divided without shareholder approval into two or more classes of shares having such preferences and special or relative rights and privileges as the Trustees determine. Each fund offers classes of shares with different sales charges and expenses.

Each share has one vote, with fractional shares voting proportionally. Shares of all classes vote together as a single class except when otherwise required by law or as determined by the Trustees. The Trustees may take many actions affecting the fund without shareholder approval, including under certain circumstances merging your fund into another Putnam fund. Shares are freely transferable, are entitled to dividends as declared by the Trustees, and, if the fund were liquidated, would receive the net assets of the fund.

Each fund may suspend the sale of shares at any time and may refuse any order to purchase shares. Although each fund is not required to hold annual meetings of its shareholders, shareholders holding at least 10% of the outstanding shares entitled to vote have the right to call a meeting to elect or remove Trustees, or to take other actions as provided in the Agreement and Declaration of Trust.

### **Information about the Summary Prospectus, Prospectus, and SAI**

Each fund has entered into contractual arrangements with an investment adviser, administrator, distributor, shareholder servicing agent, and custodian who each provide services to the fund. Unless expressly stated otherwise, shareholders are not parties to, or intended beneficiaries of these contractual arrangements, and these contractual arrangements are not intended to create any shareholder right to enforce them against the service providers or to seek any remedy under them against the service providers, either directly or on behalf of the fund.

Under the Trust's and each Non-Series Fund's Agreement and Declaration of Trust, any claims asserted against or on behalf of the Putnam Funds, including claims against Trustees and Officers, must be brought in the courts of The Commonwealth of Massachusetts.

## INVESTMENT RESTRICTIONS

**As fundamental investment restrictions, which may not be changed without a vote of a majority of the outstanding voting securities of a fund created under the Trust, each fund may not and will not:**

- (1) With respect to 50% of its total assets, invest in securities of any issuer if, immediately after such investment, more than 5% of the total assets of the fund (taken at current value) would be invested in the securities of such issuer; provided that this limitation does not apply to obligations issued or guaranteed as to interest or principal by the U.S. government or its agencies or instrumentalities or to securities issued by other investment companies.
- (2) With respect to 50% of its total assets, acquire more than 10% of the outstanding voting securities of any issuer.
- (3) Borrow money in excess of 33 1/3% of the value of its total assets (not including the amount borrowed) at the time the borrowing is made.
- (4) Make loans, except by purchase of debt obligations in which the fund may invest consistent with its investment policies (including without limitation debt obligations issued by other Putnam funds), by entering into repurchase agreements, or by lending its portfolio securities.
- (5) Purchase or sell real estate, although it may purchase securities of issuers which deal in real estate, securities which are secured by interests in real estate, and securities which represent interests in real estate, and it may acquire and dispose of real estate or interests in real estate acquired through the exercise of its rights as a holder of debt obligations secured by real estate or interests therein.
- (6) Purchase or sell commodities, except as permitted by applicable law.
- (7) Underwrite securities issued by other persons except to the extent that, in connection with the disposition of its portfolio investments, it may be deemed to be an underwriter under certain federal securities laws.
- (8)(a) **Global Communications Fund only:** Purchase securities (other than securities of the U.S. government, its agencies or instrumentalities) if, as a result of such purchase, more than 25% of the fund's total assets would be invested in any one industry, except that the fund will normally invest at least 25% of its net assets in the communication industries.
- (8)(b) **Global Consumer Fund only:** Purchase securities (other than securities of the U.S. government, its agencies or instrumentalities) if, as a result of such purchase, more than 25% of the fund's total assets would be invested in any one industry, except

that the fund will normally invest at least 25% of its net assets in the consumer staples and consumer discretionary products and services industries.

(8)(c) **Global Financials Fund only:** Purchase securities (other than securities of the U.S. government, its agencies or instrumentalities) if, as a result of such purchase, more than 25% of the fund's total assets would be invested in any one industry, except that the fund will normally invest at least 25% of its net assets in the financial services industries.

(8)(d) **Global Health Care Fund only:** Purchase securities (other than securities of the U.S. government, its agencies or instrumentalities) if, as a result of such purchase, more than 25% of the fund's total assets would be invested in any one industry, except that the fund will invest at least 25% of the value of its total assets in common stocks of companies which Putnam Management determines are principally engaged in the health sciences industries, except when investing for defensive purposes.

(8)(e) **Global Industrials Fund only:** Purchase securities (other than securities of the U.S. government, its agencies or instrumentalities) if, as a result of such purchase, more than 25% of the fund's total assets would be invested in any one industry, except that the fund will normally invest at least 25% of its net assets in the industrial products, services or equipment industries.

(8)(f) **Global Natural Resources Fund only:** Purchase securities (other than securities of the U.S. government, its agencies or instrumentalities) if, as a result of such purchase, more than 25% of the fund's total assets would be invested in any one industry, except that the fund may invest more than 25% of its total assets in securities of issuers in any industry in the energy and resources group of industries. (The fund will invest at least 80% of its net assets at all times in the securities of companies principally engaged in the energy, natural resource and related areas, as defined in the prospectus, except when investing for defensive purposes).

(8)(g) **Global Technology Fund only:** Purchase securities (other than securities of the U.S. government, its agencies or instrumentalities) if, as a result of such purchase, more than 25% of the fund's total assets would be invested in any one industry, except that the fund will normally invest at least 25% of its net assets in the technology industries.

(8)(h) **Global Utilities Fund only:** Purchase securities (other than securities of the U.S. government, its agencies or instrumentalities) if, as a result of such purchase, more than 25% of the fund's total assets would be invested in any one industry, except for any of the public utilities industries.

(9) **All funds except Global Health Care Fund:** Issue any class of securities which is senior to the fund's shares of beneficial interest, except for permitted borrowings.

The Investment Company Act of 1940 provides that a "vote of a majority of the outstanding voting securities" of a fund means the affirmative vote of the lesser of (1) more than 50% of the outstanding fund shares, or (2) 67% or more of the shares present at a meeting if more than 50% of the outstanding fund shares are represented at the meeting in person or by proxy.

For purposes of each fund's fundamental policy on industry concentration (#8 above), Putnam Investment Management, LLC ("Putnam Management"), the fund's investment manager, determines the appropriate industry categories and assigns issuers to them, informed by a variety of considerations, including relevant third party categorization systems. Industry categories and issuer assignments may change over time as industry sectors and issuers evolve. Portfolio allocations shown in shareholder reports and other communications may use broader investment sectors or narrower sub-industry categories.

**The following non-fundamental investment policies may be changed by the Trustees without shareholder approval:**

(1) The fund will not acquire any securities of registered open-end investment companies or registered unit investment trusts in reliance on Sections 12(d)(1)(F) or (G) of the Investment Company Act of 1940, as amended.

(2) **Global Health Care Fund only:** The fund will not issue any class of securities which is senior to the fund's shares of beneficial interest, except for permitted borrowings.

(3) **Global Financials Fund only.** With respect to 75% of its total assets, the fund may not and will not invest in securities of any issuer if, immediately after such investment, more than 5% of the total assets of the Fund (taken at current value) would be invested in the securities of such issuer; provided that this limitation does not apply to obligations issued or guaranteed as to interest or principal by the U.S. government or its agencies or instrumentalities or to securities issued by other investment companies.

(4) **Global Financials Fund only.** With respect to 75% of its total assets, the fund may not and will not acquire more than 10% of the outstanding voting securities of any issuer; provided that this limitation does not apply to obligations issued or guaranteed as to interest or principal by the U.S. government or its agencies or instrumentalities or to securities issued by other investment companies.

The Global Financials Fund is currently operating as a diversified fund consistent with non-fundamental restrictions (3) and (4) above. The fund has previously operated as a non-diversified fund and may operate as a non-diversified fund in the future to the extent permitted by applicable law. Under current law, shareholder approval would be required for the fund to resume operating as non-diversified.

All percentage limitations on investments will apply at the time of the making of an investment and shall not be considered violated unless an excess or deficiency occurs or exists immediately after and as a result of such investment.

The Trust has filed an election under Rule 18f-1 under the Investment Company Act of 1940 committing each fund that is a series of the Trust to pay all redemptions of fund shares by a single shareholder during any 90-day period in cash, up to the lesser of (i) \$250,000 or (ii) 1% of such fund's net assets measured as of the beginning of such 90-day period.

## **CHARGES AND EXPENSES**

### **Management fees**

Under each fund's Management Contract (each, a "Management Contract"), each fund pays a monthly fee to Putnam Management. The fee is calculated by applying a rate to the fund's average net assets for the month. The rate is based on the monthly average of the aggregate net assets of all open-end funds sponsored by Putnam Management (excluding net assets of funds that are invested in or that are invested in by, other Putnam funds to the extent necessary to avoid "double counting" of those assets) ("Total Open-End Mutual Fund Average Net Assets"), as determined at the close of each business day during the month, as set forth below:

0.780% of the first \$5 billion of Total Open-End Mutual Fund Average Net Assets;  
0.730% of the next \$5 billion of Total Open-End Mutual Fund Average Net Assets;  
0.680% of the next \$10 billion of Total Open-End Mutual Fund Average Net Assets;  
0.630% of the next \$10 billion of Total Open-End Mutual Fund Average Net Assets;  
0.580% of the next \$50 billion of Total Open-End Mutual Fund Average Net Assets;  
0.560% of the next \$50 billion of Total Open-End Mutual Fund Average Net Assets;  
0.550% of the next \$100 billion of Total Open-End Mutual Fund Average Net Assets;  
and 0.545% of any excess thereafter.

For the past three fiscal years, pursuant to the applicable Management Contract, each fund incurred the following fees:



<b>Fund name</b>	<b>Fiscal year</b>	<b>Management fee paid</b>	<b>Amount of management fee waived</b>	<b>Amount management fee would have been without waivers</b>
Global Communications Fund	2018	\$28,647	\$123,396	\$152,043
	2017	\$51,715	\$120,682	\$172,397
	2016	\$115,403	\$100,993	\$216,396
Global Consumer Fund	2018	\$323,598	\$60,984	\$384,582
	2017	\$212,135	\$88,526	\$300,661
	2016	\$160,181	\$92,448	\$252,629
Global Financials Fund	2018	\$71,339	\$113,720	\$185,059
	2017	\$0	\$113,621	\$113,621
	2016	\$0	\$85,837	\$85,837
Global Health Care Fund	2018	\$8,675,128	\$0	\$8,675,128
	2017	\$8,883,342	\$0	\$8,883,342
	2016	\$9,976,600	\$19,245	\$9,995,845
Global Industrials Fund	2018	\$638,205	\$0	\$638,205
	2017	\$205,637	\$134,164	\$339,801
	2016	\$0	\$113,598	\$113,598
Global Natural Resources Fund	2018	\$979,680	\$0	\$979,680
	2017	\$878,208	\$109,730	\$987,938
	2016	\$1,012,240	\$3,049	\$1,015,289

<b>Fund name</b>	<b>Fiscal year</b>	<b>Management fee paid</b>	<b>Amount of management fee waived</b>	<b>Amount management fee would have been without waivers</b>
Global Technology Fund	2018	\$1,933,947	\$0	\$1,933,947
	2017	\$623,694	\$44,165	\$667,859
	2016	\$141,298	\$99,316	\$240,614
Global Utilities Fund	2018	\$1,031,605	\$0	\$1,031,605
	2017	\$1,051,494	\$0	\$1,051,494
	2016	\$1,117,740	\$2,495	\$1,120,235

For Global Health Care Fund, Global Natural Resources Fund and Global Utilities Fund, the amount of management fee waived for the 2016 fiscal year resulted from a voluntary one-time waiver by Putnam Management.

The following amount of management fee waived for the 2016 fiscal year resulted from a voluntary one-time waiver by Putnam Management: Global Communications Fund (\$275), Global Consumer Fund (\$300), Global Financials Fund (\$164), Global Industrials Fund (\$232) and Global Technology Fund (\$260). For each such fund, the remaining amount of management fee waived for the 2016 fiscal year for each fund resulted from arrangements set forth in “General expense limitation” under “Management – The Management Contract” in Part II of this SAI.

The amount of management fee waived for the 2017 and 2018 fiscal years for each fund resulted from arrangements set forth in “General expense limitation” under “Management – The Management Contract” in Part II of this SAI.

## Brokerage commissions

The following table shows brokerage commissions paid during the fiscal years indicated:

<b>Fund name</b>	<b>Fiscal year</b>	<b>Brokerage commissions</b>
Global Communications Fund	2018	\$24,174
	2017	\$32,982
	2016	\$31,144
Global Consumer Fund	2018	\$35,224
	2017	\$25,993
	2016	\$25,006
Global Financials Fund	2018	\$20,267
	2017	\$14,168
	2016	\$9,387
Global Health Care Fund	2018	\$547,990
	2017	\$813,840
	2016	\$466,211
Global Industrials Fund	2018	\$274,964
	2017	\$176,322
	2016	\$96,740
Global Natural Resources Fund	2018	\$572,626
	2017	\$505,290
	2016	\$437,013
Global Technology Fund	2018	\$631,188
	2017	\$175,658
	2016	\$49,325
Global Utilities Fund	2018	\$200,421
	2017	\$111,410
	2016	\$45,941

### **Putnam Global Communications Fund**

The brokerage commissions for the fund's 2018 fiscal year were lower than the brokerage commissions for the fund's 2016 and 2017 fiscal years due in part to decreased asset levels in the fund in 2018.

### **Putnam Global Consumer Fund, Putnam Global Industrials Fund, Putnam Global Natural Resources and Putnam Global Utilities Fund**

The brokerage commissions for each fund's 2018 fiscal year were higher than the brokerage commissions for the fund's 2016 and 2017 fiscal years due in part to increased portfolio turnover in the fund in 2018.

The portfolio turnover rate for each of Putnam Global Natural Resources Fund's and Putnam Global Utilities Fund's 2018 fiscal year was higher than the portfolio turnover rate for the fund's 2017 fiscal year due in part to changes in the fund's portfolio management teams.

### **Putnam Global Financials Fund**

The brokerage commissions for the fund's 2018 fiscal year were higher than the brokerage commissions for the fund's 2017 fiscal year due in part to increased portfolio turnover in the fund in 2018. The brokerage commissions for the fund's 2017 fiscal year were higher than the brokerage commissions for the fund's 2016 fiscal year due in part to increased subscriptions into the fund in 2017.

### **Putnam Global Health Care Fund**

The brokerage commissions for the fund's 2017 fiscal year were higher than the brokerage commissions for the fund's 2016 and 2018 fiscal years due in part to increased portfolio turnover in the fund in 2017.

### **Putnam Global Technology Fund**

The brokerage commissions for the fund's 2018 fiscal year were higher than the brokerage commissions for the fund's 2016 and 2017 fiscal years due to increased subscriptions into the fund in 2018.

The portfolio turnover rate for the fund's 2018 fiscal year was higher than the portfolio turnover rate for the fund's 2017 fiscal year due in part to increased subscriptions into the fund in 2018.

The following table shows transactions placed with brokers and dealers during the most recent fiscal year through which Putnam Management and its affiliates receive brokerage or research services:

<b>Fund name</b>	<b>Dollar value of these transactions</b>	<b>Percentage of total transactions</b>	<b>Amount of commissions</b>
Global Communications Fund	\$15,489,424	39.80%	\$9,378

<b>Fund name</b>	<b>Dollar value of these transactions</b>	<b>Percentage of total transactions</b>	<b>Amount of commissions</b>
Global Consumer Fund	\$23,484,908	41.30%	\$11,112

<b>Fund name</b>	<b>Dollar value of these transactions</b>	<b>Percentage of total transactions</b>	<b>Amount of commissions</b>
Global Financials Fund	\$18,993,047	56.80%	\$10,164

<b>Fund name</b>	<b>Dollar value of these transactions</b>	<b>Percentage of total transactions</b>	<b>Amount of commissions</b>
Global Health Care Fund	\$390,496,558	26.20%	\$233,818

<b>Fund name</b>	<b>Dollar value of these transactions</b>	<b>Percentage of total transactions</b>	<b>Amount of commissions</b>
Global Industrials Fund	\$260,806,257	43.00%	\$99,036

<b>Fund name</b>	<b>Dollar value of these transactions</b>	<b>Percentage of total transactions</b>	<b>Amount of commissions</b>
Global Natural Resources Fund	\$336,627,988	48.20%	\$180,792

<b>Fund name</b>	<b>Dollar value of these transactions</b>	<b>Percentage of total transactions</b>	<b>Amount of commissions</b>
Global Technology Fund	\$388,251,095	51.80%	\$194,987

<b>Fund name</b>	<b>Dollar value of these transactions</b>	<b>Percentage of total transactions</b>	<b>Amount of commissions</b>
Global Utilities Fund	\$159,419,343	57.10%	\$79,915

At the end of fiscal 2018, Putnam Global Financials Fund held the following securities of its regular broker-dealers (or affiliates of such broker-dealers):

<b>Broker-dealer or affiliate</b>	<b>Value of securities held</b>
Goldman Sachs Group, Inc. (The)	\$990,954

#### **Administrative expense reimbursement**

The funds reimbursed Putnam Management for administrative services during fiscal 2018, including compensation of certain fund officers and contributions to the Putnam Retirement Plan for their benefit, as follows:

<b>Fund name</b>	<b>Total reimbursement</b>	<b>Portion of total reimbursement for compensation and contributions</b>
Global Communications Fund	\$719	\$495
Global Consumer Fund	\$1,798	\$1,238
Global Financials Fund	\$887	\$611
Global Health Care Fund	\$39,917	\$27,485
Global Industrials Fund	\$3,030	\$2,086
Global Natural Resources Fund	\$4,567	\$3,145
Global Technology Fund	\$8,635	\$5,946
Global Utilities Fund	\$4,857	\$3,344

## Trustee responsibilities and fees

The Trustees are responsible for generally overseeing the conduct of fund business. Subject to such policies as the Trustees may determine, Putnam Management furnishes a continuing investment program for the funds and makes investment decisions on their behalf. Subject to the control of the Trustees, Putnam Management also manages the funds' other affairs and business.

The table below shows the value of each Trustee's holdings in each fund and in all of the Putnam Funds as of December 31, 2017.

Name of Trustee	Dollar range of Putnam Global Communications Fund shares owned	Dollar range of Putnam Global Consumer Fund shares owned	Dollar range of Putnam Global Financials Fund shares owned	Dollar range of Putnam Global Health Care Fund shares owned
Liaquat Ahamed	\$1-\$10,000	\$1-\$10,000	\$1-\$10,000	\$1-\$10,000
Ravi Akhoury	\$1-\$10,000	\$1-\$10,000	\$1-\$10,000	\$1-\$10,000
Barbara M. Baumann	\$1-\$10,000	\$1-\$10,000	\$1-\$10,000	\$10,001-\$50,000
Katinka Domotorffy	\$1-\$10,000	\$1-\$10,000	\$1-\$10,000	over \$100,000
*Catharine Bond Hill	N/A	N/A	N/A	N/A
Paul L. Joskow	\$1-\$10,000	\$1-\$10,000	\$1-\$10,000	\$50,001-\$100,000
Kenneth R. Leibler	\$1-\$10,000	\$1-\$10,000	\$1-\$10,000	\$10,001-\$50,000
Robert E. Patterson	\$10,001-\$50,000	\$10,001-\$50,000	\$10,001-\$50,000	\$10,001-\$50,000
George Putnam, III	\$10,001-\$50,000	\$10,001-\$50,000	\$10,001-\$50,000	over \$100,000
*Manoj P. Singh	N/A	N/A	N/A	N/A
** Robert L. Reynolds	\$1-\$10,000	\$1-\$10,000	\$1-\$10,000	\$10,001-\$50,000

<b>Name of Trustee</b>	<b>Dollar range of Putnam Global Industrials Fund shares owned</b>	<b>Dollar range of Putnam Global Natural Resources Fund shares owned</b>	<b>Dollar range of Putnam Global Technology Fund shares owned</b>
Liaquat Ahamed	\$1-\$10,000	\$1-\$10,000	\$1-\$10,000
Ravi Akhoury	\$1-\$10,000	\$1-\$10,000	\$1-\$10,000
Barbara M. Baumann	\$1-\$10,000	\$1-\$10,000	over \$100,000
Katinka Domotorffy	\$1-\$10,000	\$1-\$10,000	\$1-\$10,000
*Catharine Bond Hill	N/A	N/A	N/A
Paul L. Joskow	\$1-\$10,000	\$1-\$10,000	\$1-\$10,000
Kenneth R. Leibler	\$1-\$10,000	\$1-\$10,000	\$1-\$10,000
Robert E. Patterson	\$10,001-\$50,000	\$10,001-\$50,000	\$10,001-\$50,000
George Putnam, III	\$10,001-\$50,000	over \$100,000	\$50,001-\$100,000
*Manoj P. Singh	N/A	N/A	N/A
**Robert L. Reynolds	\$1-\$10,000	\$1-\$10,000	\$1-\$10,000

<b>Name of Trustee</b>	<b>Dollar range of Putnam Global Utilities Fund shares owned</b>	<b>Aggregate dollar range of shares held in all of the Putnam funds overseen by Trustee</b>
Liaquat Ahamed	\$1-\$10,000	over \$100,000
Ravi Akhoury	\$1-\$10,000	over \$100,000
Barbara M. Baumann	\$1-\$10,000	over \$100,000
Katinka Domotorffy	\$1-\$10,000	over \$100,000
*Catharine Bond Hill	N/A	N/A
Paul L. Joskow	\$10,001-\$50,000	over \$100,000
Kenneth R. Leibler	\$1-\$10,000	over \$100,000
Robert E. Patterson	\$10,001-\$50,000	over \$100,000
George Putnam, III	\$10,001-\$50,000	over \$100,000
*Manoj P. Singh	N/A	N/A
**Robert L. Reynolds	\$1-\$10,000	over \$100,000

\*Appointed to the Board of Trustees on March 16, 2017.

\*\* Trustee who is an "interested person" (as defined in the Investment Company Act of 1940) of the funds and Putnam Management. Mr. Reynolds is deemed an "interested person" by virtue of his positions as an officer of the funds and Putnam Management. Mr. Reynolds is the President and Chief Executive Officer of Putnam Investments, LLC and President of your fund and each of the other Putnam funds. None of the other Trustees is an "interested person".

Each Independent Trustee of the funds receives an annual retainer fee and an additional fee for each Trustee meeting attended. Independent Trustees also are reimbursed for expenses they incur relating to their services as Trustees. All of the



current Independent Trustees of the funds are Trustees of all the Putnam funds and receive fees for their services.

The Trustees periodically review their fees to ensure that such fees continue to be appropriate in light of their responsibilities as well as in relation to fees paid to trustees of other mutual fund complexes. The Board Policy and Nominating Committee, which consists solely of Independent Trustees of the funds, estimates that committee and Trustee meeting time, together with the appropriate preparation, requires the equivalent of at least four business days per regular Trustee meeting. The standing committees of the Board of Trustees, and the number of times each committee met during your fund's most recently completed fiscal year, are shown in the table below:

Audit, Compliance and Distributions Committee	11
Board Policy and Nominating Committee	6
Brokerage Committee	5
Contract Committee	8
Executive Committee	1
Investment Oversight Committees	
Investment Oversight Committee A	7
Investment Oversight Committee B	7
Pricing Committee	8

The following tables show the year each Trustee was first elected a Trustee of the Putnam funds, the fees paid to each Trustee by each fund for fiscal 2018, and the fees paid to each Trustee by all of the Putnam funds for services rendered during calendar year 2017:

## COMPENSATION TABLES

### Putnam Global Communications Fund

Trustee/Year	Aggregate compensation from the fund	Pension or retirement benefits accrued as part of fund expenses	Estimated annual benefits from all Putnam funds upon retirement(1)	Total compensation from all Putnam funds(2)
Liaquat Ahamed/2012(3)	\$96	N/A	N/A	\$315,000
Ravi Akhoury/2009	\$98	N/A	N/A	\$315,000
Barbara M. Baumann/2010(3)	\$105	N/A	N/A	\$327,500
Jameson A. Baxter/1994(3)(4)	\$127	\$0	\$110,533	\$415,000
Robert J. Darretta/2007(5)	N/A	N/A	N/A	\$207,500
Katinka Domotorffy/2012(3)	\$98	N/A	N/A	\$315,000
Catharine Bond Hill/2017(3)(6)	\$98	N/A	N/A	\$232,708
John A. Hill/1985(5)	N/A	\$0	\$161,667	\$182,500
Paul L. Joskow/1997(3)	\$98	\$0	\$113,417	\$315,000
Kenneth R. Leibler/2006	\$112	N/A	N/A	\$345,000
Robert E. Patterson/1984	\$98	\$0	\$106,542	\$315,000
George Putnam, III/1984	\$101	\$0	\$130,333	\$340,000
Manoj P. Singh/2017(6)	\$96	N/A	N/A	\$232,708
W. Thomas Stephens/1997(7)	N/A	\$0	\$107,125	\$195,000
Robert L. Reynolds/2008(8)	N/A	N/A	N/A	N/A

Putnam Global Consumer Fund

<b>Trustee/Year</b>	<b>Aggregate compensation from the fund</b>	<b>Pension or retirement benefits accrued as part of fund expenses</b>	<b>Estimated annual benefits from all Putnam funds upon retirement(1)</b>	<b>Total compensation from all Putnam funds(2)</b>
Liaquat Ahamed/2012(3)	\$242	N/A	N/A	\$315,000
Ravi Akhoury/2009	\$246	N/A	N/A	\$315,000
Barbara M. Baumann/2010(3)	\$266	N/A	N/A	\$327,500
Jameson A. Baxter/1994(3)(4)	\$320	\$24	\$110,533	\$415,000
Robert J. Darretta/2007(5)	N/A	N/A	N/A	\$207,500
Katinka Domotorffy/2012(3)	\$246	N/A	N/A	\$315,000
Catharine Bond Hill/2017(3)(6)	\$246	N/A	N/A	\$232,708
John A. Hill/1985(5)	N/A	\$39	\$161,667	\$182,500
Paul L. Joskow/1997(3)	\$246	\$18	\$113,417	\$315,000
Kenneth R. Leibler/2006	\$283	N/A	N/A	\$345,000
Robert E. Patterson/1984	\$246	\$29	\$106,542	\$315,000
George Putnam, III/1984	\$255	\$30	\$130,333	\$340,000
Manoj P. Singh/2017(6)	\$241	N/A	N/A	\$232,708
W. Thomas Stephens/1997(7)	N/A	\$16	\$107,125	\$195,000
Robert L. Reynolds/2008(8)	N/A	N/A	N/A	N/A

Putnam Global Financials Fund

<b>Trustee/Year</b>	<b>Aggregate compensation from the fund</b>	<b>Pension or retirement benefits accrued as part of fund expenses</b>	<b>Estimated annual benefits from all Putnam funds upon retirement(1)</b>	<b>Total compensation from all Putnam funds(2)</b>
Liaquat Ahamed/2012(3)	\$116	N/A	N/A	\$315,000
Ravi Akhoury/2009	\$118	N/A	N/A	\$315,000
Barbara M. Baumann/2010(3)	\$127	N/A	N/A	\$327,500
Jameson A. Baxter/1994(3)(4)	\$153	\$5	\$110,533	\$415,000
Robert J. Darretta/2007(5)	N/A	N/A	N/A	\$207,500
Katinka Domotorffy/2012(3)	\$118	N/A	N/A	\$315,000
Catharine Bond Hill/2017(3)(6)	\$118	N/A	N/A	\$232,708
John A. Hill/1985(5)	N/A	\$7	\$161,667	\$182,500
Paul L. Joskow/1997(3)	\$118	\$4	\$113,417	\$315,000
Kenneth R. Leibler/2006	\$135	N/A	N/A	\$345,000
Robert E. Patterson/1984	\$118	\$6	\$106,542	\$315,000
George Putnam, III/1984	\$122	\$7	\$130,333	\$340,000
Manoj P. Singh/2017(6)	\$115	N/A	N/A	\$232,708
W. Thomas Stephens/1997(7)	N/A	\$3	\$107,125	\$195,000
Robert L. Reynolds/2008(8)	N/A	N/A	N/A	N/A

Putnam Global Health Care Fund

<b>Trustee/Year</b>	<b>Aggregate compensation from the fund</b>	<b>Pension or retirement benefits accrued as part of fund expenses</b>	<b>Estimated annual benefits from all Putnam funds upon retirement(1)</b>	<b>Total compensation from all Putnam funds(2)</b>
Liaquat Ahamed/2012(3)	\$5,410	N/A	N/A	\$315,000
Ravi Akhoury/2009	\$5,514	N/A	N/A	\$315,000
Barbara M. Baumann/2010(3)	\$5,944	N/A	N/A	\$327,500
Jameson A. Baxter/1994(3)(4)	\$7,187	\$0	\$110,533	\$415,000
Robert J. Darretta/2007(5)	N/A	N/A	N/A	\$207,500
Katinka Domotorffy/2012(3)	\$5,514	N/A	N/A	\$315,000
Catharine Bond Hill/2017(3)(6)	\$5,514	N/A	N/A	\$232,708
John A. Hill/1985(5)	N/A	\$0	\$161,667	\$182,500
Paul L. Joskow/1997(3)	\$5,514	\$0	\$113,417	\$315,000
Kenneth R. Leibler/2006	\$6,317	N/A	N/A	\$345,000
Robert E. Patterson/1984	\$5,514	\$0	\$106,542	\$315,000
George Putnam, III/1984	\$5,735	\$0	\$130,333	\$340,000
Manoj P. Singh/2017(6)	\$5,410	N/A	N/A	\$232,708
W. Thomas Stephens/1997(7)	N/A	\$0	\$107,125	\$195,000
Robert L. Reynolds/2008(8)	N/A	N/A	N/A	N/A

Putnam Global Industrials Fund

<b>Trustee/Year</b>	<b>Aggregate compensation from the fund</b>	<b>Pension or retirement benefits accrued as part of fund expenses</b>	<b>Estimated annual benefits from all Putnam funds upon retirement(1)</b>	<b>Total compensation from all Putnam funds(2)</b>
Liaquat Ahamed/2012(3)	\$401	N/A	N/A	\$315,000
Ravi Akhoury/2009	\$408	N/A	N/A	\$315,000
Barbara M. Baumann/2010(3)	\$439	N/A	N/A	\$327,500
Jameson A. Baxter/1994(3)(4)	\$529	\$53	\$110,533	\$415,000
Robert J. Darretta/2007(5)	N/A	N/A	N/A	\$207,500
Katinka Domotorffy/2012(3)	\$408	N/A	N/A	\$315,000
Catharine Bond Hill/2017(3)(6)	\$408	N/A	N/A	\$232,708
John A. Hill/1985(5)	N/A	\$88	\$161,667	\$182,500
Paul L. Joskow/1997(3)	\$408	\$39	\$113,417	\$315,000
Kenneth R. Leibler/2006	\$470	N/A	N/A	\$345,000
Robert E. Patterson/1984	\$408	\$63	\$106,542	\$315,000
George Putnam, III/1984	\$420	\$67	\$130,333	\$340,000
Manoj P. Singh/2017(6)	\$399	N/A	N/A	\$232,708
W. Thomas Stephens/1997(7)	N/A	\$36	\$107,125	\$195,000
Robert L. Reynolds/2008(8)	N/A	N/A	N/A	N/A

Putnam Global Natural Resources Fund

<b>Trustee/Year</b>	<b>Aggregate compensation from the fund</b>	<b>Pension or retirement benefits accrued as part of fund expenses</b>	<b>Estimated annual benefits from all Putnam funds upon retirement(1)</b>	<b>Total compensation from all Putnam funds(2)</b>
Liaquat Ahamed/2012(3)	\$617	N/A	N/A	\$315,000
Ravi Akhoury/2009	\$629	N/A	N/A	\$315,000
Barbara M. Baumann/2010(3)	\$679	N/A	N/A	\$327,500
Jameson A. Baxter/1994(3)(4)	\$821	\$0	\$110,533	\$415,000
Robert J. Darretta/2007(5)	N/A	N/A	N/A	\$207,500
Katinka Domotorffy/2012(3)	\$629	N/A	N/A	\$315,000
Catharine Bond Hill/2017(3)(6)	\$629	N/A	N/A	\$232,708
John A. Hill/1985(5)	N/A	\$0	\$161,667	\$182,500
Paul L. Joskow/1997(3)	\$629	\$0	\$113,417	\$315,000
Kenneth R. Leibler/2006	\$720	N/A	N/A	\$345,000
Robert E. Patterson/1984	\$629	\$0	\$106,542	\$315,000
George Putnam, III/1984	\$655	\$0	\$130,333	\$340,000
Manoj P. Singh/2017(6)	\$618	N/A	N/A	\$232,708
W. Thomas Stephens/1997(7)	N/A	\$0	\$107,125	\$195,000
Robert L. Reynolds/2008(8)	N/A	N/A	N/A	N/A

Putnam Global Technology Fund

<b>Trustee/Year</b>	<b>Aggregate compensation from the fund</b>	<b>Pension or retirement benefits accrued as part of fund expenses</b>	<b>Estimated annual benefits from all Putnam funds upon retirement(1)</b>	<b>Total compensation from all Putnam funds(2)</b>
Liaquat Ahamed/2012(3)	\$1,182	N/A	N/A	\$315,000
Ravi Akhoury/2009	\$1,200	N/A	N/A	\$315,000
Barbara M. Baumann/2010(3)	\$1,290	N/A	N/A	\$327,500
Jameson A. Baxter/1994(3)(4)	\$1,548	\$178	\$110,533	\$415,000
Robert J. Darretta/2007(5)	N/A	N/A	N/A	\$207,500
Katinka Domotorffy/2012(3)	\$1,200	N/A	N/A	\$315,000
Catharine Bond Hill/2017(3)(6)	\$1,200	N/A	N/A	\$232,708
John A. Hill/1985(5)	N/A	\$295	\$161,667	\$182,500
Paul L. Joskow/1997(3)	\$1,200	\$131	\$113,417	\$315,000
Kenneth R. Leibler/2006	\$1,395	N/A	N/A	\$345,000
Robert E. Patterson/1984	\$1,200	\$210	\$106,542	\$315,000
George Putnam, III/1984	\$1,242	\$221	\$130,333	\$340,000
Manoj P. Singh/2017(6)	\$1,176	N/A	N/A	\$232,708
W. Thomas Stephens/1997(7)	N/A	\$119	\$107,125	\$195,000
Robert L. Reynolds/2008(8)	N/A	N/A	N/A	N/A



Putnam Global Utilities Fund

<b>Trustee/Year</b>	<b>Aggregate compensation from the fund</b>	<b>Pension or retirement benefits accrued as part of fund expenses</b>	<b>Estimated annual benefits from all Putnam funds upon retirement(1)</b>	<b>Total compensation from all Putnam funds(2)</b>
Liaquat Ahamed/2012(3)	\$651	N/A	N/A	\$315,000
Ravi Akhoury/2009	\$664	N/A	N/A	\$315,000
Barbara M. Baumann/2010(3)	\$716	N/A	N/A	\$327,500
Jameson A. Baxter/1994(3)(4)	\$865	\$0	\$110,533	\$415,000
Robert J. Darretta/2007(5)	N/A	N/A	N/A	\$207,500
Katinka Domotorffy/2012(3)	\$664	N/A	N/A	\$315,000
Catharine Bond Hill/2017(3)(6)	\$664	N/A	N/A	\$232,708
John A. Hill/1985(5)	N/A	\$0	\$161,667	\$182,500
Paul L. Joskow/1997(3)	\$664	\$0	\$113,417	\$315,000
Kenneth R. Leibler/2006	\$760	N/A	N/A	\$345,000
Robert E. Patterson/1984	\$664	\$0	\$106,542	\$315,000
George Putnam, III/1984	\$690	\$0	\$130,333	\$340,000
Manoj P. Singh/2017(6)	\$651	N/A	N/A	\$232,708
W. Thomas Stephens/1997(7)	N/A	\$0	\$107,125	\$195,000
Robert L. Reynolds/2008(8)	N/A	N/A	N/A	N/A

(1) Estimated benefits for each Trustee are based on Trustee fee rates for calendar years 2003, 2004 and 2005.

(2) As of December 31, 2017, there were 106 funds in the Putnam family.

(3) Certain Trustees are also owed compensation deferred pursuant to a Trustee Compensation Deferral Plan. As of August 31, 2018, the total amounts of deferred compensation payable by each fund, including income earned on such amounts, to these Trustees were:

	<b>Mr. Ahamed</b>	<b>Ms. Baumann</b>	<b>Ms. Baxter</b>	<b>Dr. Hill</b>	<b>Ms. Domotorffy</b>	<b>Dr. Joskow</b>
Global Communications Fund	\$83	\$80	\$509	\$8	\$72	\$347
Global Consumer Fund	\$112	\$108	\$683	\$11	\$97	\$465
Global Financials Fund	\$64	\$62	\$391	\$6	\$55	\$266
Global Health Care Fund	\$14,344	\$13,808	\$87,664	\$1,437	\$12,387	\$59,664
Global Industrials Fund	\$112	\$108	\$684	\$11	\$97	\$465
Global Natural Resources Fund	\$2,358	\$2,270	\$14,411	\$236	\$2,036	\$9,808
Global Technology Fund	\$210	\$202	\$1,282	\$21	\$181	\$872
Global Utilities Fund	\$4,959	\$4,774	\$30,307	\$497	\$4,282	\$20,627

(4) Includes additional compensation to Ms. Baxter for service as Chair of the Trustees of the Putnam funds. Ms. Baxter retired from the Board of Trustees on June 30, 2018.

(5) Mr. Darretta and Mr. Hill retired from the Board of Trustees on June 30, 2017.

(6) Dr. Hill and Mr. Singh were appointed to the Board of Trustees on March 16, 2017.

(7) Mr. Stephens retired from the Board of Trustees of the Putnam funds on March 31, 2008. Upon his retirement in 2008, Mr. Stephens became entitled to receive annual retirement benefit payments from the funds commencing on January 15, 2009. Mr. Stephens was re-appointed to the Board of Trustees of the Putnam funds effective May 14, 2009, and in connection with his re-appointment, Mr. Stephens agreed to suspend the balance of his retirement benefit payments for the duration of his service as a Trustee, which concluded with his retirement on June 30, 2017.

(8) Mr. Reynolds is an "interested person" of the funds and Putnam Management.

Under a Retirement Plan for Trustees of the Putnam funds (the "Plan"), each Trustee who retires with at least five years of service as a Trustee of the funds is entitled to receive an annual retirement benefit equal to one-half of the average annual attendance and retainer fees paid to such Trustee for calendar years 2003, 2004 and 2005. This retirement benefit is payable during a Trustee's lifetime, beginning the year following retirement, for the number of years of service through December 31, 2006. A death benefit, also available under the Plan, ensures that the Trustee and his or her beneficiaries will receive benefit payments for the lesser of an aggregate period of (i) ten years, or (ii) such Trustee's total years of service.

The Plan Administrator (currently the Board Policy and Nominating Committee) may terminate or amend the Plan at any time, but no termination or amendment will result in

a reduction in the amount of benefits (i) currently being paid to a Trustee at the time of such termination or amendment, or (ii) to which a current Trustee would have been entitled had he or she retired immediately prior to such termination or amendment. The Trustees have terminated the Plan with respect to any Trustee first elected to the Board after 2003.

For additional information concerning the Trustees, see "Management" in Part II of this SAI.

## Share ownership

### Putnam Global Communications Fund

At November 30, 2018, the officers and Trustees of the fund as a group owned less than 1% of the outstanding shares of each class of the fund, except class Y shares of the fund, of which they owned 1.49%, and, except as noted below, no person owned of record or to the knowledge of the fund beneficially 5% or more of any class of shares of the fund.

<b>Putnam Global Communications Fund</b>		
<b>Class</b>	<b>Shareholder and address</b>	<b>Percentage owned</b>
A	NATIONAL FINANCIAL SERVICES LLC FOR THE EXCLUSIVE BENEFIT OF OUR CUSTOMERS 499 WASHINGTON BLVD ATTN: MUTUAL FUNDS DEPT 4TH FL JERSEY CITY, NJ 07310-2010	16.95%
A	PERSHING, LLC 1 PERSHING PLZ JERSEY CITY, NJ 07399-0001	16.21%
A	WELLS FARGO CLEARING SERVICES, LLC SPECIAL CUSTODY ACCT FOR THE EXCLUSIVE BENEFIT OF CUSTOMER 2801 MARKET ST SAINT LOUIS, MO 63103-2523	6.91%
A	AMERICAN ENTERPRISE INVESTMENT SERVICES 707 2ND AVE S MINNEAPOLIS, MN 55402-2405	5.93%
B	AMERICAN ENTERPRISE INVESTMENT SERVICES 707 2ND AVE S MINNEAPOLIS, MN 55402-2405	62.94%
B	PERSHING, LLC 1 PERSHING PLZ JERSEY CITY, NJ 07399-0001	14.46%
C	WELLS FARGO CLEARING SERVICES, LLC SPECIAL CUSTODY ACCT FOR THE EXCLUSIVE BENEFIT OF CUSTOMER 2801 MARKET ST SAINT LOUIS, MO 63103-2523	29.52%

<b>Putnam Global Communications Fund (cont.)</b>		
<b>Class</b>	<b>Shareholder and address</b>	<b>Percentage owned</b>
C	RAYMOND JAMES OMNIBUS FOR MUTUAL FUNDS HOUSE ACCT FIRM 92500015 ATTN: COURTNEY WALLER 880 CARILLON PKWY ST PETERSBURG, FL 33716-1100	16.89%
C	AMERICAN ENTERPRISE INVESTMENT SERVICES 707 2ND AVE S MINNEAPOLIS, MN 55402-2405	12.46%
C	NATIONAL FINANCIAL SERVICES LLC FOR THE EXCLUSIVE BENEFIT OF OUR CUSTOMERS 499 WASHINGTON BLVD ATTN: MUTUAL FUNDS DEPT 4TH FL JERSEY CITY, NJ 07310-2010	7.66%
C	PERSHING, LLC 1 PERSHING PLZ JERSEY CITY, NJ 07399-0001	6.51%
C	CHARLES SCHWAB & CO INC CLEARING ACCOUNT FOR THE EXCLUSIVE BENEFIT OF THEIR CUSTOMERS 101 MONTGOMERY ST SAN FRANCISCO, CA 94104-4151	5.59%
M	PERSHING, LLC 1 PERSHING PLZ JERSEY CITY, NJ 07399-0001	25.18%
M	LPL FINANCIAL --OMNIBUS CUSTOMER ACCOUNT-- ATTN: LINDSAY O'TOOLE 4707 EXECUTIVE DRIVE SAN DIEGO, CA 92121-3091	23.17%
M	LINDA K KIRKPATRICK ROTH IRA CONVERSION PLAN PO BOX 40908 TUSCON, AZ 85717-0908	19.66%
M	SUSAN M DECALUWE IRA ROLLOVER PLAN 66 BEECHWOOD AVE WATERTOWN, MA 02472-2732	15.05%
M	TERI M LEPAGE IRA PLAN 5 ANDREW LN BEAR, DE 19701-1542	5.87%
R	VOYA INSTITUTIONAL TRUST COMPANY-VOYA FINANCIAL 1 ORANGE WAY WINDSOR, CT 06095-4773	19.69%
R	NFS LLC FBO-ALERUS FINANCIAL NA CITY OF HOOVER DEFERRED COMPENSATION PLAN PO BOX 64535 SAINT PAUL, MN 55164-0535	19.96%

<b>Putnam Global Communications Fund (cont.)</b>		
<b>Class</b>	<b>Shareholder and address</b>	<b>Percentage owned</b>
R	ASCENSUS TRUST COMPANY FBO SEFRAS, INC 401(K) PENSION PLAN 222780 PO BOX 10758 FARGO, ND 58106-0758	17.62%
R	MLPF&S FOR THE SOLE BENEFIT OF ITS CUSTOMERS ATTN FUND ADMINISTRATION 4800 DEER LAKE DR E FL 3 JACKSONVILLE, FL 32246-6484	13.05%
R	AMFO & CO ATTN EMPLOYEE BENEFITS PO BOX 419692 KANSAS CITY, MO 64141-6692	9.42%
R	FIIOC FBO FIRST SOUND BANK 401(K) RETIREMENT SAVINGS PLAN 100 MAGELLAN WAY COVINGTON, KY 41015-1987	8.87%
Y	GREAT-WEST TRUST COMPANY, LLC THE PUTNAM RETIREMENT PLAN 8515 E ORCHARD RD # 2T2 GREENWOOD VILLAGE, CO 80111-5002	19.74%
Y	PERSHING, LLC 1 PERSHING PLZ JERSEY CITY, NJ 07399-0001	18.11%
Y	RAYMOND JAMES OMNIBUS FOR MUTUAL FUNDS HOUSE ACCT FIRM 92500015 ATTN: COURTNEY WALLER 880 CARILLON PKWY ST PETERSBURG, FL 33716-1100	15.31%
Y	AMERICAN ENTERPRISE INVESTMENT SERVICES 707 2ND AVE S MINNEAPOLIS, MN 55402-2405	10.10%
Y*	PUTNAM GLOBAL SECTOR FUND – CLASS A SHARES	8.39%
Y	NATIONAL FINANCIAL SERVICES LLC FOR THE EXCLUSIVE BENEFIT OF OUR CUSTOMERS 499 WASHINGTON BLVD ATTN: MUTUAL FUNDS DEPT 4TH FL JERSEY CITY, NJ 07310-2010	5.38%

\* The address for the name listed is: c/o Putnam Investments, 100 Federal Street, Boston, MA 02110.

Putnam Global Consumer Fund

At November 30, 2018, the officers and Trustees of the fund as a group owned less than 1% of the outstanding shares of each class of the fund, and, except as noted below, no person owned of record or to the knowledge of the fund beneficially 5% or more of any class of shares of the fund.

<b>Putnam Global Consumer Fund</b>		
<b>Class</b>	<b>Shareholder and address</b>	<b>Percentage owned</b>
A	NATIONAL FINANCIAL SERVICES LLC FOR THE EXCLUSIVE BENEFIT OF OUR CUSTOMERS 499 WASHINGTON BLVD ATTN: MUTUAL FUNDS DEPT 4TH FL JERSEY CITY, NJ 07310-2010	24.12%
A	PERSHING, LLC 1 PERSHING PLZ JERSEY CITY, NJ 07399-0001	14.23%
A	EDWARD JONES 12555 MANCHESTER RD SAINT LOUIS, MO 63131-3729	5.71%
A	LPL FINANCIAL --OMNIBUS CUSTOMER ACCOUNT-- ATTN: LINDSAY O'TOOLE 4707 EXECUTIVE DRIVE SAN DIEGO, CA 92121-3091	5.07%
B	AMERICAN ENTERPRISE INVESTMENT SERVICES 707 2ND AVE S MINNEAPOLIS, MN 55402-2405	29.27%
B	PERSHING, LLC 1 PERSHING PLZ JERSEY CITY, NJ 07399-0001	24.84%
B	NATIONAL FINANCIAL SERVICES LLC FOR THE EXCLUSIVE BENEFIT OF OUR CUSTOMERS 499 WASHINGTON BLVD ATTN: MUTUAL FUNDS DEPT 4TH FL JERSEY CITY, NJ 07310-2010	17.88%
B	LPL FINANCIAL --OMNIBUS CUSTOMER ACCOUNT-- ATTN: LINDSAY O'TOOLE 4707 EXECUTIVE DRIVE SAN DIEGO, CA 92121-3091	6.34%
C	PERSHING, LLC 1 PERSHING PLZ JERSEY CITY, NJ 07399-0001	19.79%
C	RAYMOND JAMES OMNIBUS FOR MUTUAL FUNDS HOUSE ACCT FIRM 92500015 ATTN: COURTNEY WALLER 880 CARILLON PKWY ST PETERSBURG, FL 33716-1100	16.93%

<b>Putnam Global Consumer Fund (cont.)</b>		
<b>Class</b>	<b>Shareholder and address</b>	<b>Percentage owned</b>
C	AMERICAN ENTERPRISE INVESTMENT SERVICES 707 2ND AVE S MINNEAPOLIS, MN 55402-2405	10.61%
C	NATIONAL FINANCIAL SERVICES LLC FOR THE EXCLUSIVE BENEFIT OF OUR CUSTOMERS 499 WASHINGTON BLVD ATTN: MUTUAL FUNDS DEPT 4TH FL JERSEY CITY, NJ 07310-2010	9.57%
C	LPL FINANCIAL --OMNIBUS CUSTOMER ACCOUNT-- ATTN: LINDSAY O'TOOLE 4707 EXECUTIVE DRIVE SAN DIEGO, CA 92121-3091	6.96%
C	WELLS FARGO CLEARING SERVICES, LLC SPECIAL CUSTODY ACCT FOR THE EXCLUSIVE BENEFIT OF CUSTOMER 2801 MARKET ST SAINT LOUIS, MO 63103-2523	6.86%
M	JAMES C DRAKE 18 TEABERRY PL BALLSTON SPA, NY 12020-4445	29.64%
M	AMERICAN ENTERPRISE INVESTMENT SERVICES 707 2ND AVE S MINNEAPOLIS, MN 55402-2405	25.88%
M	MICHAEL A SIMMONS IRA ROLLOVER PLAN 1003 BEECHWOOD DR MURPHY, TX 75094-4438	11.04%
M	CETERA INVESTMENT SVCS FBO RENEE E LLOYD IRA 2MQ-01171-14 230 HAMMES DR MT PLEASANT, WI 53406-3116	7.87%
M	NATIONAL FINANCIAL SERVICES LLC FOR THE EXCLUSIVE BENEFIT OF OUR CUSTOMERS 499 WASHINGTON BLVD ATTN: MUTUAL FUNDS DEPT 4TH FL JERSEY CITY, NJ 07310-2010	7.60%
M	SUSAN M DECALUWE IRA ROLLOVER PLAN 66 BEECHWOOD AVE WATERTOWN, MA 02472-2732	5.02%
R	MATRIX TRUST COMPANY CUSTOMER FBO SOUTHERN HEAT EXCHANGER CORP 717 17 <sup>TH</sup> ST. STE 1300 DENVER, CO 80202-3304	37.17%
R	PERSHING, LLC 1 PERSHING PLZ JERSEY CITY, NJ 07399-0001	33.82%
R	FIIOC FBO GEORGE WASHINGTON MEMORIAL PARK PROFIT SHARING 401(K) PLAN 100 MAGELLAN WAY COVINGTON, KY 41015-1987	19.13%

<b>Putnam Global Consumer Fund (cont.)</b>		
<b>Class</b>	<b>Shareholder and address</b>	<b>Percentage owned</b>
R	BEAU BALTZELL & SHERRY GILBERT TTEE GLADWIN A READ COMPANY 401(K) C/O FASCORE LLC 8515 E ORCHARD RD #2T2 GREENWOOD VILLAGE, CO 80111-5002	8.19%
Y	AMERICAN ENTERPRISE INVESTMENT SERVICES 707 2ND AVE S MINNEAPOLIS, MN 55402-2405	37.60%
Y	PUTNAM GLOBAL SECTOR FUND - CLASS A SHARES	17.28%
Y	PERSHING, LLC 1 PERSHING PLZ JERSEY CITY, NJ 07399-0001	9.96%
Y*	PUTNAM GLOBAL SECTOR FUND - CLASS Y SHARES	7.72%
Y	GREAT-WEST TRUST COMPANY, LLC THE PUTNAM RETIREMENT PLAN 8515 E ORCHARD RD # 2T2 GREENWOOD VILLAGE, CO 80111-5002	7.18%

\* The address or the name listed is: c/o Putnam Investments, 100 Federal Street, Boston, MA 02110

#### Putnam Global Financials Fund

At November 30, 2018, the officers and Trustees of the fund as a group owned less than 1% of the outstanding shares of each class of the fund, and, except as noted below, no person owned of record or to the knowledge of the fund beneficially 5% or more of any class of shares of the fund.

<b>Putnam Global Financials Fund</b>		
<b>Class</b>	<b>Shareholder and address</b>	<b>Percentage owned</b>
A	PERSHING, LLC 1 PERSHING PLZ JERSEY CITY, NJ 07399-0001	16.66%
A	NATIONAL FINANCIAL SERVICES LLC FOR THE EXCLUSIVE BENEFIT OF OUR CUSTOMERS 499 WASHINGTON BLVD ATTN: MUTUAL FUNDS DEPT 4TH FL JERSEY CITY, NJ 07310-2010	5.22%
A	WELLS FARGO CLEARING SERVICES, LLC SPECIAL CUSTODY ACCT FOR THE EXCLUSIVE BENEFIT OF CUSTOMER 2801 MARKET ST SAINT LOUIS, MO 63103-2523	5.00%



<b>Putnam Global Financials Fund (cont.)</b>		
<b>Class</b>	<b>Shareholder and address</b>	<b>Percentage owned</b>
B	PERSHING, LLC 1 PERSHING PLZ JERSEY CITY, NJ 07399-0001	37.49%
B	AMERICAN ENTERPRISE INVESTMENT SERVICES 707 2ND AVE S MINNEAPOLIS, MN 55402-2405	19.74%
B	NATIONAL FINANCIAL SERVICES LLC FOR THE EXCLUSIVE BENEFIT OF OUR CUSTOMERS 499 WASHINGTON BLVD ATTN: MUTUAL FUNDS DEPT 4TH FL JERSEY CITY, NJ 07310-2010	6.99%
B	WELLS FARGO CLEARING SERVICES, LLC SPECIAL CUSTODY ACCT FOR THE EXCLUSIVE BENEFIT OF CUSTOMER 2801 MARKET ST SAINT LOUIS, MO 63103-2523	5.30%
C	PERSHING, LLC 1 PERSHING PLZ JERSEY CITY, NJ 07399-0001	26.34%
C	WELLS FARGO CLEARING SERVICES, LLC SPECIAL CUSTODY ACCT FOR THE EXCLUSIVE BENEFIT OF CUSTOMER 2801 MARKET ST SAINT LOUIS, MO 63103-2523	17.77%
C	NATIONAL FINANCIAL SERVICES LLC FOR THE EXCLUSIVE BENEFIT OF OUR CUSTOMERS 499 WASHINGTON BLVD ATTN: MUTUAL FUNDS DEPT 4TH FL JERSEY CITY, NJ 07310-2010	14.93%
C	LPL FINANCIAL --OMNIBUS CUSTOMER ACCOUNT-- ATTN: LINDSAY O'TOOLE 4707 EXECUTIVE DRIVE SAN DIEGO, CA 92121-3091	11.00%
M	PUTNAM INVESTMENTS, LLC 100 FEDERAL ST BOSTON, MA 02110	97.10%
R	MLPF&S FOR THE SOLE BENEFIT OF ITS CUSTOMERS ATTN FUND ADMINISTRATION 4800 DEER LAKE DR E FL 3 JACKSONVILLE, FL 32246-6484	76.17%
R	PAI TRUST COMPANY INC WESTERN WAKE SURGICAL 401(K) P/S/ P 1300 ENTERPRISE DR. DE PERE, WI 54115-4934	13.21%

<b>Putnam Global Financials Fund (cont.)</b>		
<b>Class</b>	<b>Shareholder and address</b>	<b>Percentage owned</b>
Y*	PUTNAM GLOBAL SECTOR FUND - CLASS A SHARES	35.90%
Y*	PUTNAM GLOBAL SECTOR FUND - CLASS Y SHARES	16.04%
Y	GREAT-WEST TRUST COMPANY, LLC THE PUTNAM RETIREMENT PLAN 8515 E ORCHARD RD # 2T2 GREENWOOD VILLAGE, CO 80111-5002	10.64%
Y*	PUTNAM GLOBAL SECTOR FUND – CLASS C SHARES	7.39%
Y	WELLS FARGO CLEARING SERVICES, LLC SPECIAL CUSTODY ACCT FOR THE EXCLUSIVE BENEFIT OF CUSTOMER 2801 MARKET ST SAINT LOUIS, MO 63103-2523	5.34%

\* The address for the name listed is: c/o Putnam Investments, 100 Federal Street, Boston, MA 02110.

#### Putnam Global Health Care Fund

At November 30, 2018, the officers and Trustees of the fund as a group owned less than 1% of the outstanding shares of each class of the fund, except class Y shares of the fund, of which they owned 1.05%, and, except as noted below, no person owned of record or to the knowledge of the fund beneficially 5% or more of any class of shares of the fund.

<b>Putnam Global Health Care Fund</b>		
<b>Class</b>	<b>Shareholder and address</b>	<b>Percentage owned</b>
A	WELLS FARGO CLEARING SERVICES, LLC SPECIAL CUSTODY ACCT FOR THE EXCLUSIVE BENEFIT OF CUSTOMER 2801 MARKET ST SAINT LOUIS, MO 63103-2523	7.43%
A	NATIONAL FINANCIAL SERVICES LLC FOR THE EXCLUSIVE BENEFIT OF OUR CUSTOMERS 499 WASHINGTON BLVD ATTN: MUTUAL FUNDS DEPT 4TH FL JERSEY CITY, NJ 07310-2010	7.14%
A	PERSHING, LLC 1 PERSHING PLZ JERSEY CITY NJ 07399-0001	6.04%
A	MLPF&S FOR THE SOLE BENEFIT OF ITS CUSTOMERS ATTN FUND ADMINISTRATION 4800 DEER LAKE DR E FL 3 JACKSONVILLE, FL 32246-6484	6.00%

<b>Putnam Global Health Care Fund (cont.)</b>		
<b>Class</b>	<b>Shareholder and address</b>	<b>Percentage owned</b>
A	EDWARD D JONES & CO FOR THE BENEFIT OF CUSTOMERS 12555 MANCHESTER RD SAINT LOUIS, MO 63131-3729	5.66%
B	PERSHING, LLC 1 PERSHING PLZ JERSEY CITY, NJ 07399-0001	19.97%
B	AMERICAN ENTERPRISE INVESTMENT SERVICES 707 2ND AVE S MINNEAPOLIS, MN 55402-2405	17.10%
C	PERSHING, LLC 1 PERSHING PLZ JERSEY CITY, NJ 07399-0001	24.12%
C	AMERICAN ENTERPRISE INVESTMENT SERVICES 707 2ND AVE S MINNEAPOLIS, MN 55402-2405	8.52%
C	WELLS FARGO CLEARING SERVICES, LLC SPECIAL CUSTODY ACCT FOR THE EXCLUSIVE BENEFIT OF CUSTOMER 2801 MARKET ST SAINT LOUIS, MO 63103-2523	6.85%
C	CHARLES SCHWAB & CO INC CLEARING ACCOUNT FOR THE EXCLUSIVE BENEFIT OF THEIR CUSTOMERS 101 MONTGOMERY ST SAN FRANCISCO, CA 94104-4151	5.30%
M	PERSHING, LLC 1 PERSHING PLZ JERSEY CITY, NJ 07399-0001	11.72%
M	WELLS FARGO CLEARING SERVICES, LLC SPECIAL CUSTODY ACCT FOR THE EXCLUSIVE BENEFIT OF CUSTOMER 2801 MARKET ST SAINT LOUIS, MO 63103-2523	9.00%
M	NATIONAL FINANCIAL SERVICES LLC FOR THE EXCLUSIVE BENEFIT OF OUR CUSTOMERS 499 WASHINGTON BLVD ATTN: MUTUAL FUNDS DEPT 4TH FL JERSEY CITY, NJ 07310-2010	6.30%
M	EDWARD D JONES & CO FOR THE BENEFIT OF CUSTOMERS 12555 MANCHESTER RD SAINT LOUIS, MO 63131-3729	5.03%
R	MLPF&S FOR THE SOLE BENEFIT OF ITS CUSTOMERS ATTN FUND ADMINISTRATION 4800 DEER LAKE DR E FL 3 JACKSONVILLE, FL 32246-6484	9.71%
R	STATE STREET BANK & TRUST TTEE &/ OR CUSTOMER ADP ACCESS PRODUCT 1 LINCOLN ST BOSTON, MA 02111-2901	9.33%

<b>Putnam Global Health Care Fund (cont.)</b>		
<b>Class</b>	<b>Shareholder and address</b>	<b>Percentage owned</b>
R	NAPA ELECTRIC SHOP INC TTEE NAPA ELECTRIC SHOP INC 401K PSP 8515 E ORCHARD RD. #2T2 GREENWOOD VILLAGE, CO 80111-5002	8.54%
R	FIIOC FBO BAY EQUITY 401K PLAN 100 MAGELLAN WAY COVINGTON KY 41015-1987	7.26%
R	CARMEN CELLURA TEMP-PRESS INC 401K 4 WAYSHIRE DR PENFILED, NY 14526-2914	6.27%
Y	GREAT-WEST TRUST COMPANY, LLC THE PUTNAM RETIREMENT PLAN 8515 E ORCHARD RD # 2T2 GREENWOOD VILLAGE, CO 80111-5002	19.07%
Y	RAYMOND JAMES OMNIBUS FOR MUTUAL FUNDS HOUSE ACCT FIRM 92500015 ATTN: COURTNEY WALLER 880 CARILLON PKWY ST PETERSBURG, FL 33716-1100	11.85%
Y	PERSHING, LLC 1 PERSHING PLZ JERSEY CITY, NJ 07399-0001	10.36%
Y	MORGAN STANLEY SMITH BARNEY HARBORSIDE FINANCIAL CENTER PLAZA 2, 3RD FLOOR JERSEY CITY, NJ 07311	8.29%
Y	NATIONAL FINANCIAL SERVICES LLC FOR THE EXCLUSIVE BENEFIT OF OUR CUSTOMERS 499 WASHINGTON BLVD ATTN: MUTUAL FUNDS DEPT 4TH FL JERSEY CITY, NJ 07310-2010	6.18%
Y	AMERICAN ENTERPRISE INVESTMENT SERVICES 707 2ND AVE S MINNEAPOLIS, MN 55402-2405	5.38%

## Putnam Global Industrials Fund

At November 30, 2018, the officers and Trustees of the fund as a group owned less than 1% of the outstanding shares of each class of the fund, and, except as noted below, no person owned of record or to the knowledge of the fund beneficially 5% or more of any class of shares of the fund.

<b>Putnam Global Industrials Fund</b>		
<b>Class</b>	<b>Shareholder and address</b>	<b>Percentage owned</b>
A	WELLS FARGO CLEARING SERVICES, LLC SPECIAL CUSTODY ACCT FOR THE EXCLUSIVE BENEFIT OF CUSTOMER 2801 MARKET ST SAINT LOUIS, MO 63103-2523	13.00%
A	NATIONAL FINANCIAL SERVICES LLC FOR THE EXCLUSIVE BENEFIT OF OUR CUSTOMERS 499 WASHINGTON BLVD ATTN: MUTUAL FUNDS DEPT 4TH FL JERSEY CITY, NJ 07310-2010	10.74%
A	PERSHING, LLC 1 PERSHING PLZ JERSEY CITY, NJ 07399-0001	9.64%
B	PERSHING, LLC 1 PERSHING PLZ JERSEY CITY, NJ 07399-0001	51.63%
B	AMERICAN ENTERPRISE INVESTMENT SERVICES 707 2ND AVE S MINNEAPOLIS, MN 55402-2405	23.62%
C	WELLS FARGO CLEARING SERVICES, LLC SPECIAL CUSTODY ACCT FOR THE EXCLUSIVE BENEFIT OF CUSTOMER 2801 MARKET ST SAINT LOUIS, MO 63103-2523	27.59%
C	RAYMOND JAMES OMNIBUS FOR MUTUAL FUNDS HOUSE ACCT FIRM 92500015 ATTN: COURTNEY WALLER 880 CARILLON PKWY ST PETERSBURG, FL 33716-1100	21.21%
C	PERSHING, LLC 1 PERSHING PLZ JERSEY CITY, NJ 07399-0001	16.08%
C	MORGAN STANLEY SMITH BARNEY HARBORSIDE FINANCIAL CENTER PLAZA 2, 3RD FLOOR JERSEY CITY, NJ 07311	6.62%

<b>Putnam Global Industrials Fund (cont.)</b>		
<b>Class</b>	<b>Shareholder and address</b>	<b>Percentage owned</b>
C	NATIONAL FINANCIAL SERVICES LLC FOR THE EXCLUSIVE BENEFIT OF OUR CUSTOMERS 499 WASHINGTON BLVD ATTN: MUTUAL FUNDS DEPT 4TH FL JERSEY CITY, NJ 07310-2010	5.81%
C	LPL FINANCIAL --OMNIBUS CUSTOMER ACCOUNT-- ATTN: LINDSAY O'TOOLE 4707 EXECUTIVE DRIVE SAN DIEGO, CA 92121-3091	5.25%
M	LPL FINANCIAL --OMNIBUS CUSTOMER ACCOUNT-- ATTN: LINDSAY O'TOOLE 4707 EXECUTIVE DRIVE SAN DIEGO, CA 92121-3091	16.03%
M	JOHN T WARNER IRA ROLLOVER PLAN 3233 HOSPERS ST GRAND BLANC, MI 48439-8137	12.68%
M	MARCUS TELLEVIK IRA PLAN 12610 MADISON ST NE BLAINE, MN 55434-3172	12.48%
M	ASCENSUS TRUST COMPANY FBO BARTLETT LAW FIRM IND 401K PROFIT SHARING PLAN 484 83 PO BOX 10758 FARGO, ND 58106-0758	8.32%
M	RAYMOND JAMES OMNIBUS FOR MUTUAL FUNDS HOUSE ACCT FIRM 92500015 ATTN: COURTNEY WALLER 880 CARILLON PKWY ST PETERSBURG, FL 33716-1100	8.21%
M	SHARON K WINNIE-VANN IRA ROLLOVER PLAN PO BOX 221 SENECA, MO 64865-0221	5.10%
R	MLPF&S FOR THE SOLE BENEFIT OF ITS CUSTOMERS ATTN FUND ADMINISTRATION 4800 DEER LAKE DR E FL 3 JACKSONVILLE, FL 32246-6484	50.59%
R	CBNA CUSTOMER FBO STATE MOTORS INC PENSION PLAN 401K PLAN 6 RHOADS DRIVE STE 7 UTICA, NY 13502-6317	20.18%

<b>Putnam Global Industrials Fund (cont.)</b>		
<b>Class</b>	<b>Shareholder and address</b>	<b>Percentage owned</b>
R	RAYMOND JAMES OMNIBUS FOR MUTUAL FUNDS HOUSE ACCT FIRM 92500015 ATTN: COURTNEY WALLER 880 CARILLON PKWY ST PETERSBURG, FL 33716-1100	18.66%
R	AMFO & CO CUST ATTN EMPLOYEE BENEFITS PO BOX 419 KANSAS CITY MO 64141-6692692	5.15%
R6	GREAT-WEST TRUST COMPANY, LLC THE PUTNAM RETIREMENT PLAN 8515 E ORCHARD RD # 2T2 GREENWOOD VILLAGE, CO 80111-5002	100.00%
Y	CHARLES SCHWAB & CO INC CLEARING ACCOUNT FOR THE EXCLUSIVE BENEFIT OF THEIR CUSTOMERS 101 MONTGOMERY ST SAN FRANCISCO, CA 94104-4151	26.35%
Y	NATIONAL FINANCIAL SERVICES LLC FOR THE EXCLUSIVE BENEFIT OF OUR CUSTOMERS 499 WASHINGTON BLVD ATTN: MUTUAL FUNDS DEPT 4TH FL JERSEY CITY, NJ 07310-2010	12.84%
Y	WELLS FARGO CLEARING SERVICES, LLC SPECIAL CUSTODY ACCT FOR THE EXCLUSIVE BENEFIT OF CUSTOMER 2801 MARKET ST SAINT LOUIS, MO 63103-2523	10.36%
Y	PERSHING, LLC 1 PERSHING PLZ JERSEY CITY, NJ 07399-0001	9.63%
Y	LPL FINANCIAL --OMNIBUS CUSTOMER ACCOUNT-- ATTN: LINDSAY O'TOOLE 4707 EXECUTIVE DRIVE SAN DIEGO, CA 92121-3091	7.55%
Y	RAYMOND JAMES OMNIBUS FOR MUTUAL FUNDS HOUSE ACCT FIRM 92500015 ATTN: COURTNEY WALLER 880 CARILLON PKWY ST PETERSBURG, FL 33716-1100	6.23%
Y*	PUTNAM GLOBAL SECTOR FUND – CLASS A SHARES	5.15%

\* The address for the name listed is: c/o Putnam Investments, 100 Federal Street, Boston, MA 02110.

Putnam Global Natural Resources Fund

At November 30, 2018, the officers and Trustees of the fund as a group owned less than 1% of the outstanding shares of each class of the fund, except class Y shares of the fund, of which they owned 1.30%, and, except as noted below, no person owned of record or to the knowledge of the fund beneficially 5% or more of any class of shares of the fund.

<b>Putnam Global Natural Resources Fund</b>		
<b>Class</b>	<b>Shareholder and address</b>	<b>Percentage owned</b>
A	PERSHING, LLC 1 PERSHING PLZ JERSEY CITY, NJ 07399-0001	7.58%
A	NATIONAL FINANCIAL SERVICES LLC FOR THE EXCLUSIVE BENEFIT OF OUR CUSTOMERS 499 WASHINGTON BLVD ATTN: MUTUAL FUNDS DEPT 4TH FL JERSEY CITY, NJ 07310-2010	5.99%
B	PERSHING, LLC 1 PERSHING PLZ JERSEY CITY, NJ 07399-0001	14.06%
B	AMERICAN ENTERPRISE INVESTMENT SERVICES 707 2ND AVE S MINNEAPOLIS, MN 55402-2405	10.18%
B	NATIONAL FINANCIAL SERVICES LLC FOR THE EXCLUSIVE BENEFIT OF OUR CUSTOMERS 499 WASHINGTON BLVD ATTN: MUTUAL FUNDS DEPT 4TH FL JERSEY CITY, NJ 07310-2010	7.86%
B	LPL FINANCIAL --OMNIBUS CUSTOMER ACCOUNT-- ATTN: LINDSAY O'TOOLE 4707 EXECUTIVE DRIVE SAN DIEGO, CA 92121-3091	7.18%
C	PERSHING, LLC 1 PERSHING PLZ JERSEY CITY, NJ 07399-0001	21.61%
C	CHARLES SCHWAB & CO INC CLEARING ACCOUNT FOR THE EXCLUSIVE BENEFIT OF THEIR CUSTOMERS 101 MONTGOMERY ST SAN FRANCISCO, CA 94104-4151	8.48%
C	NATIONAL FINANCIAL SERVICES LLC FOR THE EXCLUSIVE BENEFIT OF OUR CUSTOMERS 499 WASHINGTON BLVD ATTN: MUTUAL FUNDS DEPT 4TH FL JERSEY CITY, NJ 07310-2010	7.89%



<b>Putnam Global Natural Resources Fund (cont.)</b>		
<b>Class</b>	<b>Shareholder and address</b>	<b>Percentage owned</b>
C	WELLS FARGO CLEARING SERVICES, LLC SPECIAL CUSTODY ACCT FOR THE EXCLUSIVE BENEFIT OF CUSTOMER 2801 MARKET ST SAINT LOUIS, MO 63103-2523	6.68%
C	RBC CAPITAL MARKETS, LLC MUTUAL FUND OMNIBUS ATTN MUTUAL FUND OPS MANAGER PROCESSING 60 S 6TH ST STE 700 # -P08 MINNEAPOLIS, MN 55402-4413	5.63%
M	MATRIX TRUST COMPANY CUSTOMER FBO DELTA CONCRETE & INDUSTRIAL CONTRACT 717 <sup>TH</sup> ST SUITE 1300 DENVER, CO 80202-3304	10.74%
M	LPL FINANCIAL --OMNIBUS CUSTOMER ACCOUNT-- ATTN: LINDSAY O'TOOLE 4707 EXECUTIVE DRIVE SAN DIEGO, CA 92121-3091	7.13%
M	PERSHING, LLC 1 PERSHING PLZ JERSEY CITY, NJ 07399-0001	5.08%
R	MLPF&S FOR THE SOLE BENEFIT OF ITS CUSTOMERS ATTN FUND ADMINISTRATION 4800 DEER LAKE DR E FL 3 JACKSONVILLE, FL 32246-6484	30.19%
R	RELIANCE TRUST CO CUSTODIAN FBO MASSMUTUAL OMNIBUS PLL/SMF P.O. BOX 48529 ATLANTA, GA 30362-1529	8.25%
Y	GREAT-WEST TRUST COMPANY, LLC THE PUTNAM RETIREMENT PLAN 8515 E ORCHARD RD # 2T2 GREENWOOD VILLAGE, CO 80111-5002	32.43%
Y*	PUTNAM GLOBAL SECTOR FUND – CLASS A SHARES	13.06%
Y	AMERICAN ENTERPRISE INVESTMENT SERVICES 707 2ND AVE S MINNEAPOLIS, MN 55402-2405	8.34%
Y	NATIONAL FINANCIAL SERVICES LLC FOR THE EXCLUSIVE BENEFIT OF OUR CUSTOMERS 499 WASHINGTON BLVD ATTN: MUTUAL FUNDS DEPT 4TH FL JERSEY CITY, NJ 07310-2010	6.00%
Y*	PUTNAM GLOBAL SECTOR FUND – CLASS Y SHARES	5.83%
Y	PERSHING, LLC 1 PERSHING PLZ JERSEY CITY, NJ 07399-0001	5.80%

\* The address for the name listed is: c/o Putnam Investments, 100 Federal Street, Boston, MA 02110.

## Putnam Global Technology Fund

At November 30, 2018, the officers and Trustees of the fund as a group owned less than 1% of the outstanding shares of each class of the fund, except class R6 shares of the fund, of which they owned 1.46%, and, except as noted below, no person owned of record or to the knowledge of the fund beneficially 5% or more of any class of shares of the fund.

<b>Putnam Global Technology Fund</b>		
<b>Class</b>	<b>Shareholder and address</b>	<b>Percentage owned</b>
A	NATIONAL FINANCIAL SERVICES LLC FOR THE EXCLUSIVE BENEFIT OF OUR CUSTOMERS 499 WASHINGTON BLVD ATTN: MUTUAL FUNDS DEPT 4TH FL JERSEY CITY, NJ 07310-2010	29.25%
A	PERSHING, LLC 1 PERSHING PLZ JERSEY CITY, NJ 07399-0001	8.46%
A	CHARLES SCHWAB & CO INC CLEARING ACCOUNT FOR THE EXCLUSIVE BENEFIT OF THEIR CUSTOMERS 101 MONTGOMERY ST SAN FRANCISCO, CA 94104-4151	8.31%
B	PERSHING, LLC 1 PERSHING PLZ JERSEY CITY, NJ 07399-0001	30.21%
B	AMERICAN ENTERPRISE INVESTMENT SERVICES 707 2ND AVE S MINNEAPOLIS, MN 55402-2405	23.15%
B	NATIONAL FINANCIAL SERVICES LLC FOR THE EXCLUSIVE BENEFIT OF OUR CUSTOMERS 499 WASHINGTON BLVD ATTN: MUTUAL FUNDS DEPT 4TH FL JERSEY CITY, NJ 07310-2010	5.41%
C	PERSHING, LLC 1 PERSHING PLZ JERSEY CITY, NJ 07399-0001	24.48%
C	WELLS FARGO CLEARING SERVICES, LLC SPECIAL CUSTODY ACCT FOR THE EXCLUSIVE BENEFIT OF CUSTOMER 2801 MARKET ST SAINT LOUIS, MO 63103-2523	16.02%

<b>Putnam Global Technology Fund (cont.)</b>		
<b>Class</b>	<b>Shareholder and address</b>	<b>Percentage owned</b>
C	RAYMOND JAMES OMNIBUS FOR MUTUAL FUNDS HOUSE ACCT FIRM 92500015 ATTN: COURTNEY WALLER 880 CARILLON PKWY ST PETERSBURG, FL 33716-1100	7.94%
C	AMERICAN ENTERPRISE INVESTMENT SERVICES 707 2ND AVE S MINNEAPOLIS, MN 55402-2405	7.80%
C	MORGAN STANLEY SMITH BARNEY HARBORSIDE FINANCIAL CENTER PLAZA 2, 3RD FLOOR JERSEY CITY, NJ 07311	6.31%
M	EDWARD D JONES & CO FOR THE BENEFIT OF CUSTOMERS 12555 MANCHESTER RD SAINT LOUIS, MO 63131-3729	56.10%
M	AMERICAN ENTERPRISE INVESTMENT SERVICES 707 2ND AVE S MINNEAPOLIS, MN 55402-2405	15.13%
R	STATE STREET BANK & TRUST TTEE &/ OR CUSTOMER ADP ACCESS PRODUCT 1 LINCOLN ST BOSTON, MA 02111-2901	14.42%
R	PERSHING, LLC 1 PERSHING PLZ JERSEY CITY, NJ 07399-0001	11.07%
R	ASCENSUS TRUST COMPANY FBO FLOWONIX MEDICAL INC. 401(K) PLAN PO BOX 10758 FARGO, ND 58106-0758	6.47%
R	MID ATLANTIC TRUST COMPANY SALT LAKE MAILING & PRINTING 401K PROFIT SHARING PLAN & TRUST 1251 WATERFRONT PL SUITE 525 PITTSBURGH, PA 15222-4228	6.41%
R	MID ATLANTIC TRUST COMPANY BRIAN F GRUBER MD LTD 401(K) PROFIT SHARING PLAN & TRUST 1251 WATERFRONT PL SUITE 525 PITTSBURGH, PA 15222-4228	6.19%
R	AMFO & CO ATTN EMPLOYEE BENEFITS PO BOX 419692 KANSAS CITY, MO 64141-6692	5.51%
R	ASCENSUS TRUST COMPANY FBO WASHITA VALLEY BANK 689494 PO BOX 10758 FARGO, ND 58106-0758	5.39%

<b>Putnam Global Technology Fund (cont.)</b>		
<b>Class</b>	<b>Shareholder and address</b>	<b>Percentage owned</b>
R6	GREAT-WEST TRUST COMPANY, LLC THE PUTNAM RETIREMENT PLAN 8515 E ORCHARD RD # 2T2 GREENWOOD VILLAGE, CO 80111-5002	95.56%
Y	NATIONAL FINANCIAL SERVICES LLC FOR THE EXCLUSIVE BENEFIT OF OUR CUSTOMERS 499 WASHINGTON BLVD ATTN: MUTUAL FUNDS DEPT 4TH FL JERSEY CITY, NJ 07310-2010	19.35%
Y	PERSHING, LLC 1 PERSHING PLZ JERSEY CITY, NJ 07399-0001	18.38%
Y	LPL FINANCIAL --OMNIBUS CUSTOMER ACCOUNT-- ATTN: LINDSAY O'TOOLE 4707 EXECUTIVE DRIVE SAN DIEGO, CA 92121-3091	11.44%
Y	AMERICAN ENTERPRISE INVESTMENT SERVICES 707 2ND AVE S MINNEAPOLIS, MN 55402-2405	11.20%
Y	CHARLES SCHWAB & CO INC CLEARING ACCOUNT FOR THE EXCLUSIVE BENEFIT OF THEIR CUSTOMERS 101 MONTGOMERY ST SAN FRANCISCO, CA 94104-4151	9.64%
Y	WELLS FARGO CLEARING SERVICES, LLC SPECIAL CUSTODY ACCT FOR THE EXCLUSIVE BENEFIT OF CUSTOMER 2801 MARKET ST SAINT LOUIS, MO 63103-2523	6.40%

## Putnam Global Utilities Fund

At November 30, 2018, the officers and Trustees of the fund as a group owned less than 1% of the outstanding shares of each class of the fund, except class Y shares of the fund, of which they owned 1.02%, and, except as noted below, no person owned of record or to the knowledge of the fund beneficially 5% or more of any class of shares of the fund.

<b>Putnam Global Utilities Fund</b>		
<b>Class</b>	<b>Shareholder and address</b>	<b>Percentage owned</b>
A	EDWARD JONES 12555 MANCHESTER RD SAINT LOUIS, MO 63131-3729	8.10%
A	PERSHING, LLC 1 PERSHING PLZ JERSEY CITY, NJ 07399-0001	7.37%
A	WELLS FARGO CLEARING SERVICES, LLC SPECIAL CUSTODY ACCT FOR THE EXCLUSIVE BENEFIT OF CUSTOMER 2801 MARKET ST SAINT LOUIS, MO 63103-2523	5.80%
B	PERSHING, LLC 1 PERSHING PLZ JERSEY CITY NJ 07399-0001	13.40%
B	NATIONAL FINANCIAL SERVICES LLC FOR THE EXCLUSIVE BENEFIT OF OUR CUSTOMERS 499 WASHINGTON BLVD ATTN: MUTUAL FUNDS DEPT 4TH FL JERSEY CITY, NJ 07310-2010	9.53%
B	MLPF&S FOR THE SOLE BENEFIT OF ITS CUSTOMERS ATTN FUND ADMINISTRATION 4800 DEER LAKE DR E FL 3 JACKSONVILLE, FL 32246-6484	6.53%
B	WELLS FARGO CLEARING SERVICES, LLC SPECIAL CUSTODY ACCT FOR THE EXCLUSIVE BENEFIT OF CUSTOMER 2801 MARKET ST SAINT LOUIS, MO 63103-2523	6.24%
C	PERSHING, LLC 1 PERSHING PLZ JERSEY CITY, NJ 07399-0001	19.83%

<b>Putnam Global Utilities Fund (cont.)</b>		
<b>Class</b>	<b>Shareholder and address</b>	<b>Percentage owned</b>
C	WELLS FARGO CLEARING SERVICES, LLC SPECIAL CUSTODY ACCT FOR THE EXCLUSIVE BENEFIT OF CUSTOMER 2801 MARKET ST SAINT LOUIS, MO 63103-2523	14.08%
C	HOLY TRINITY LUTHERAN CHURCH CA 403(B) PLAN A/C WILLIAM M CWIRLA 1843 PONTENOVA AVE HACIENDA HTS, CA 91745-3524	6.47%
M	EDWARD JONES 12555 MANCHESTER RD SAINT LOUIS, MO 63131-3729	22.79%
M	STIFEL NICOLAUS & CO INC 501 N BROADWAY SAINT LOUIS, MO 63102-2188	12.03%
R	MLPF&S FOR THE SOLE BENEFIT OF ITS CUSTOMERS ATTN FUND ADMINISTRATION 4800 DEER LAKE DR E FL 3 JACKSONVILLE, FL 32246-6484	38.50%
R	MID ATLANTIC TRUST COMPANY TNR TECHNICAL 401(K) PROFIT SHARING PLAN & TRUST 1251 WATERFRONT PL SUITE 525 PITTSBURGH, PA 15222-4228	22.03%
R	WERNER REINARTZ TTEE FBO REYNOLDS & REYNOLDS ELECTRONICS 401 C/O FASCORE LLC 8515 E ORCHARD ROAD #2T2 GREENWOOD VILLAGE, CO 80111-5002	8.04%
R	SCOTT PIO TTEE FBO LUDLOW CONSTRUCTION CO INC 401K C/O FASCORE LLC 8515 E ORCHARD ROAD #2T2 GREENWOOD VILLAGE, CO 80111-5002	7.31%
R	MATRIX TRUST COMPANY CUST FBO MISCOR GROUP 401(K) PLAN & TRUST 717 17TH STREET SUITE 1300 DENVER CO 80202-3304	5.42%
R	VOYA INSTITUTIONAL TRUST COMPANY FBO VOYA FINANCIAL 1 ORANGE WAY WINDSOR CT 06095-4773	5.34%
Y	GREAT-WEST TRUST COMPANY, LLC THE PUTNAM RETIREMENT PLAN 8515 E ORCHARD RD # 2T2 GREENWOOD VILLAGE, CO 80111-5002	31.64%
Y	PERSHING, LLC 1 PERSHING PLZ JERSEY CITY, NJ 07399-0001	9.23%

<b>Putnam Global Utilities Fund (cont.)</b>		
<b>Class</b>	<b>Shareholder and address</b>	<b>Percentage owned</b>
Y*	PUTNAM GLOBAL SECTOR FUND – CLASS A SHARES	7.86%
Y	MORGAN STANLEY SMITH BARNEY HARBORSIDE FINANCIAL CENTER PLAZA 2, 3RD FLOOR JERSEY CITY, NJ 07311	6.67%
Y	WELLS FARGO CLEARING SERVICES, LLC SPECIAL CUSTODY ACCT FOR THE EXCLUSIVE BENEFIT OF CUSTOMER 2801 MARKET ST SAINT LOUIS, MO 63103-2523	5.19%

\* The address for the name listed is: c/o Putnam Investments, 100 Federal Street, Boston, MA 02110.

### **Distribution fees**

During fiscal 2018, each fund paid the following 12b-1 fees to Putnam Retail Management:

	<b>Class A</b>	<b>Class B</b>	<b>Class C</b>	<b>Class M</b>	<b>Class R</b>
Global Communications Fund	\$32,373	\$24,197	\$27,744	\$474	\$1,621
Global Consumer Fund	\$71,762	\$34,795	\$73,945	\$2,141	\$1,635
Global Financials Fund	\$35,558	\$13,562	\$32,498	\$589	\$5,734
Global Health Care Fund	\$3,102,846	\$246,681	\$421,883	\$81,474	\$12,509
Global Industrials Fund	\$116,890	\$44,195	\$104,673	\$1,067	\$1,520
Global Natural Resources Fund	\$289,331	\$53,501	\$90,720	\$15,173	\$40,260
Global Technology Fund	\$405,935	\$85,930	\$276,697	\$19,970	\$5,353
Global Utilities Fund	\$375,024	\$34,395	\$40,000	\$8,878	\$2,746

## Class A sales charges and contingent deferred sales charges

Putnam Retail Management received sales charges with respect to class A shares in the following amounts during the periods indicated:

Fund name	Fiscal year	Sales charges retained by Putnam		
		Total front-end sales charges	Retail Management after dealer concessions	Contingent deferred sales charges
Global Communications Fund	2018	\$30,728	\$5,514	\$0
	2017	\$77,237	\$6,690	\$0
	2016	\$95,469	\$18,632	\$0
Global Consumer Fund	2018	\$154,716	\$27,771	\$21
	2017	\$152,360	\$17,490	\$0
	2016	\$162,097	\$28,110	\$0
Global Financials Fund	2018	\$71,855	\$12,448	\$0
	2017	\$70,717	\$11,112	\$0
	2016	\$60,169	\$9,548	\$0
Global Health Care Fund	2018	\$371,968	\$69,346	\$60
	2017	\$730,296	\$70,616	\$78
	2016	\$856,919	\$153,467	\$21
Global Industrials Fund	2018	\$275,755	\$48,686	\$0
	2017	\$109,193	\$51,530	\$0
	2016	\$47,790	\$7,729	\$0



Global Natural Resources Fund	2018	\$65,117	\$13,014	\$58
	2017	\$113,750	\$14,226	\$171
	2016	\$134,891	\$24,330	\$13
Global Technology Fund	2018	\$976,366	\$173,255	\$0
	2017	\$454,114	\$86,171	\$0
	2016	\$221,936	\$40,694	\$0
Global Utilities Fund	2018	\$61,025	\$10,919	\$13
	2017	\$49,695	\$8,446	\$1
	2016	\$101,771	\$16,918	\$30

### **Class B contingent deferred sales charges**

Putnam Retail Management received contingent deferred sales charges upon redemptions of class B shares in the following amounts during the periods indicated:

<b>Fund name</b>	<b>Fiscal year</b>	<b>Contingent deferred sales charges</b>
Global Communications Fund	2018	\$1,394
	2017	\$2,556
	2016	\$499
Global Consumer Fund	2018	\$276
	2017	\$745
	2016	\$334
Global Financials Fund	2018	\$130
	2017	\$52
	2016	\$625
Global Health Care Fund	2018	\$9,836
	2017	\$18,552
	2016	\$17,642
Global Industrials Fund	2018	\$3,679
	2017	\$2,272
	2016	\$1,013

Global Natural Resources Fund	2018	\$3,670
	2017	\$1,909
	2016	\$2,798
Global Technology Fund	2018	\$2,286
	2017	\$3,538
	2016	\$2,462
Global Utilities Fund	2018	\$2,004
	2017	\$4,311
	2016	\$3,438

### **Class C contingent deferred sales charges**

Putnam Retail Management received contingent deferred sales charges upon redemptions of class C shares in the following amounts during the periods indicated:

<b>Fund name</b>	<b>Fiscal year</b>	<b>Contingent deferred sales charges</b>
Global Communications Fund	2018	\$92
	2017	\$46
	2016	\$1,182
Global Consumer Fund	2018	\$153
	2017	\$50
	2016	\$129
Global Financials Fund	2018	\$28
	2017	\$98
	2016	\$50

Global Health Care Fund	2018	\$731
	2017	\$1,027
	2016	\$1,576
Global Industrials Fund	2018	\$28
	2017	\$276
	2016	\$7
Global Natural Resources Fund	2018	\$154
	2017	\$157
	2016	\$324
Global Technology Fund	2018	\$548
	2017	\$424
	2016	\$195
Global Utilities Fund	2018	\$1,205
	2017	\$33
	2016	\$0

### **Class M sales charges**

Putnam Retail Management received sales charges with respect to class M shares in the following amounts during the periods indicated:

<b>Fund name</b>	<b>Fiscal year</b>	<b>Total front-end sales charges</b>	<b>Sales charges retained by Putnam Retail Management after dealer concessions</b>
Global Communications Fund	2018	\$38	\$12
	2017	\$829	\$13
	2016	\$814	\$121
Global Consumer Fund	2018	\$209	\$43
	2017	\$3,337	\$1,176
	2016	\$1,486	\$280

Global Financials Fund	2018	\$20	\$2
	2017	\$109	\$3
	2016	\$353	\$70
Global Health Care Fund	2018	\$3,765	\$771
	2017	\$5,072	\$782
	2016	\$9,808	\$1,587
Global Industrials Fund	2018	\$283	\$111
	2017	\$297	\$371
	2016	\$187	\$49
Global Natural Resources Fund	2018	\$302	\$94
	2017	\$1,245	\$315
	2016	\$1,041	\$312
Global Technology Fund	2018	\$20,433	\$3,424
	2017	\$16,386	\$3,863
	2016	\$1,149	\$232
Global Utilities Fund	2018	\$986	\$53
	2017	\$413	\$72
	2016	\$387	\$77

### **Investor servicing fees**

During the 2018 fiscal year, each fund incurred the following fees for investor servicing provided by Putnam Investor Services, Inc.:

Global Communications Fund	\$55,167
Global Consumer Fund	\$138,062
Global Financials Fund	\$62,268
Global Health Care Fund	\$2,273,655
Global Industrials Fund	\$192,583
Global Natural Resources Fund	\$388,357
Global Technology Fund	\$558,124
Global Utilities Fund	\$320,299

## PORTFOLIO MANAGERS

### Other accounts managed

The following tables show the number and approximate assets of other investment accounts (or portions of investment accounts) that each fund's portfolio managers managed as of the funds' most recent fiscal year-end. The other accounts may include accounts for which the individuals were not designated as a portfolio manager. Unless noted, none of the other accounts pays a fee based on the account's performance.

### Global Communications Fund

Portfolio manager	Other SEC-registered open-end and closed-end funds		Other accounts that pool assets from more than one client		Other accounts (including separate accounts, managed account programs and single-sponsor defined contribution plan offerings)	
	Number of accounts	Assets	Number of accounts	Assets	Number of accounts	Assets
Vivek Gandhi	4*	\$1,444,800,000	3	\$89,400,000	4	\$215,000,000

\*1 account, with total assets of \$933,300,000, pays an advisory fee based on account performance.

## Global Consumer Fund

Portfolio manager	Other SEC-registered open-end and closed-end funds		Other accounts that pool assets from more than one client		Other accounts (including separate accounts, managed account programs and single-sponsor defined contribution plan offerings)	
	Number of accounts	Assets	Number of accounts	Assets	Number of accounts	Assets
Walter Scully	6	\$15,742,200,000	2	\$126,500,000	6	\$139,200,000

## Global Financials Fund

Portfolio manager	Other SEC-registered open-end and closed-end funds		Other accounts that pool assets from more than one client		Other accounts (including separate accounts, managed account programs and single-sponsor defined contribution plan offerings)	
	Number of accounts	Assets	Number of accounts	Assets	Number of accounts	Assets
Jacquelyne Cavanaugh	5*	\$3,057,100,000	0	\$0	1	\$900,000

\* 2 accounts, with total assets of \$2,506,800,000, pay an advisory fee based on account performance.

## Global Health Care Fund

Portfolio managers	Other SEC-registered open-end and closed-end funds		Other accounts that pool assets from more than one client		Other accounts (including separate accounts, managed account programs and single-sponsor defined contribution plan offerings)	
	Number of accounts	Assets	Number of accounts	Assets	Number of accounts	Assets
Michael Maguire	2	\$163,000,000	1	\$8,100,000	1	\$3,800,000
Samuel Cox	8*	\$6,981,900,000	2	\$438,300,000	3	\$1,892,000,000

\* 1 account, with total assets of \$5,348,300,000, pays an advisory fee based on account performance.

## Global Industrials Fund

Portfolio manager	Other SEC-registered open-end and closed-end funds		Other accounts that pool assets from more than one client		Other accounts (including separate accounts, managed account programs and single-sponsor defined contribution plan offerings)	
	Number of accounts	Assets	Number of accounts	Assets	Number of accounts	Assets
Daniel Schiff	2	\$170,200,000	0	\$0	1	\$200,000

## Global Natural Resources Fund

Portfolio managers	Other SEC-registered open-end and closed-end funds		Other accounts that pool assets from more than one client		Other accounts (including separate accounts, managed account programs and single-sponsor defined contribution plan offerings)	
	Number of accounts	Assets	Number of accounts	Assets	Number of accounts	Assets
Daniel Schiff	2	\$133,000,000	0	\$0	1	\$200,000
Ryan Kauppila	1	\$17,500,000	0	\$0	1	\$100,000

## Global Technology Fund

Portfolio managers	Other SEC-registered open-end and closed-end funds		Other accounts that pool assets from more than one client		Other accounts (including separate accounts, managed account programs and single-sponsor defined contribution plan offerings)	
	Number of accounts	Assets	Number of accounts	Assets	Number of accounts	Assets
Neil Desai	3	\$550,400,000	1	\$286,100,000	1	\$3,600,000
Di Yao	0	\$0	0	\$0	1	\$100,000

## Global Utilities Fund

Portfolio manager	Other SEC-registered open-end and closed-end funds		Other accounts that pool assets from more than one client		Other accounts (including separate accounts, managed account programs and single-sponsor defined contribution plan offerings)	
	Number of accounts	Assets	Number of accounts	Assets	Number of accounts	Assets
William Rives	3	\$102,700,000	0	\$0	1	\$100,000

See “Management—Portfolio Transactions—Potential conflicts of interest in managing multiple accounts” in Part II of this SAI for information on how Putnam Management addresses potential conflicts of interest resulting from an individual’s management of more than one account.

### Compensation of portfolio managers

Putnam’s goal for its products and investors is to deliver strong performance versus peers or performance ahead of the applicable benchmark, depending on the product, over a rolling 3-year period. Portfolio managers are evaluated and compensated, in part, based on their performance relative to this goal across specified products they manage. In addition to their individual performance, evaluations take into account the performance of their group and a subjective component.

Each portfolio manager is assigned an industry-competitive incentive compensation target consistent with this goal and evaluation framework. Actual incentive compensation may be higher or lower than the target, based on individual, group, and subjective performance, and may also reflect the performance of Putnam as a firm. Typically, performance is measured over the lesser of three years or the length of time a portfolio manager has managed a product.

Incentive compensation includes a cash bonus and may also include grants of deferred cash, stock or options. In addition to incentive compensation, portfolio managers receive fixed annual salaries typically based on level of responsibility and experience.

For these funds, Putnam evaluates performance based on the fund’s pre-tax return relative to the following benchmarks:



<b>Fund</b>	<b>Benchmark</b>
Putnam Global Communications Fund	MSCI World Communication Services Index (ND)*
Putnam Global Consumer Fund	MSCI World Consumer Discretionary and Consumer Staples Index (ND)
Putnam Global Financials Fund	MSCI World Financials and Real Estate Index (ND)
Putnam Global Health Care Fund	MSCI World Health Care Index (ND)
Putnam Global Industrials Fund	MSCI World Industrials Index (ND)
Putnam Global Natural Resources Fund	MSCI World Energy and Materials Index (ND)
Putnam Global Technology Fund	MSCI World Information Technology Index (ND)
Putnam Global Utilities Fund	MSCI World Utilities Index (ND)

\* Before November 30, 2018, the MSCI World Communication Services Index (ND) was known as the MSCI World Telecommunication Services Index (ND). The name and composition of the index was changed effective November 30, 2018 to reflect MSCI's decision to broaden the telecommunication services sector to add selected companies previously classified in the consumer discretionary or information technology sectors and to rename it the communication services sector.

### **Ownership of securities**

The dollar range of shares of each fund owned by each portfolio manager at the end of the fund's last fiscal year, including investments by immediate family members and amounts invested through retirement and deferred compensation plans, was as follows:

<b>Fund</b>	<b>Portfolio manager(s)</b>	<b>Dollar range of shares owned</b>
Global Communications Fund	Vivek Gandhi	\$0
Global Consumer Fund	Walter Scully	\$100,001-\$500,000
Global Financials Fund	Jacquelyne Cavanaugh	\$100,001-\$500,000
Global Health Care Fund	Samuel Cox	\$50,001-\$100,000
	Michael Maguire	\$100,001-\$500,000
Global Industrials Fund	Daniel Schiff	\$10,001-\$50,000
Global Natural Resources Fund	Daniel Schiff	\$0
	Ryan Kauppila	\$50,001-\$100,000
Global Technology Fund	Neil Desai	\$50,001-\$100,000
	Di Yao	\$50,001-\$100,000
Global Utilities Fund	William Rives	\$10,001-\$50,000

## **SECURITIES LENDING ACTIVITIES**

The following tables provide the dollar amounts of income and fees and/or compensation related to each fund's securities lending activities during the most recent fiscal year:

### **Global Communications Fund**

<b>Gross income from securities lending activities</b>	\$23,293
Fees and/or compensation for securities lending activities and related services:	
Fees paid to securities lending agent from a revenue split	(\$793)
Fees paid for any cash collateral management service (including fees deducted from a pooled cash collateral reinvestment vehicle) that are not included in the revenue split	\$0
Administrative fees not included in revenue split	\$0
Indemnification fee not included in revenue split	\$0
Rebate (paid to borrower)	(\$15,355)
Other fees not included in revenue split (specify)	\$0
<b>Aggregate fees/compensation for securities lending activities</b>	(\$16,148)
<b>Net income from securities lending activities</b>	\$7,145

## Global Consumer Fund

<b>Gross income from securities lending activities</b>	\$89,441
Fees and/or compensation for securities lending activities and related services:	
Fees paid to securities lending agent from a revenue split	(\$1,834)
Fees paid for any cash collateral management service (including fees deducted from a pooled cash collateral reinvestment vehicle) that are not included in the revenue split	\$0
Administrative fees not included in revenue split	\$0
Indemnification fee not included in revenue split	\$0
Rebate (paid to borrower)	(\$71,092)
Other fees not included in revenue split (specify)	\$0
<b>Aggregate fees/compensation for securities lending activities</b>	(\$72,926)
<b>Net income from securities lending activities</b>	\$16,515

## Global Financials Fund

<b>Gross income from securities lending activities</b>	\$3,850
Fees and/or compensation for securities lending activities and related services:	
Fees paid to securities lending agent from a revenue split	(\$131)
Fees paid for any cash collateral management service (including fees deducted from a pooled cash collateral reinvestment vehicle) that are not included in the revenue split	\$0
Administrative fees not included in revenue split	\$0
Indemnification fee not included in revenue split	\$0
Rebate (paid to borrower)	(\$2,537)
Other fees not included in revenue split (specify)	\$0
<b>Aggregate fees/compensation for securities lending activities</b>	(\$2,668)
<b>Net income from securities lending activities</b>	\$1,182

## Global Health Care Fund

<b>Gross income from securities lending activities</b>	\$1,213,889
Fees and/or compensation for securities lending activities and related services:	
Fees paid to securities lending agent from a revenue split	(\$40,130)
Fees paid for any cash collateral management service (including fees deducted from a pooled cash collateral reinvestment vehicle) that are not included in the revenue split	\$0
Administrative fees not included in revenue split	\$0
Indemnification fee not included in revenue split	\$0
Rebate (paid to borrower)	(\$812,501)
Other fees not included in revenue split (specify)	\$0
<b>Aggregate fees/compensation for securities lending activities</b>	(\$852,631)
<b>Net income from securities lending activities</b>	\$361,258

## Global Industrials Fund

<b>Gross income from securities lending activities</b>	\$22,778
Fees and/or compensation for securities lending activities and related services:	
Fees paid to securities lending agent from a revenue split	(\$375)
Fees paid for any cash collateral management service (including fees deducted from a pooled cash collateral reinvestment vehicle) that are not included in the revenue split	\$0
Administrative fees not included in revenue split	\$0
Indemnification fee not included in revenue split	\$0
Rebate (paid to borrower)	(\$19,031)
Other fees not included in revenue split (specify)	\$0
<b>Aggregate fees/compensation for securities lending activities</b>	(\$19,406)
<b>Net income from securities lending activities</b>	\$3,372

## Global Natural Resources Fund

<b>Gross income from securities lending activities</b>	\$64,121
Fees and/or compensation for securities lending activities and related services:	
Fees paid to securities lending agent from a revenue split	(\$2,643)
Fees paid for any cash collateral management service (including fees deducted from a pooled cash collateral reinvestment vehicle) that are not included in the revenue split	\$0
Administrative fees not included in revenue split	\$0
Indemnification fee not included in revenue split	\$0
Rebate (paid to borrower)	(\$37,680)
Other fees not included in revenue split (specify)	\$0
<b>Aggregate fees/compensation for securities lending activities</b>	(\$40,323)
<b>Net income from securities lending activities</b>	\$23,798

## Global Technology Fund

<b>Gross income from securities lending activities</b>	\$323,639
Fees and/or compensation for securities lending activities and related services:	
Fees paid to securities lending agent from a revenue split	(\$7,523)
Fees paid for any cash collateral management service (including fees deducted from a pooled cash collateral reinvestment vehicle) that are not included in the revenue split	\$0
Administrative fees not included in revenue split	\$0
Indemnification fee not included in revenue split	\$0
Rebate (paid to borrower)	(\$248,384)
Other fees not included in revenue split (specify)	\$0
<b>Aggregate fees/compensation for securities lending activities</b>	(\$255,907)
<b>Net income from securities lending activities</b>	\$67,732

## Global Utilities Fund

<b>Gross income from securities lending activities</b>	\$41,602
Fees and/or compensation for securities lending activities and related services:	
Fees paid to securities lending agent from a revenue split	(\$1,179)
Fees paid for any cash collateral management service (including fees deducted from a pooled cash collateral reinvestment vehicle) that are not included in the revenue split	\$0
Administrative fees not included in revenue split	\$0
Indemnification fee not included in revenue split	\$0
Rebate (paid to borrower)	(\$29,816)
Other fees not included in revenue split (specify)	\$0
<b>Aggregate fees/compensation for securities lending activities</b>	(\$30,995)
<b>Net income from securities lending activities</b>	\$10,607

Goldman Sachs Bank USA (d/b/a Goldman Sachs Agency Lending, or “GSAL”) acts as the securities lending agent for the Putnam funds. As securities lending agent, during the last fiscal year, GSAL located borrowers for fund securities, monitored daily the value of the loaned securities and collateral, required additional collateral as necessary, negotiated loan terms, provided certain limited recordkeeping and account servicing, monitored dividend activity and material proxy votes relating to loaned securities, and arranged for return of loaned securities to a fund at loan termination, and, as applicable, in connection with proxy votes.

## INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM AND FINANCIAL STATEMENTS

**For Putnam Global Communications Fund, Putnam Global Consumer Fund, Putnam Global Financials Fund, Putnam Global Industrials Fund, Putnam Global Natural Resources Fund and Putnam Global Technology Fund:**

For each of the funds listed above, KPMG LLP, Two Financial Center, 60 South Street, Boston, Massachusetts 02111, is the fund's independent registered public accounting firm providing audit services, tax return review and other tax consulting services and assistance and consultation in connection with the review of various Securities and Exchange Commission filings. The Report of Independent Registered Public Accounting Firm, financial highlights and financial statements included in each fund's Annual Report for each fund's most recent fiscal year are included as Appendix B to this SAI. The financial highlights included in the prospectus and this SAI and the financial statements included in this SAI (which is incorporated by reference into the prospectus) have been

so included in reliance upon the reports of the independent registered public accounting firm, given on their authority as experts in auditing and accounting.

**For Putnam Global Health Care Fund and Putnam Global Utilities Fund:**

For each of the funds listed above, PricewaterhouseCoopers LLP (“PwC”), 101 Seaport Boulevard, Boston, Massachusetts 02210, is the fund’s independent registered public accounting firm providing audit services, tax return review and other tax consulting services and assistance and consultation in connection with the review of various Securities and Exchange Commission filings. The Report of Independent Registered Public Accounting Firm, financial highlights and financial statements included in each fund’s Annual Report for each fund’s most recent fiscal year are included as Appendix B to this SAI. The financial highlights included in the prospectus and this SAI and the financial statements included in this SAI (which is incorporated by reference into the prospectus) have been so included in reliance upon the reports of the independent registered public accounting firm, given on their authority as experts in auditing and accounting.

**THE PUTNAM FUNDS**  
**STATEMENT OF ADDITIONAL INFORMATION (“SAI”)**  
**PART II**

**HOW TO BUY SHARES**

Each prospectus describes briefly how investors may buy shares of the fund and identifies the share classes offered by that prospectus. Because of different sales charges and expenses, the investment performance of the classes will vary. This section of the SAI contains more information on how to buy shares. For more information, including your eligibility to purchase certain classes of shares, contact your investment dealer or Putnam Investor Services, Inc., the funds’ investor servicing agent (“Putnam Investor Services”), at 1-800-225-1581. Investors who purchase shares at net asset value through employer-sponsored retirement plans (including, for example, 401(k) plans, employer-sponsored 403(b) plans, and 457 plans) should also consult their employer for information about the extent to which the matters described in this section and in the sections that follow apply to them.

Except as set forth below, the fund does not accept new accounts or additional investments (including by way of exchange from another fund) into existing accounts held in the name of persons or entities that do not have both a residential or business address within the United States (including APO/FPO addresses) and a valid U.S. tax identification number. Any existing account that is updated to reflect a non-U.S. address will also be restricted from making additional investments. Individuals resident in the European Economic Area (“EEA”), in particular, should take note that the fund’s shares are not offered for sale in the EEA.

Non-U.S. institutional clients may invest in a fund, provided that the client is acting for its own account and is not a financial institution (e.g., a broker-dealer purchasing shares on behalf of its customers), and has provided Putnam with documentation (i) that is appropriate to the type of entity seeking to establish the account and (ii) sufficient to enable Putnam Investor Services to determine that the investment would not violate any applicable securities laws or regulations, including non-U.S. laws and regulations.

In addition, Class M shares of Putnam Diversified Income Trust, Putnam Europe Equity Fund, Putnam Global Income Trust, Putnam High Yield Fund, Putnam Income Fund, and Putnam Mortgage Securities Fund are available for public offering in Japan through certain Japanese registered broker-dealers with whom Putnam Retail Management Limited Partnership has an agreement.

In addition, the fund does not accept new accounts or additional investments (including by way of exchange from another fund) into existing accounts by entities that Putnam Investor Services has reason to believe are involved in the sale or distribution of marijuana, even if such sale or distribution is licensed by a state.

**General Information**

The fund is currently making a continuous offering of its shares. The fund receives the entire net asset value of shares sold. The fund will accept unconditional orders for shares to be executed at the public offering price based on the net asset value per share next determined after the order is placed. In the case of class A shares, class M shares and class N shares, the public offering price is the net asset value plus the applicable sales charge, if any. (The public offering price is thus calculable by dividing the net asset value by 100% minus the sales charge, expressed as a percentage.) No sales charge is included in the public offering price of other classes of shares. In the case of orders for purchase of shares placed through dealers, the public offering price will be based on the net asset value determined on the day the order is placed, but only if the dealer or a registered transfer agent or registered clearing agent receives the order, together with all required identifying information, before the close of regular trading on the New York Stock Exchange (the “NYSE”). If the dealer or registered transfer agent or registered clearing agent receives the order after the close of the NYSE, the price



will be based on the net asset value next determined. If funds for the purchase of shares are sent directly to Putnam Investor Services, they will be invested at the public offering price based on the net asset value next determined after all required identifying information has been collected. Payment for shares of the fund must be in U.S. dollars; if made by check, the check must be drawn on a U.S. bank.

Initial purchases are subject to the minimums stated in the prospectus, except that (i) individual investments under certain employer-sponsored retirement plans or Tax Qualified Retirement Plans may be lower, and (ii) the minimum investment is waived for investors participating in systematic investment plans or military allotment plans. Information about these plans is available from investment dealers or Putnam Investor Services. Currently Putnam is waiving the minimum for all initial purchases, but reserves the right to reject initial purchases under the minimum in the future, except as noted in the first sentence of this paragraph.

**Systematic investment plan.** As a convenience to investors, shares may be purchased through a systematic investment plan. Pre-authorized periodic (e.g., monthly, quarterly, semi-annually, or annually) bank drafts for a fixed amount (\$200,000 or less) are used to purchase fund shares at the applicable public offering price next determined after Putnam Retail Management Limited Partnership (“Putnam Retail Management”) receives the proceeds from the draft. A shareholder may choose any day of the month for these investments; however, if the selected date falls on a weekend or holiday, the investment will be processed on the next business day. For February, April, June and September and November, if the selected date does not occur, the investment will be processed the prior business day. Further information and application forms are available from the investment dealers or from Putnam Retail Management.

**Reinvestment of distributions.** Distributions to be reinvested are reinvested without a sales charge in shares of any Putnam fund the shareholder is eligible to invest in under the shareholder's account as of the ex-dividend date using the net asset value determined on that date, and are credited to a shareholder's account on the payment date. Dividends for Putnam money market funds are credited to a shareholder's account on the payment date. Distributions for all other funds that declare a distribution daily are reinvested without a sales charge as of the last day of the period for which distributions are paid using the net asset value determined on that date, and are credited to a shareholder's account on the payment date.

**Purchasing shares with securities (“in-kind” purchases).** In addition to cash, the fund will consider accepting securities as payment for fund shares at the applicable net asset value. Generally, the fund will only consider accepting securities to increase its holdings in a portfolio security, or if Putnam Investment Management, LLC (“Putnam Management”) determines that the offered securities are a suitable investment for the fund and in a sufficient amount for efficient management.

While no minimum has been established, it is expected that the fund would not accept securities with a value of less than \$100,000 per issue as payment for shares. The fund may reject in whole or in part any or all offers to pay for purchases of fund shares with securities, may require partial payment in cash for such purchases to provide funds for applicable sales charges, and may discontinue accepting securities as payment for fund shares at any time without notice. The fund will value accepted securities in the manner described in the section "Determination of Net Asset Value" for valuing shares of the fund. The fund will only accept securities that are delivered in proper form. The fund will not accept certain securities, for example, options or restricted securities, as payment for shares. The acceptance of securities by certain funds in exchange for fund shares is subject to additional requirements. For federal income tax purposes, a purchase of fund shares with securities will be treated as a sale or exchange of such securities on which the investor will generally realize a taxable gain or loss. The processing of a purchase of fund shares with securities involves certain delays while the fund considers the suitability of such securities and while other requirements are satisfied. For information regarding procedures for payment in securities, contact Putnam Retail Management. Investors should not send securities to the fund except when authorized to do so and in accordance with specific instructions received from Putnam Retail Management.

## **Sales Charges and Other Share Class Features—Retail Investors**

This section describes certain key features of share classes offered to retail investors and retirement plans that do not purchase shares at net asset value. Much of this information addresses the sales charges, including initial sales charges and contingent deferred sales charges (“CDSCs”) imposed on the different share classes and various commission payments made by Putnam to dealers and other financial intermediaries facilitating shareholders’ investments. This information supplements the descriptions of these share classes and payments included in the prospectus.

Initial sales charges, dealer commissions and CDSCs on shares sold outside the United States may differ from those applied to U.S. sales.

**Initial sales charges for class A, class M and class N shares.** The public offering price of class A, class M and class N shares is the net asset value plus a sales charge that varies depending on the size of your purchase (calculable as described above). The fund receives the net asset value. The tables below indicate the sales charges applicable to purchases of class A, class M and class N shares of the funds by style category.

The sales charge for class A, class M and class N shares is allocated between your investment dealer and Putnam Retail Management as shown in the tables below, except when Putnam Retail Management, in its discretion, allocates the entire amount to your investment dealer.

The underwriter's commission, or dealer reallowance, is the sales charge shown in the prospectus less any applicable dealer discount. Putnam Retail Management will give dealers ten days' notice of any changes in the dealer discount.

Putnam Retail Management retains the entire sales charge on any retail sales made by it. The Putnam Funds require that a broker-dealer be associated with every account (a “broker-dealer of record”). In instances where the registered account owner has not designated a broker-dealer of record, Putnam Retail Management will be defaulted as the broker-dealer of record for the account. Putnam Retail Management is not a full service broker-dealer, and does not provide investment advice. As default broker-dealer of record, Putnam Retail Management will not be able to provide services that are typically offered by a brokerage firm, such as assisting with financial planning or providing recommendations, or otherwise assisting with investment decisions. Where Putnam Retail Management is listed as the default broker-dealer of record for an account, it will receive all applicable sales charges and service fees associated with the account.

For purchases of class A shares by retail investors that qualify for the highest sales charge breakpoint described in the prospectus, Putnam Retail Management pays commissions on sales during the one-year period beginning with the date of the initial purchase qualifying for that breakpoint. Each subsequent one-year measuring period for these purposes begins with the first qualifying purchase following the end of the prior period. These commissions are paid at the rate of 1.00% of the amount of qualifying purchases up to \$4 million, 0.50% of the next \$46 million of qualifying purchases and 0.25% of qualifying purchases thereafter.

For purchases of class N shares over \$250,000, Putnam Retail Management pays commissions on sales during the one-year period beginning with the date of the initial purchase. Each subsequent one-year measuring period for these purposes begins with the first qualifying purchase following the end of the prior period. Commissions for these purchases are paid at the rate of 0.25% of the amount of qualifying purchases up to \$4 million, 0.15% of the next \$46 million of qualifying purchases and 0.10% of qualifying purchases thereafter.

For Growth Funds, Blend Funds, Value Funds, Asset Allocation Funds (excluding Retirement Income Fund Lifestyle 1, Putnam PanAgora Managed Futures Strategy, Putnam PanAgora Market Neutral Fund and Putnam PanAgora Risk Parity Fund), Global Sector Funds and RetirementReady® Funds only:

Amount of transaction at offering price (\$)	CLASS A		CLASS M	
	Sales charge as a percentage of offering price	Amount of sales charge reallocated to dealers as a percentage of offering price	Sales charge as a percentage of offering price	Amount of sales charge reallocated to dealers as a percentage of offering price
Under 50,000	5.75%	5.00%	3.50%	3.00%
50,000 but under 100,000	4.50	3.75	2.50	2.00
100,000 but under 250,000	3.50	2.75	1.50	1.00
250,000 but under 500,000	2.50	2.00	1.00	1.00
500,000 but under 1,000,000	2.00	1.75	1.00	1.00
1,000,000 and above	NONE	NONE	N/A*	N/A*

For Putnam PanAgora Managed Futures Strategy, Putnam PanAgora Market Neutral Fund, Putnam PanAgora Risk Parity Fund and Putnam Multi-Asset Absolute Return Fund only:

Amount of transaction at offering price (\$)	CLASS A		CLASS M	
	Sales charge as a percentage of offering price	Amount of sales charge reallocated to dealers as a percentage of offering price	Sales charge as a percentage of offering price	Amount of sales charge reallocated to dealers as a percentage of offering price
Under 50,000	5.75%	5.00%	3.50%	3.00%
50,000 but under 100,000	4.50	3.75	2.50	2.00
100,000 but under 250,000	3.50	2.75	1.50	1.00
250,000 but under 500,000	2.50	2.00	1.00	1.00
500,000 and above	NONE	NONE	N/A**	N/A**

For Retirement Income Fund Lifestyle 1, Taxable Income Funds and Tax-Exempt Funds (except for Money Market Funds, Putnam Short-Term Municipal Income Fund, Putnam Floating Rate Income Fund, and Putnam Short Duration Income Fund):

Amount of transaction at offering price (\$)	CLASS A		CLASS M	
	Sales charge as a percentage of offering price	Amount of sales charge reallocated to dealers as a percentage of offering price	Sales charge as a percentage of offering price	Amount of sales charge reallocated to dealers as a percentage of offering price
Under 50,000	4.00%	3.50%	3.25%	3.00%
50,000 but under 100,000	4.00	3.50	2.25	2.00
100,000 but under 250,000	3.25	2.75	1.25	1.00
250,000 but under 500,000	2.50	2.00	1.00	1.00
500,000 and above	NONE	NONE	N/A**	N/A**

For Putnam Fixed Income Absolute Return Fund and Putnam Floating Rate Income Fund only:

<b>Amount of transaction at offering price (\$)</b>	<b>CLASS A</b>		<b>CLASS M</b>	
	<b>Sales charge as a percentage of offering price</b>	<b>Amount of sales charge reallocated to dealers as a percentage of offering price</b>	<b>Sales charge as a percentage of offering price</b>	<b>Amount of sales charge reallocated to dealers as a percentage of offering price</b>
Under 100,000	2.25%	2.00%	0.75%	0.75%
100,000 but under 250,000	1.75%	1.50%	0.75%	0.75%
250,000 but under 500,000	1.25%	1.00%	0.75%	0.75%
500,000 and above	NONE	1.00%	N/A**	N/A**

For Putnam Short Duration Bond Fund and Putnam Short-Term Municipal Income Fund only:

<b>Amount of transaction at offering price (\$)</b>	<b>CLASS A</b>	
	<b>Sales charge as a percentage of offering price</b>	<b>Amount of sales charge reallocated to dealers as a percentage of offering price</b>
Under 100,000	2.25%	2.00%
100,000 – 249,999	1.25%	1.00%
250,000 and above	NONE	1.00%

<b>Amount of transaction at offering price (\$)</b>	<b>CLASS M</b>	
	<b>Sales charge as a percentage of offering price</b>	<b>Amount of sales charge reallocated to dealers as a percentage of offering price</b>
Under 250,000	0.75%	0.75%
250,000 and above	N/A***	N/A***

\*The funds will not accept purchase orders for class M shares (other than by employer-sponsored retirement plans) where the total of the current purchase, plus existing account balances that are eligible to be linked under a right of accumulation (as described below) is \$1 million or more.

\*\*The funds will not accept purchase orders for class M shares (other than by employer-sponsored retirement plans) where the total of the current purchase, plus existing account balances that are eligible to be linked under a right of accumulation (as described below) is \$500,000 or more.

\*\*\*The fund will not accept purchase orders for class M shares (other than by employer-sponsored retirement plans) where the total of the current purchase, plus existing account balances that are eligible to be linked under a right of accumulation (as described below) is \$250,000 or more.

For all Putnam funds that offer class N shares:

**CLASS N**

<b>Amount of transaction at offering price (\$)</b>	<b>Sales charge as a percentage of offering price</b>	<b>Amount of sales charge reallocated to dealers as a percentage of offering price</b>
Under 50,000	1.50%	1.25%
50,000 but under 100,000	1.25%	1.00%
100,000 but under 250,000	1.00%	0.75%
250,000 and above	NONE	0.25%

**Purchases of class A and class N shares without an initial sales charge.** Class A shares of any Putnam fund (other than Putnam Short Duration Bond Fund, Putnam Short Duration Income Fund, Putnam Short-Term Municipal Income Fund, Putnam Government Money Market Fund, and Putnam Money Market Fund) purchased by retail investors on or after March 1, 2018 that are not subject to an initial sales charge (in accordance with the schedules stated above) are subject to a CDSC of 1.00% if redeemed before the first day of the month in which the twelve-month anniversary of that purchase occurs. Class A shares of Putnam Short Duration Bond Fund and Putnam Short-Term Municipal Income Fund purchased by retail investors that are not subject to an initial sales charge (in accordance with the schedules stated above) are subject to a CDSC of 1.00% if redeemed before the first day of the month in which the nine-month anniversary of that purchase occurs. Class A shares of Putnam Short Duration Income Fund, Putnam Money Market Fund and Putnam Government Money Market Fund purchased by retail investors on or after March 1, 2018 by exchanging shares from another Putnam fund that were not subject to an initial sales charge (in accordance with the schedules stated above) are subject to a CDSC of 1.00% if redeemed before the first day of the month in which the twelve-month anniversary of the original purchase occurs. Class N shares of any Putnam Fund purchased by retail investors that are not subject to an initial sales charge (in accordance with the schedules stated above) are subject to a CDSC of 0.25% if redeemed before the first day of the month in which the nine-month anniversary of that purchase occurs.

The CDSC assessed on redemptions of fewer than all of an investor's class A shares or class N shares subject to a CDSC will be based on the amount of the redemption minus the amount of any appreciation on the investor's CDSC-subject shares since the purchase of such shares. The CDSC assessed on full redemptions of CDSC-subject shares will be based on the lower of the shares' cost and current NAV. Class A shares that are exchanged between Putnam funds will maintain the CDSC time period for the fund in which the initial purchase was made. Putnam Retail Management will retain any CDSC imposed on redemptions of such shares to compensate it for the up-front commissions paid to financial intermediaries for such share sales.

**Purchases of class A shares for rollover IRAs.** Purchases of class A shares for a Putnam Rollover IRA or a rollover IRA of a Putnam affiliate, from a retirement plan for which an affiliate of Putnam Management or a business partner of such affiliate is the administrator, including subsequent contributions, are not subject to an initial sales charge or CDSC. Putnam Retail Management may pay commissions or finders' fees of up to 1.00% of the proceeds for such Putnam Rollover IRA purchases to the dealer of record or other third party.

**Commission payments and CDSCs for class B and class C shares.** Except in the case of Putnam Money Market Fund, Putnam Government Money Market Fund and Putnam Short Duration Income Fund as noted below, Putnam Retail Management will pay a 4% commission on sales of class B shares of the fund only to those financial intermediaries who have entered into service agreements with Putnam Retail Management. For

tax-exempt funds, this commission includes a 0.20% pre-paid service fee (except for Putnam Tax-Free High Yield Fund and Putnam AMT-Free Municipal Fund, each of which has a 0.25% pre-paid service fee). For Putnam Floating Rate Income Fund, Putnam Short Duration Bond Fund, Putnam Fixed Income Absolute Return Fund and Putnam Short-Term Municipal Income Fund, Putnam Retail Management will pay a 1.00% commission to financial intermediaries selling class B shares of the fund.

Except in the case of Putnam Money Market Fund, Putnam Government Money Market Fund and Putnam Short Duration Income Fund, Putnam Retail Management pays financial intermediaries a 1.00% commission on sales of class C shares of a fund.

Putnam Retail Management will retain any CDSC imposed on redemptions of class B and class C shares to compensate it for the cost of paying the up-front commissions paid to financial intermediaries for class B or class C share sales.

**Conversion of class B shares into class A shares.** Class B shares will automatically convert to class A shares on or around the end of the month eight years after the purchase date (for Putnam Small Cap Value Fund, on or around the end of the month six years after the purchase date, and for Putnam Sustainable Future Fund, on or around the end of the month five years after the purchase date). Class B shares acquired by exchanging class B shares of another Putnam fund will convert to class A shares based on the time of the initial purchase, and the holding period of the fund of initial purchase will apply. Any CDSC for such shares will be calculated using the schedule of the fund into or from which shares have been exchanged that would result in the highest CDSC applicable to such shares. Class B shares acquired through reinvestment of distributions will convert to class A shares based on the date of the initial purchase to which such shares relate. For this purpose, class B shares acquired through reinvestment of distributions will be attributed to particular purchases of class B shares in accordance with such procedures as the Trustees may determine from time to time. The conversion of class B shares to class A shares is subject to the condition that such conversions will not constitute taxable events for federal tax purposes. Shareholders should consult with their tax advisers regarding the state and local tax consequences of the conversion of class B shares to class A shares, or any other exchange or conversion of shares. Average annual total return performance information for class B shares shown in the fund's prospectus assumes conversion to class A shares after the applicable period described in the fund's prospectus.

**Conversion of class C shares into class A shares.** Effective April 1, 2018, Class C shares will automatically convert to class A shares on or around the end of the month ten years after the purchase date, provided that the fund or the financial intermediary through which a shareholder purchased class C shares has records verifying that the class C shares have been held for at least ten years, and that class A shares are available for purchase by residents in the shareholder's jurisdiction. Group retirement plan recordkeeping platforms of certain broker-dealer intermediaries who hold class C shares with the fund in an omnibus account do not track participant level share lot aging. These class C shares would not satisfy the conditions for the conversion. Class C shares acquired by exchanging class C shares of another Putnam fund will convert to class A shares based on the time of the initial purchase. Any CDSC for such shares will be calculated using the schedule of the fund into or from which shares have been exchanged that would result in the highest CDSC applicable to such shares. Class C shares acquired through reinvestment of distributions will convert to class A shares based on the date of the initial purchase to which such shares relate. For this purpose, class C shares acquired through reinvestment of distributions will be attributed to particular purchases of class C shares in accordance with such procedures as the Trustees may determine from time to time. The conversion of class C shares to class A shares is subject to the condition that such conversions will not constitute taxable events for federal tax purposes. Shareholders should consult with their tax advisers regarding the state and local tax consequences of the conversion of class C shares to class A shares, or any other exchange or conversion of shares.

#### Sales without sales charges or contingent deferred sales charges

In addition to the categories of investors eligible to purchase fund shares without a sales charge or CDSC set forth in the fund's prospectus, in connection with settlements reached between certain firms and the Financial

Industry Regulatory Authority (“FINRA”) and/or Securities and Exchange Commission (the “SEC”) regarding sales of class B and class C shares in excess of certain dollar thresholds, the fund will permit shareholders who are clients of these firms (and applicable affiliates of such firms) to redeem class B and class C shares of the fund and concurrently purchase class A shares (in an amount to be determined by the dealer of record and Putnam Retail Management in accordance with the terms of the applicable settlement) without paying a sales charge.

The fund may issue its shares at net asset value without an initial sales charge or a CDSC in connection with the acquisition of substantially all of the securities owned by other investment companies or personal holding companies. The CDSC will be waived on redemptions to pay premiums for insurance under Putnam’s insured investor program.

In the case of certain sales charge waivers described in the prospectus to (i) current and former Trustees of the fund, their family members, business and personal associates; current and former employees of Putnam Management and certain current and former corporate affiliates, their family members, business and personal associates; employer-sponsored retirement plans for the foregoing; and partnerships, trusts or other entities in which any of the foregoing has a substantial interest and (ii) shareholders reinvesting the proceeds from a Putnam Corporate IRA Plan distribution into a nonretirement plan account, the availability of shares at NAV has been determined to be appropriate because involvement by Putnam Retail Management and other brokers in purchases by these investors is typically minimal.

As described in the prospectus, specific sales charge waivers may be available through your particular financial intermediary. Please see the prospectus for additional information about financial intermediary-specific waivers.

**Application of CDSC to Systematic Withdrawal Plans (“SWP”).** The SWP provisions relating to CDSC waivers described below do not apply to customers purchasing shares of the fund through a Specified Intermediary, unless otherwise specified in the Appendix to the fund’s prospectus. Please refer to the Appendix to the fund’s prospectus for the SWP provisions that are applicable to each Specified Intermediary.

Investors who set up a SWP for a share account (see "INVESTOR SERVICES — Plans Available to Shareholders -- Systematic Withdrawal Plan") may withdraw through the SWP up to 12% of the net asset value of the account (calculated as set forth below) each year without incurring any CDSC. Shares not subject to a CDSC (such as shares representing reinvestment of distributions) will be redeemed first and will count toward the 12% limitation. If there are insufficient shares not subject to a CDSC, shares subject to the lowest CDSC liability will be redeemed next until the 12% limit is reached. The 12% figure is calculated on a pro rata basis at the time of the first payment made pursuant to an SWP and recalculated thereafter on a pro rata basis at the time of each SWP payment. Therefore, shareholders who have chosen an SWP based on a percentage of the net asset value of their account of up to 12% will be able to receive SWP payments without incurring a CDSC. However, shareholders who have chosen a specific dollar amount (for example, \$100 per month from the fund that pays income distributions monthly) for their periodic SWP payment should be aware that the amount of that payment not subject to a CDSC may vary over time depending on the net asset value of their account. For example, if the net asset value of the account is \$10,000 at the time of payment, the shareholder will receive \$100 free of the CDSC (12% of \$10,000 divided by 12 monthly payments). However, if at the time of the next payment the net asset value of the account has fallen to \$9,400, the shareholder will receive \$94 free of any CDSC (12% of \$9,400 divided by 12 monthly payments) and \$6 subject to the lowest applicable CDSC. This SWP privilege may be revised or terminated at any time.

**Other exceptions to application of CDSC.** For purposes of the waiver categories set forth in subparagraphs (ii) – (iv) of the fund’s prospectus under the sub-section *Additional reductions and waivers of sales charges – Class B and class C shares*, shares not subject to a CDSC are redeemed first in determining whether the CDSC applies to each redemption.

For purposes of the waiver categories set forth in subparagraph (v) of the fund's prospectus under the sub-section *Additional reductions and waivers of sales charges – Class B and class C shares*, Benefit Payments currently include, without limitation, (1) distributions from an IRA due to death or post-purchase disability, (2) a return of excess contributions to an IRA or 401(k) plan, and (3) distributions from retirement plans qualified under Section 401(a) of the Code or from a 403(b) plan due to death, disability, retirement or separation from service. These waivers may be changed at any time.

### **Ways to Reduce Initial Sales Charges—Class A, Class M and Class N Shares**

There are several ways in which an investor may obtain reduced sales charges on purchases of class A shares, class M shares and class N shares. These provisions may be altered or discontinued at any time. The breakpoint discounts described below do not apply to customers purchasing shares of the fund through any of the financial intermediaries specified in the Appendix to the fund's prospectus (each, a "Specified Intermediary"). Please refer to the Appendix to the fund's prospectus for the breakpoint discounts that are applicable to each Specified Intermediary.

**Right of accumulation.** A purchaser of class A shares, class M shares or class N shares may qualify for a right of accumulation discount by combining all current purchases by such person with the value of certain other shares of any class of Putnam funds already owned. The applicable sales charge is based on the total of:

- (i) the investor's current purchase(s); and
- (ii) the higher of (x) the maximum public offering price (at the close of business on the previous day) or (y) the initial value of total purchases (less the value of shares redeemed on the applicable redemption date) of:
  - (a) all shares held in accounts registered to the investor and other accounts eligible to be linked to the investor's accounts (as described below) in all of the Putnam funds (except closed-end and money market funds, unless acquired as described in (b) below); and
  - (b) any shares of money market funds acquired by exchange from other Putnam funds.

For shares held on December 31, 2007, the initial value will be the value of those shares at the maximum public offering price on that date.

The following persons may qualify for a right of accumulation discount:

- (i) an individual, or a "company" as defined in Section 2(a)(8) of the Investment Company Act of 1940, as amended (the "1940 Act") (which includes corporations which are corporate affiliates of each other);
- (ii) an individual, his or her spouse and their children under age 21, purchasing for his, her or their own account;
- (iii) a trustee or other fiduciary purchasing for a single trust estate or single fiduciary account (including a pension, profit-sharing, or other employee benefit trust created pursuant to a plan qualified under Section 401 of the Code and Simplified Employer Pension Plans (SEPs) created pursuant to Section 408(k) of the Code);
- (iv) tax-exempt organizations qualifying under Section 501(c)(3) of the Code, (not including tax-exempt organizations qualifying under Section 403(b)(7) (a "403(b) plan") of the Code; and



(v) employer-sponsored retirement plans of a single employer or of affiliated employers, other than 403(b) plans.

A combined purchase currently may also include shares of any class of other continuously offered Putnam funds (other than money market funds and class A and class M shares of Putnam Short Duration Income Fund) purchased at the same time, if the dealer places the order for such shares directly with Putnam Retail Management.

For individual investors, Putnam Investor Services automatically links accounts the registrations of which are under the same last name and address. Account types eligible to be linked for the purpose of qualifying for a right of accumulation discount include the following (in each case as registered to the investor, his or her spouse and his or her children under the age of 21):

- (i) individual accounts;
- (ii) joint accounts;
- (iii) accounts established as part of a plan established pursuant to Section 403(b) of the Code (“403(b) plans”) or an IRA other than a SIMPLE IRA, SARSEP or SEP IRA;
- (iv) shares owned through accounts in the name of the investor’s (or spouse’s or minor child’s) dealer or other financial intermediary (with documentation identifying to the satisfaction of Putnam Investor Services the beneficial ownership of such shares); and
- (v) accounts established as part of a Section 529 college savings plan managed by Putnam Management.

Shares owned by a plan participant as part of an employer-sponsored retirement plan of a single employer or of affiliated employers (other than 403(b) plans) or a single fiduciary account opened by a trustee or other fiduciary (including a pension, profit-sharing, or other employee benefit trust created pursuant to a plan qualified under Section 401 of the Code) are not eligible for linking to other accounts attributable to such person to qualify for the right of accumulation discount, although all current purchases made by each such plan may be combined with existing aggregate balances of such plan in Putnam funds for purposes of determining the sales charge applicable to shares purchased at such time by the plan.

To obtain the right of accumulation discount on a purchase through an investment dealer, when each purchase is made the investor or dealer must provide Putnam Retail Management with sufficient information to verify that the purchase qualifies for the privilege or discount. The shareholder must furnish this information to Putnam Investor Services when making direct cash investments. Sales charge discounts under a right of accumulation apply only to current purchases. No credit for right of accumulation purposes is given for any higher sales charge paid with respect to previous purchases for the investor’s account or any linked accounts.

**Statement of Intention.** Investors may also obtain the reduced sales charges for class A, class M or class N shares shown in the prospectus for investments of a particular amount by means of a written Statement of Intention (also referred to as a Letter of Intention), which expresses the investor's intention to invest that amount (including certain "credits," as described below) within a period of 13 months in shares of any class of the fund or any other continuously offered Putnam fund (excluding Putnam money market funds and Putnam Short Duration Income Fund), including through an account established as part of a Section 529 college savings plan managed by Putnam Management. Each purchase of class A shares, class M shares or class N shares under a Statement of Intention will be made at the lesser of (i) the public offering price applicable at the time of such purchase and (ii) the public offering price applicable on the date the Statement of Intention is executed to a single transaction of the total dollar amount indicated in the Statement of Intention.

An investor may receive a credit toward the amount indicated in the Statement of Intention equal to the maximum public offering price as of the close of business on the previous day of all shares he or she owns, or which are eligible to be linked for purposes of the right of accumulation described above, on the date of the

Statement of Intention which are eligible for purchase under a Statement of Intention (plus any shares of money market funds and Putnam Short Duration Income Fund acquired by exchange of such eligible shares, and any class N shares of Putnam Short Duration Income Fund). Investors do not receive credit for shares purchased by the reinvestment of distributions. Investors qualifying for the "combined purchase privilege" (see above) may purchase shares under a single Statement of Intention.

The Statement of Intention is not a binding obligation upon the investor to purchase the full amount indicated. The minimum initial investment under a Statement of Intention is 5% of such amount, and must be invested immediately. Class A shares, class M shares or class N shares purchased with the first 5% of such amount will be held in escrow to secure payment of the higher sales charge applicable to the shares actually purchased if the full amount indicated is not purchased. When the full amount indicated has been purchased, the escrow will be released. If an investor desires to redeem escrowed shares before the full amount has been purchased, the shares will be released from escrow only if the investor pays the sales charge that, without regard to the Statement of Intention, would apply to the total investment made to date.

If an investor purchases more than the dollar amount indicated on the Statement of Intention and qualifies for a further reduced sales charge, the sales charge will be adjusted for the entire amount purchased at the end of the 13-month period, upon recovery by Putnam Retail Management from the investor's dealer of its portion of the sales charge adjustment. Once received from the dealer, which may take a period of time or may never occur, the sales charge adjustment will be used to purchase additional shares at the then current offering price applicable to the actual amount of the aggregate purchases. These additional shares will not be considered as part of the total investment for the purpose of determining the applicable sales charge pursuant to the Statement of Intention. No sales charge adjustment will be made unless and until the investor's dealer returns to Putnam Retail Management any excess commissions previously received.

If an investor purchases less than the dollar amount indicated on the Statement of Intention within the 13-month period, the sales charge will be adjusted upward for the entire amount purchased at the end of the 13-month period. This adjustment will be made by redeeming shares from the account to cover the additional sales charge, the proceeds of which will be paid to the investor's dealer and Putnam Retail Management. Putnam Retail Management will make a corresponding downward adjustment to the amount of the reallowance payable to the dealer with respect to purchases made prior to the investor's failure to fulfill the conditions of the Statement of Intention. If the account exceeds an amount that would otherwise qualify for a reduced sales charge, that reduced sales charge will be applied. Adjustments to sales charges and dealer reallowances will not be made in the case of the shareholder's death prior to the expiration of the 13-month period.

Statements of Intention are not available for certain employer-sponsored retirement plans.

Statement of Intention forms may be obtained from Putnam Retail Management or from investment dealers. In addition, shareholders may complete the applicable portion of the fund's standard account application. Interested investors should read the Statement of Intention carefully.

### **Commissions on Sales to Employee Retirement Plans**

**Purchases of class A and class R shares.** On sales of class A shares at net asset value to certain employer-sponsored retirement plans and health reimbursement accounts and sales of class R shares, Putnam Retail Management may, at its discretion, pay commissions to the dealer of record on net monthly purchases up to the following rates for purchases before April 1, 2017: 1.00% of the first \$1 million, 0.75% of the next \$1 million and 0.50% thereafter. Effective April 1, 2017, Putnam Retail Management no longer makes such payments.

For commission payments made by Putnam Retail Management to dealers and other financial intermediaries with respect to other classes of shares offered to employer-sponsored retirement plans and

other tax-favored plan investors, see the corresponding sub-heading under “—Sales Charges and Other Share Class Features—Retail Investors.”

## **DISTRIBUTION PLANS**

If the fund or a class of shares of the fund has adopted a distribution (12b-1) plan, the prospectus describes the principal features of the plan. This SAI contains additional information which may be of interest to investors.

Continuance of a plan is subject to annual approval by a vote of the Trustees, including a majority of the Trustees who are not interested persons of the fund and who have no direct or indirect interest in the plan or related arrangements (the "Qualified Trustees"), cast in person at a meeting called for that purpose. All material amendments to a plan must be likewise approved by the Trustees and the Qualified Trustees. No plan may be amended in order to increase materially the costs which the fund may bear for distribution pursuant to such plan without also being approved by a majority of the outstanding voting securities of the fund or the relevant class of the fund, as the case may be. A plan terminates automatically in the event of its assignment and may be terminated without penalty, at any time, by a vote of a majority of the Qualified Trustees or by a vote of a majority of the outstanding voting securities of the fund or the relevant class of the fund, as the case may be.

The fund makes payments under each plan to Putnam Retail Management to compensate Putnam Retail Management for services provided and expenses incurred by it for purposes of promoting the sale of the relevant class of shares, reducing redemptions of shares or maintaining or improving services provided to shareholders by Putnam Retail Management and investment dealers.

Putnam Retail Management compensates qualifying dealers (including, for this purpose, certain financial institutions) for sales of shares and the maintenance of shareholder accounts.

Putnam Retail Management may suspend or modify its payments to dealers. The payments are also subject to the continuation of the relevant distribution plan, the terms of the service agreements between the dealers and Putnam Retail Management and any applicable limits imposed by FINRA. Unless noted below or where Putnam Retail Management and the applicable dealer have agreed otherwise, these payments commence in the first year after purchase.

Financial institutions receiving payments from Putnam Retail Management as described above may be required to comply with various state and federal regulatory requirements, including among others those regulating the activities of securities brokers or dealers.

Except as otherwise agreed between Putnam Retail Management and a dealer, for purposes of determining the amounts payable to dealers for shareholder accounts for which such dealers are designated as the dealer of record, "average net asset value" means the product of (i) the average daily share balance in such account(s) and (ii) the average daily net asset value of the relevant class of shares over the quarter.

### **Class A shares:**

Putnam Retail Management makes quarterly (or in certain cases monthly) payments to dealers at up to the annual rates set forth below (as a percentage of the average net asset value of class A shares for which such dealers are designated the dealer of record) except as described below. No payments are made during the first year after purchase on shares purchased at net asset value by shareholders that invest at least the amount required to be eligible for the highest sales charge breakpoint as disclosed in the fund's prospectus, unless, in the case of dealers of record for an employer-sponsored retirement plan investing at least \$1 million, where such dealer has agreed to a reduced sales commission. In addition, no payments are made during the first year after purchase for shares purchased prior to April 1, 2017 where PRM has paid a commission as described above in "Commissions on Sales to Employee Retirement Plans."

<u>Rate*</u>	<u>Fund</u>
0.25%	All funds currently making payments under a class A distribution plan, except for those listed below
0.20% for shares purchased before 3/21/05; 0.25% for shares purchased on or after 3/21/05**	Putnam Tax-Free High Yield Fund
0.20% for shares purchased before 4/1/05; 0.25% for shares purchased on or after 4/1/05	Putnam AMT-Free Municipal Fund
0.20% for shares purchased on or before 12/31/89; 0.25% for shares purchased after 12/31/89	Putnam Convertible Securities Fund George Putnam Balanced Fund Putnam Global Equity Fund Putnam Global Natural Resources Fund Putnam Global Health Care Fund
0.20% for shares purchased on or before 3/31/90; 0.25% for shares purchased after 3/31/90	Putnam Mortgage Securities Fund
0.20% for shares purchased on or before 1/1/90; 0.25% for shares purchased after 1/1/90	Putnam Equity Income Fund
0.20% for shares purchased on or before 3/31/91; 0.25% for shares purchased after 3/31/91;	Putnam Income Fund
0.10%	Putnam Short Duration Income Fund
0.20% for shares purchased after 3/6/92 but before 4/1/05; 0.25% for shares purchased on or after 4/1/05	Putnam Minnesota Tax Exempt Income Fund Putnam Ohio Tax Exempt Income Fund
0.15% for shares purchased on or before 5/11/92; 0.20% for shares purchased after 5/11/92 but before 4/1/05; 0.25% for shares purchased on or after 4/1/05	Putnam Massachusetts Tax Exempt Income Fund
0.15% for shares purchased on or before 12/31/92; 0.20% for shares purchased after 12/31/92 but before 4/1/05; 0.25% for shares purchased on or after 4/1/05	Putnam California Tax Exempt Income Fund Putnam New Jersey Tax Exempt Income Fund Putnam New York Tax Exempt Income Fund Putnam Tax Exempt Income Fund
0.15% for shares purchased on or before 7/8/93; 0.20% for shares purchased after 7/8/93 but before 4/1/05; 0.25% for shares purchased on or after 4/1/05	Putnam Pennsylvania Tax Exempt Income Fund
0.00%	Putnam Government Money Market Fund Putnam Money Market Fund

\*For purposes of this table, shares are deemed to be purchased on date of settlement (*i.e.*, once purchased and paid for). Shares issued in connection with dividend reinvestments are considered to be purchased on the date of their issuance, not the issuance of the original shares.

\*\*Shares of Putnam Tax-Free High Yield Fund issued in connection with the merger of Putnam Municipal Income Fund into that fund pay a commission at the annual rate of 0.20% or 0.25%, based on the date of the original purchase of the shareholder's corresponding shares of Putnam Municipal Income Fund, as set forth below: 0.20% for shares purchased on or before 5/7/92; 0.25% for shares purchased after 5/7/92.

**Class B shares:**

Putnam Retail Management makes quarterly (or in certain cases monthly) payments to dealers at the annual rates set forth below (as a percentage of the average net asset value of class B shares for which such dealers are designated the dealer of record).

<u>Rate</u>	<u>Fund</u>
0.25%	All funds currently making payments under a class B distribution plan, except for those listed below
0.25%, except that the first year's service fees of 0.25% are prepaid at time of sale	Putnam AMT-Free Municipal Fund Putnam Tax-Free High Yield Fund
0.20%, except that the first year's service fees of 0.20% are prepaid at time of sale	Putnam California Tax Exempt Income Fund Putnam Massachusetts Tax Exempt Income Fund Putnam Minnesota Tax Exempt Income Fund Putnam New Jersey Tax Exempt Income Fund Putnam New York Tax Exempt Income Fund Putnam Ohio Tax Exempt Income Fund Putnam Pennsylvania Tax Exempt Income Fund Putnam Tax Exempt Income Fund
0.50%	Putnam Government Money Market Fund* Putnam Money Market Fund* Putnam Short Duration Income Fund

\* Effective as of the close of business on March 31, 2017, Putnam Money Market Fund and Putnam Government Money Market Fund limit the 12b-1 fees payable by class B shares to 0.00% of the average net asset value of class B shares for which such dealers are designated the dealer of record.

**Class C shares:**

Putnam Retail Management makes quarterly (or in certain cases monthly) payments to dealers at the annual rates set forth below (as a percentage of the average net asset value of class C shares for which such dealers are designated the dealer of record). No payments are made during the first year after purchase unless the shares were initially purchased without a CDSC, except that payments for Putnam Money Market Fund, Putnam Government Money Market Fund and Putnam Short Duration Income Fund will be made beginning in the first year.

<u>Rate</u>	<u>Fund</u>
1.00%	All funds currently making payments under a class C distribution plan, except for those listed below
0.50%	Putnam Government Money Market Fund * Putnam Money Market Fund* Putnam Short Duration Income Fund

\* Effective as of the close of business on March 31, 2017, Putnam Money Market Fund and Putnam Government Money Market Fund limit the 12b-1 fees payable by class C shares to 0.00% of the average net asset value of class C shares for which such dealers are designated the dealer of record.

Different rates may apply to shares sold outside the United States.

**Class M shares:**

Putnam Retail Management makes quarterly (or in certain cases monthly) payments to dealers at the annual rates set forth below (as a percentage of the average net asset value of class M shares for which such dealers are designated the dealer of record), except as follows.

<u>Rate</u>	<u>Fund</u>
0.65%	All Growth, Blend, Value, Global Sector and Asset Allocation Funds (excluding Retirement Income Fund Lifestyle 1) currently making payments under a class M distribution plan, and Putnam Multi-Asset Absolute Return Fund.
0.40%	All Income funds currently making payments under a class M distribution plan (except for Putnam Floating Rate Income Fund, Putnam Government Money Market Fund, Putnam Money Market Fund, Putnam Short-Term Municipal Income Fund and Putnam Short Duration Income Fund) and Retirement Income Fund Lifestyle 1.
0.30%	Putnam Short Duration Bond Fund, Putnam Fixed Income Absolute Return Fund, Putnam Short-Term Municipal Income Fund and Putnam Floating Rate Income Fund
0.15%	Putnam Government Money Market Fund* Putnam Money Market Fund* Putnam Short Duration Income Fund

\* Effective as of the close of business on March 31, 2017, Putnam Money Market Fund and Putnam Government Money Market Fund limit the 12b-1 fees payable by class M shares to 0.00% of the average net asset value of class M shares for which such dealers are designated the dealer of record.

Putnam Retail Management's payments to dealers for plans investing in class M shares for which such dealers are designated the dealer of record may equal up to the annual rate of 0.75% of the average net asset value of such class M shares for Putnam Multi-Asset Absolute Return Fund as well as all Growth, Blend, Value, Global Sector and Asset Allocation Funds currently making payments under a class M distribution plan and up to the annual rate of 0.50% of the average net asset value of such class M shares for all Income funds currently making payments under a class M distribution plan (except for Putnam Floating Rate Income Fund, Putnam Short-Term Municipal Income Fund, Putnam Money Market Fund, Putnam Government Money Market Fund and Putnam Short Duration Income Fund) and Putnam Retirement Income Fund Lifestyle 1.

Different rates may apply to shares sold outside the United States.

**Class R shares:**

Putnam Retail Management makes quarterly (or in certain cases monthly) payments to dealers at up to the annual rate set forth below (as a percentage of the average net asset value of class R shares for which such dealers are designated the dealer of record). No payments are made to dealers during the first year after purchase, with respect to shares purchased before April 1, 2017, if Putnam Retail Management paid a commission to the dealer at purchase as described above in "Commissions on Sales to Employee Retirement Plans."

<u>Rate</u>	<u>Fund</u>
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0.50%	All funds currently making payments under a class R distribution plan*
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\* Effective as of the close of business on March 31, 2017, Putnam Money Market Fund and Putnam Government Money Market Fund limit the 12b-1 fees payable by class R shares to 0.00% of the average net asset value of class R shares for which such dealers are designated the dealer of record.

A portion of the class R distribution fee payable to dealers may be paid to third parties who provide services to plans investing in class R shares and participants in such plans.

**Class N shares:**

Putnam Retail Management makes quarterly (or in certain cases monthly) payments to dealers at the annual rate set forth below (as a percentage of the average net asset value of class N shares for which such dealers are designated the dealer of record).

<u>Rate</u>	<u>Fund</u>
0.25%	All funds currently making payments under a class N distribution plan

**Additional Dealer Payments**

As described earlier in this section, dealers may receive different commissions, sales charge reallowances and other payments with respect to sales of different classes of shares of the funds. These payments may include servicing payments to retirement plan administrators and other institutions up to the same levels as described above. For purposes of this section the term “dealer” includes any broker, dealer, bank, bank trust department, registered investment advisor, financial planner, retirement plan administrator and any other institution having a selling, services, or any similar agreement with Putnam Retail Management or one of its affiliates.

Putnam Retail Management and its affiliates pay additional compensation to selected dealers under the categories described below. These categories are not mutually exclusive, and a single dealer may receive payments under all categories. These payments may create an incentive for a dealer firm or its representatives to recommend or offer shares of the fund or other Putnam funds to its customers. These additional payments are made pursuant to agreements with dealers and do not change the price paid by investors for the purchase of a share or the amount a fund will receive as proceeds from such sales or the distribution (12b-1) fees and the expenses paid by the fund as shown under the heading “Fees and Expenses” in the prospectus.

**Marketing Support Payments.** Putnam Retail Management and its affiliates make payments to certain dealers for marketing support services. These payments are individually negotiated with each dealer firm, taking into account the marketing support services provided by the dealer, including business planning assistance, educating dealer personnel about the Putnam funds and shareholder financial planning needs, placement on the dealer’s preferred or recommended fund company list, and access to sales meetings, sales representatives and management representatives of the dealer, as well as the size of the dealer’s relationship with Putnam Retail Management. Putnam Retail Management and its affiliates compensate dealers differently depending upon, among other factors, the level and/or type of marketing support provided by the dealer. Payments are generally based on one or more of the following factors: average net assets of Putnam’s retail mutual funds attributable to that dealer, gross or net sales of Putnam’s retail mutual funds attributable to that dealer, reimbursement of ticket charges (fees that a dealer firm charges its representatives for effecting transactions in fund shares) or a negotiated lump sum payment for services rendered. In addition, payments typically apply to retail sales and assets, but may not, in certain situations, apply to other specific types of sales or assets, such as to retirement plans or fee-based advisory programs.

Although the total of marketing support payments made to dealers in any year may vary, on average, the aggregate payments are not expected, on an annual basis, to exceed 0.085% of the average assets of Putnam's retail mutual funds attributable to the dealers.

The following dealers (and such dealers' respective affiliates) received marketing support payments from Putnam Retail Management and its affiliates during the calendar year ended December 31, 2017:

American Enterprise Investment Services Inc.	Lincoln Financial Securities Corporation
American Portfolios Financial Services, Inc.	Lincoln Investment Planning, LLC.
American United Life Insurance Company	LPL Financial LLC
AXA Advisors, LLC	M&T Securities, Inc.
BancWest Investment Services, Inc.	Merrill Lynch, Pierce, Fenner & Smith, Inc.
Cadaret, Grant and Co. Inc.	MMC Securities Corp.
Cambridge Investment Research, Inc.	MML Investors Services, LLC
Cetera Advisor Networks LLC	Morgan Stanley Smith Barney LLC
Cetera Advisors LLC	National Planning Corporation
Cetera Financial Specialists LLC	Northwestern Mutual Investment Services, LLC
Cetera Investment Services LLC	OneAmerica Securities, Inc.
Citigroup Global Markets Inc.	Oppenheimer & Co. Inc.
Citizens Securities, Inc.	Raymond James & Associates, Inc.
Commonwealth Equity Services	Raymond James Financial Services, Inc.
CUNA Brokerage Services, Inc.	RBC Capital Markets, LLC
CUSO Financial Services, L.P.	Royal Alliance Associates
First Allied Securities, Inc.	SagePoint Financial, Inc.
FSC Securities Corporation	Santander Securities LLC
Girard Securities, Inc.	Securities America, Inc.
Great-West Life & Annuity Insurance Company	Securities Service Network, Inc.
HD Vest Investment Securities, Inc.	SII Investments
INVEST Financial Corporation	Stifel, Nicolaus & Company, Incorporated
Investacorp, Inc.	Summit Brokerage Services, Inc.
Investment Centers of America, Inc.	TD Ameritrade, Inc.
Investors Capital Corp.	TD Ameritrade Clearing, Inc.
J.P. Morgan Securities LLC	Triad Advisors, Inc.
Janney Montgomery Scott LLC	U.S. Bancorp Investments, Inc.
Kestra Investment Services, LLC	UBS Financial Services, Inc.
KMS Financial Services, Inc.	Voya Financial Advisors, Inc.
Lincoln Financial Advisors Corp.	Wells Fargo Clearing Services, LLC
Lincoln Financial Distributors	Woodbury Financial Services, Inc.

Additional dealers may receive marketing support payments in 2018 and in future years. Any additions, modifications or deletions to the list of dealers identified above that have occurred since December 31, 2017 are not reflected. You can ask your dealer about any payments it receives from Putnam Retail Management and its affiliates.

**Program Servicing Payments.** Putnam Retail Management and its affiliates also make payments to certain dealers that sell Putnam fund shares through dealer platforms and other investment programs to compensate dealers for a variety of services they provide. A dealer may perform program services itself or may arrange with a third party to perform program services. In addition to shareholder recordkeeping, reporting, or



transaction processing, program services may include services rendered in connection with dealer platform development and maintenance, fund/investment selection and monitoring, or other similar services. Payments by Putnam Retail Management and its affiliates for program servicing support to any one dealer are not expected, with certain limited exceptions, to exceed 0.20% of the total assets in the program on an annual basis. In addition, Putnam Retail Management and its affiliates make one-time or annual payments to selected dealers receiving program servicing payments in reimbursement of printing costs for literature for shareholders, account maintenance fees or fees for establishment of Putnam funds on the dealer's system. The amounts of these payments may, but will not normally (except in cases where the aggregate assets in the program are small), cause the aggregate amount of the program servicing payments to such dealer on an annual basis to exceed the amounts set forth above.

The following dealers (and such dealers' respective affiliates) received program servicing payments from Putnam Retail Management and its affiliates during the calendar year ended December 31, 2017:

Charles Schwab & Co., Inc.	Pershing LLC
Merrill Lynch, Pierce, Fenner & Smith, Inc.	RBC Capital Markets, LLC
Morgan Stanley Smith Barney LLC	Transamerica Advisors Life Insurance Company
National Financial Services LLC	Trust Company of America

Additional or different dealers may also receive program servicing payments in 2018 and in future years. Any additions, modifications or deletions to the list of dealers identified above that have occurred since December 31, 2017 are not reflected. You can ask your dealer about any payments it receives from Putnam Retail Management and its affiliates.

**Other Payments.** From time to time, Putnam Retail Management, at its expense, may provide additional compensation to dealers which sell or arrange for the sale of shares of the fund to the extent not prohibited by laws or the rules of any self-regulatory agency, such as FINRA. Such compensation provided by Putnam Retail Management may include financial assistance to dealers that enables Putnam Retail Management to participate in and/or present at dealer-sponsored conferences or seminars, sales or training programs for invited registered representatives and other dealer employees, dealer entertainment, and other dealer-sponsored events, and travel expenses, including lodging incurred by registered representatives and other employees in connection with prospecting, retention and due diligence trips. Putnam Retail Management makes payments for entertainment events it deems appropriate, subject to Putnam Retail Management's internal guidelines and applicable law. These payments may vary upon the nature of the event.

**Sub-accounting payments.** Certain dealers or other financial intermediaries also receive payments from Putnam Investor Services or its affiliates in recognition of sub-accounting or other services they provide to shareholders or plan participants who invest in the fund or other Putnam funds through their retirement plan. The amount paid for these services varies depending on the share class selected and by dealer or other financial intermediary, and may also take into account the extent to which the services provided by the dealer replace services that Putnam Investor Services or its affiliates would otherwise have to provide. There are no such payments in respect of class R6 shares, and payments in respect of class R5 shares are generally made at an annual rate of up to 0.10% of a fund's average net assets attributable to class R5 shares held by a dealer or other financial intermediary, except that an annual rate of up to 0.07% of a fund's average net assets attributable to class R5 shares held by a dealer or other financial intermediary applies to Putnam Dynamic Asset Allocation Conservative Fund, Putnam Global Income Trust, Putnam Income Fund and Putnam Short Duration Income Fund. Payments for other classes vary. See the discussion under the heading "MANAGEMENT – Investor Servicing Agent" for more details.

**You can ask your dealer for information about payments it receives from Putnam Retail Management or its affiliates and the services it provides for those payments.**

## MISCELLANEOUS INVESTMENTS, INVESTMENT PRACTICES AND RISKS

As noted in the prospectus, in addition to the main investment strategies and the principal risks described in the prospectus, the fund may employ other investment practices and may be subject to other risks, which are described below. Because the following is a combined description of investment strategies of all of the Putnam funds, certain matters described herein may not apply to your fund. Unless a strategy or policy described below is specifically prohibited or limited by the investment restrictions discussed in the fund's prospectus or in this SAI, or by applicable law, the fund may engage in each of the practices described below without limit. This section contains information on the investments and investment practices listed below. With respect to funds for which Putnam Investments Limited ("PIL"), The Putnam Advisory Company, LLC ("PAC") and/or PanAgora Asset Management, Inc. ("PanAgora") serve as sub-adviser (as described in the fund's prospectus), references to Putnam Management in this section include PIL, PAC and/or PanAgora, as appropriate.

Temporary Defensive Strategies	Market Risk
Bank Loans	Master Limited Partnerships (MLPs)
Borrowing and Other Forms of Leverage	Money Market Instruments
Commodity-Related Investments	Mortgage-backed and Asset-backed Securities
Derivatives	Options on Securities
Exchange-Traded Notes	Preferred Stocks and Convertible Securities
Floating Rate and Variable Rate Demand Notes	Private Placements and Restricted Securities
Foreign Currency Transactions	Real Estate Investment Trusts (REITs)
Foreign Investments and Related Risks	Redeemable Securities
Forward Commitments and Dollar Rolls	Repurchase Agreements
Futures Contracts and Related Options	Securities Loans
Hybrid Instruments	Securities of Other Investment Companies
Illiquid Investments	Short Sales
Inflation-Protected Securities	Short-Term Trading
Initial Public Offerings (IPOs)	Special Purpose Acquisition Companies
Interfund Borrowing and Lending	Structured Investments
Inverse Floaters	Swap Agreements
Investments in Wholly-Owned Subsidiaries	Tax-exempt Securities
Legal and Regulatory Risk Relating to Investment Strategy	Warrants
Lower-rated Securities	Zero-coupon and Payment-in-kind Bonds

### Temporary Defensive Strategies

In response to adverse market, economic, political or other conditions, Putnam Management may take temporary defensive positions that differ from the fund's usual investment strategies. In implementing these temporary defensive strategies, the fund may invest primarily in, among other things, debt securities, preferred stocks, U.S. government and agency obligations, cash or money market instruments (including, to the extent permitted by law or applicable exemptive relief, money market funds), or any other securities Putnam Management considers consistent with such defensive strategies. While temporary defensive strategies are mainly designed to limit losses, such strategies may not work as intended.

### Bank Loans

The fund may invest in bank loans. By purchasing a loan, the fund acquires some or all of the interest of a bank or other lending institution in a loan to a particular borrower. The fund may act as part of a lending syndicate, and in such cases would be purchasing a "participation" in the loan. The fund may also purchase loans by assignment from another lender. Many loans are secured by the assets of the borrower, and most impose restrictive covenants which must be met by the borrower. These loans are typically made by a

syndicate of banks, represented by an agent bank which has negotiated and structured the loan and which is responsible generally for collecting interest, principal, and other amounts from the borrower on its own behalf and on behalf of the other lending institutions in the syndicate, and for enforcing its and their other rights against the borrower. Each of the lending institutions, including the agent bank, lends to the borrower a portion of the total amount of the loan, and retains the corresponding interest in the loan.

The fund's ability to receive payments of principal and interest and other amounts in connection with loan participations held by it will depend primarily on the financial condition of the borrower (and, in some cases, the lending institution from which it purchases the loan). The value of collateral, if any, securing a loan can decline, or may be insufficient to meet the borrower's obligations or difficult to liquidate. In addition, the fund's access to collateral may be limited by bankruptcy or other insolvency laws. The failure by the fund to receive scheduled interest or principal payments on a loan would adversely affect the income of the fund and would likely reduce the value of its assets, which would be reflected in a reduction in the fund's net asset value. Banks and other lending institutions generally perform a credit analysis of the borrower before originating a loan or participating in a lending syndicate. In selecting the loans in which the fund will invest, however, Putnam Management will not rely solely on that credit analysis, but will perform its own investment analysis of the borrowers. Putnam Management's analysis may include consideration of the borrower's financial strength and managerial experience, debt coverage, additional borrowing requirements or debt maturity schedules, changing financial conditions, and responsiveness to changes in business conditions and interest rates. Putnam Management will generally not have access to non-public information to which other investors in syndicated loans may have access. Because loans in which the fund may invest are not generally rated by independent credit rating agencies, a decision by the fund to invest in a particular loan will depend almost exclusively on Putnam Management's, and the original lending institution's, credit analysis of the borrower. Investments in loans may be of any quality, including "distressed" loans, and will be subject to the fund's credit quality policy. The loans in which the fund may invest include those that pay fixed rates of interest and those that pay floating rates – *i.e.*, rates that adjust periodically based on a known lending rate, such as a bank's prime rate.

Loans may be structured in different forms, including novations, assignments and participating interests. In a novation, the fund assumes all of the rights of a lending institution in a loan, including the right to receive payments of principal and interest and other amounts directly from the borrower and to enforce its rights as a lender directly against the borrower. The fund assumes the position of a co-lender with other syndicate members. As an alternative, the fund may purchase an assignment of a portion of a lender's interest in a loan. In this case, the fund may be required generally to rely upon the assigning bank to demand payment and enforce its rights against the borrower, but would otherwise be entitled to all of such bank's rights in the loan. The fund may also purchase a participating interest in a portion of the rights of a lending institution in a loan. In such case, it will be entitled to receive payments of principal, interest and premium, if any, but will not generally be entitled to enforce its rights directly against the agent bank or the borrower, and must rely for that purpose on the lending institution. The fund may also acquire a loan interest directly by acting as a member of the original lending syndicate.

The fund will in many cases be required to rely upon the lending institution from which it purchases the loan to collect and pass on to the fund such payments and to enforce the fund's rights under the loan. As a result, an insolvency, bankruptcy or reorganization of the lending institution may delay or prevent the fund from receiving principal, interest and other amounts with respect to the underlying loan. When the fund is required to rely upon a lending institution to pay to the fund principal, interest and other amounts received by it, Putnam Management will also evaluate the creditworthiness of the lending institution.

The borrower of a loan in which the fund holds an interest may, either at its own election or pursuant to terms of the loan documentation, prepay amounts of the loan from time to time. There is no assurance that the fund will be able to reinvest the proceeds of any loan prepayment at the same interest rate or on the same terms as those of the original loan.

Corporate loans in which the fund may invest are generally made to finance internal growth, mergers, acquisitions, stock repurchases, leveraged buy-outs and other corporate activities. A significant portion of the corporate loans purchased by the fund may represent interests in loans made to finance highly leveraged corporate acquisitions, known as "leveraged buy-out" transactions, leveraged recapitalization loans and other types of acquisition financing. The highly leveraged capital structure of the borrowers in such transactions may make such loans especially vulnerable to adverse changes in economic or market conditions. In addition, loans generally are subject to restrictions on transfer, and only limited opportunities may exist to sell such participations in secondary markets. As a result, the fund may be unable to sell loans at a time when it may otherwise be desirable to do so or may be able to sell them only at a price that is less than their fair market value. The fund may hold investments in loans for a very short period of time when opportunities to resell the investments that Putnam Management believes are attractive arise.

Certain of the loans acquired by the fund may involve revolving credit facilities under which a borrower may from time to time borrow and repay amounts up to the maximum amount of the facility. In such cases, the fund would have an obligation to advance its portion of such additional borrowings upon the terms specified in the loan participation. To the extent that the fund is committed to make additional loans under such a participation, it will at all times set aside on its books liquid assets in an amount sufficient to meet such commitments. Certain of the loan participations acquired by the fund may also involve loans made in foreign (*i.e.*, non-U.S.) currencies. The fund's investment in such participations would involve the risks of currency fluctuations described in this SAI with respect to investments in the foreign securities.

With respect to its management of investments in bank loans, Putnam Management will normally seek to avoid receiving material, non-public information ("Confidential Information") about the issuers of bank loans being considered for acquisition by the fund or held in the fund's portfolio. In many instances, borrowers may offer to furnish Confidential Information to prospective investors, and to holders, of the issuer's loans. Putnam Management's decision not to receive Confidential Information may place Putnam Management at a disadvantage relative to other investors in loans (which could have an adverse effect on the price the fund pays or receives when buying or selling loans). Also, in instances where holders of loans are asked to grant amendments, waivers or consent, Putnam Management's ability to assess their significance or desirability may be adversely affected. For these and other reasons, it is possible that Putnam Management's decision not to receive Confidential Information under normal circumstances could adversely affect the fund's investment performance.

Notwithstanding its intention generally not to receive material, non-public information with respect to its management of investments in loans, Putnam Management may from time to time come into possession of material, non-public information about the issuers of loans that may be held in the fund's portfolio. Possession of such information may in some instances occur despite Putnam Management's efforts to avoid such possession, but in other instances Putnam Management may choose to receive such information (for example, in connection with participation in a creditors' committee with respect to a financially distressed issuer). As, and to the extent, required by applicable law, Putnam Management's ability to trade in these loans for the account of the fund could potentially be limited by its possession of such information. Such limitations on Putnam Management's ability to trade could have an adverse effect on the fund by, for example, preventing the fund from selling a loan that is experiencing a material decline in value. In some instances, these trading restrictions could continue in effect for a substantial period of time.

In some instances, other accounts managed by Putnam Management or an affiliate may hold other securities issued by borrowers whose loans may be held in the fund's portfolio. These other securities may include, for example, debt securities that are subordinate to the loans held in the fund's portfolio, convertible debt or common or preferred equity securities. In certain circumstances, such as if the credit quality of the issuer deteriorates, the interests of holders of these other securities may conflict with the interests of the holders of the issuer's loans. In such cases, Putnam Management may owe conflicting fiduciary duties to the fund and other client accounts. Putnam Management will endeavor to carry out its obligations to all of its clients to the fullest extent possible, recognizing that in some cases certain clients may achieve a lower economic return, as a

result of these conflicting client interests, than if Putnam Management's client accounts collectively held only a single category of the issuer's securities.

The settlement period (the period between the execution of the trade and the delivery of cash to the purchaser) for some bank loan transactions may be significantly longer than the settlement period for other investments, and in some cases longer than seven days. Requirements to obtain the consent of the borrower and/or agent can delay or impede the fund's ability to sell bank loans and can adversely affect the price that can be obtained. It is possible that sale proceeds from bank loan transactions will not be available to meet redemption obligations, in which case the fund may be required to utilize cash balances or, if necessary, sell its more liquid investments or investments with shorter settlement periods. Some loans may not be considered "securities" for certain purposes under the federal securities laws, and purchasers, such as the fund, therefore may not be entitled to rely on the anti-fraud protections of the federal securities laws.

### **Borrowing and Other Forms of Leverage**

The fund may borrow money to the extent permitted by its investment policies and restrictions and applicable law. When the fund borrows money or otherwise leverages its portfolio, the value of an investment in the fund will be more volatile and other investment risks will tend to be compounded. This is because leverage tends to exaggerate the effect of any increase or decrease in the value of the fund's holdings. In addition to borrowing money from banks, the fund may engage in certain other investment transactions that may be viewed as forms of financial leverage – for example, using dollar rolls, investing collateral from loans of portfolio securities, entering into when-issued, delayed-delivery or forward commitment transactions or using derivatives such as swaps, futures, forwards, and options. Because the fund either (1) sets aside cash (or other assets determined to be liquid by Putnam Management in accordance with procedures established by the Trustees) on its books in respect of such transactions during the period in which the transactions are open or (2) otherwise "covers" its obligations under the transactions, such as by holding offsetting investments, the fund does not consider these transactions to be borrowings for purposes of its investment restrictions or "senior securities" for purposes of the 1940 Act. In some cases (e.g., with respect to futures and forwards that are contractually required to "cash-settle"), the fund is permitted under relevant guidance from the Securities and Exchange Commission (the "SEC") or SEC staff to set aside assets with respect to an investment transaction in the amount of its net (marked-to-market) obligations thereunder, rather than the full notional amount of the transaction. By setting aside assets equal only to its net obligations, the fund will have the ability to employ leverage to a greater extent than if it set aside assets equal to the notional amount of the transaction, which may increase the risk associated with such investments.

Each Putnam fund (other than Putnam RetirementReady® Funds, Putnam Retirement Income Fund Lifestyle 1, Putnam Global Sector Fund and Putnam Short-Term Investment Fund) participates in a syndicated committed line of credit provided by State Street Bank and Trust Company and Northern Trust Company and an uncommitted line of credit provided by State Street Bank and Trust Company. These lines of credit are intended to provide a temporary source of cash in extraordinary or emergency circumstances, such as unexpected shareholder redemption requests. The fund may pay a commitment or other fee to maintain a line of credit, in addition to the stated interest rate. Each participating fund in the syndicated committed line of credit is required to maintain a specified asset coverage ratio.

### **Commodity-Related Investments**

Some funds may gain exposure to commodity markets by investing in physical commodities or commodity-related instruments directly or indirectly. Such instruments include, but are not limited to, futures contracts, swaps, options, forward contracts, and structured notes and equities, debt securities, convertible securities, and warrants of issuers in commodity-related industries. Commodity prices can be extremely volatile and may be directly or indirectly affected by many factors, including changes in overall market movements, real or perceived inflationary trends, commodity index volatility, changes in interest rates or currency exchange rates, population growth and changing demographics, and factors affecting a particular industry or commodity, such

as drought, floods, or other weather conditions, livestock disease, trade embargoes, competition from substitute products, transportation bottlenecks or shortages, fluctuations in supply and demand, tariffs, and international regulatory, political, and economic developments (e.g., regime changes and changes in economic activity levels). In addition, some commodities are subject to limited pricing flexibility because of supply and demand factors, and others are subject to broad price fluctuations as a result of the volatility of prices for certain raw materials and the instability of supplies of other materials.

Actions of and changes in governments, and political and economic instability, in commodity-producing and -exporting countries may affect the production and marketing of commodities. In addition, commodity-related industries throughout the world are subject to greater political, environmental, and other governmental regulation than many other industries. Changes in government policies and the need for regulatory approvals may adversely affect the products and services of companies in the commodities industries. For example, the exploration, development, and distribution of coal, oil, and gas in the United States are subject to significant federal and state regulation, which may affect rates of return on coal, oil, and gas and the kinds of services that the federal and state governments may offer to companies in those industries. In addition, compliance with environmental and other safety regulations has caused many companies in commodity-related industries to incur production delays and significant costs. Government regulation also may impede the development of new technologies. The effect of future regulations affecting commodity-related industries cannot be predicted.

The value of commodity-related derivatives fluctuates based on changes in the values of the underlying commodity, commodity index, futures contract, or other economic variable to which they are related. Additionally, economic leverage will increase the volatility of these instruments as they may increase or decrease in value more quickly than the underlying commodity or other relevant economic variable. See “Derivatives,” “Forward Commitments and Dollar Rolls,” “Futures Contracts and Related Options,” “Hybrid Instruments,” “Investments in Wholly-Owned Subsidiaries,” “Short Sales,” “Structured Investments,” “Swap Agreements” and “Warrants” herein for more information on the fund’s investments in derivatives, including commodity-related derivatives such as swap agreements, commodity futures contracts, and options on commodity futures contracts.

In order for a fund to qualify as a regulated investment company under Subchapter M of the Internal Revenue Code of 1986, as amended (the “Code”) the fund must derive at least 90 percent of its gross income each taxable year from certain sources of “qualifying income” specified in the Code. Each of Putnam PanAgora Managed Futures Strategy’s and Putnam PanAgora Risk Parity Fund’s investment in a wholly-owned foreign subsidiary is expected to provide the fund with exposure to the commodities markets within the limitations of the federal income tax requirements of Subchapter M of the Code. Each of Putnam PanAgora Managed Futures Strategy’s and Putnam PanAgora Risk Parity Fund’s pursuit of its investment strategy may be limited by the fund’s intention to qualify for treatment as a regulated investment company under Subchapter M of the Code. As noted below in “Taxes,” the rules regarding the extent to which annual net income, if any, realized by a wholly-owned foreign subsidiary and included in a fund’s annual income for U.S. federal income purposes will constitute “qualifying income” for purposes of the fund’s qualification as a regulated investment company under the Code are unclear and currently under consideration. See the “Investments in Wholly-Owned Subsidiaries” and “Taxes” sections for more information.

## **Derivatives**

Certain of the instruments in which the fund may invest, such as futures contracts, options, hybrid instruments, forward contracts, swap agreements and structured investments, are considered to be “derivatives.” Derivatives are financial instruments whose value depends upon, or is derived from, the value or other attributes of an underlying asset, such as a security or an index. Further information about these instruments and the risks involved in their use is included elsewhere in the prospectus and in this SAI. The fund’s use of derivatives may cause the fund to recognize higher amounts of short-term capital gains, which are generally taxed to individual shareholders at ordinary income tax rates, and higher amounts of ordinary income, and more generally may affect the timing, character and amount of a fund’s distributions to shareholders. The

fund's use of commodity-linked derivatives can be limited by the fund's intention to qualify as a "regulated investment company" under the Code or bear adversely on the fund's ability to so qualify, as discussed in "Taxes" below. Investments in derivatives may be applied toward meeting a requirement to invest in a particular kind of investment if the derivatives have economic characteristics similar to that investment. The fund's use of certain derivatives may in some cases involve forms of financial leverage, which involves risk and may increase the volatility of the fund's net asset value. See "—Borrowing and Other Forms of Leverage." In its use of derivatives, the fund may take both long positions (the values of which move in the same direction as the prices of the underlying investments, pools of investments, indexes or currencies), and short positions (the values of which move in the opposite direction from the prices of the underlying investments, pools of investments indexes or currencies).

Short positions may involve greater risks than long positions, as the risk of loss may be theoretically unlimited (unlike a long position, in which the risk of loss may be limited to the amount invested). The fund may use derivatives that combine "long" and "short" positions in order to capture the difference between underlying investments, pools of investments, indices or currencies.

### Combined Positions

A fund may purchase and write options in combination with each other, or in combination with futures or forward contracts, options on futures contracts, indexed securities, swap agreements or other derivative instruments, to adjust the risk and return characteristics of its overall position. For example, a fund may purchase a put option and write a call option on the same underlying instrument, in order to construct a combined position whose risk and return characteristics are similar to selling a futures contract. Another possible combined position would involve writing a call option at one strike price and buying a call option at a lower price, in order to reduce the risk of the written call option in the event of a substantial price increase. Because combined options positions involve multiple trades, they result in higher transaction costs and may be more difficult to open and close out.

### **Exchange-Traded Notes**

The fund may invest in exchange-traded notes ("ETNs"). ETNs are typically senior, unsecured, unsubordinated debt securities whose returns are linked to the performance of a particular market index less applicable fees and expenses. ETNs are listed on an exchange and traded in the secondary market. The fund may hold the ETN until maturity, at which time the issuer is obligated to pay a return linked to the performance of the relevant market index. ETNs do not make periodic interest payments and principal is not protected.

The market value of an ETN may be influenced by, among other things, time to maturity, level of supply and demand of the ETN, volatility and lack of liquidity in the underlying assets, changes in the applicable interest rates, the current performance of the market index to which the ETN is linked, and the credit rating of the ETN issuer. The market value of an ETN may differ from the performance of the applicable market index and there may be times when an ETN trades at a premium or discount. This difference in price may be due to the fact that the supply and demand in the market for ETNs at any point in time is not always identical to the supply and demand in the market for the securities underlying the market index that the ETN seeks to track. A change in the issuer's credit rating may also impact the value of an ETN despite the underlying market index remaining unchanged. ETNs are also subject to tax risk. No assurance can be given that the Internal Revenue Service (the "IRS") will accept, or a court will uphold, how the fund characterizes and treats ETNs for tax purposes.

An ETN that is tied to a specific market index may not be able to replicate and maintain exactly the composition and relative weighting of securities, commodities or other components in the applicable market index. ETNs also incur certain expenses not incurred by their applicable market index, and the fund would bear a proportionate share of any fees and expenses borne by the ETN in which it invests.

The fund's decision to sell its ETN holdings may be limited by the availability of a secondary market. In addition, although an ETN may be listed on an exchange, the issuer may not be required to maintain the listing and there can be no assurance that a secondary market will exist for an ETN. Some ETNs that use leverage in an effort to amplify the returns of an underlying market index can, at times, be relatively illiquid and may therefore be difficult to purchase or sell at a fair price. Leveraged ETNs may offer the potential for greater return, but the potential for loss and speed at which losses can be realized also are greater. The extent of the fund's investment in commodity-linked ETNs, if any, is limited by tax considerations. For more information regarding the tax treatment of commodity-linked ETNs, please see "Taxes" below.

ETNs are generally similar to structured investments and hybrid instruments. For discussion of these investments and the risks generally associated with them, see "Hybrid Instruments" and "Structured Investments" in this SAI.

### **Floating Rate and Variable Rate Demand Notes**

The fund may purchase taxable or tax-exempt floating rate and variable rate demand notes for short-term cash management or other investment purposes. Floating rate and variable rate demand notes and bonds may have a stated maturity in excess of one year, but may have features that permit a holder to demand payment of principal plus accrued interest upon a specified number of days notice. Frequently, such obligations are secured by letters of credit or other credit support arrangements provided by banks. The issuer has a corresponding right, after a given period, to prepay in its discretion the outstanding principal of the obligation plus accrued interest upon a specific number of days notice to the holders. The interest rate of a floating rate instrument may be based on a known lending rate, such as a bank's prime rate, and is reset whenever such rate is adjusted. The interest rate on a variable rate demand note is reset at specified intervals at a market rate.

### **Foreign Currency Transactions**

To manage its exposure to foreign currencies, the fund may engage in foreign currency exchange transactions, including purchasing and selling foreign currency, foreign currency options, foreign currency forward contracts and foreign currency futures contracts and related options. In addition, the fund may engage in these transactions for the purpose of increasing its return. Foreign currency transactions involve costs, and, if unsuccessful, may reduce the fund's return.

Generally, the fund may engage in both "transaction hedging" and "position hedging." The fund may also engage in foreign currency transactions for non-hedging purposes, subject to applicable law. When it engages in transaction hedging, the fund enters into foreign currency transactions with respect to specific receivables or payables, generally arising in connection with the purchase or sale of portfolio securities. The fund will engage in transaction hedging when it desires to "lock in" the U.S. dollar price of a security it has agreed to purchase or sell, or the U.S. dollar equivalent of a dividend or interest payment in a foreign currency. By transaction hedging the fund will attempt to protect itself against a possible loss resulting from an adverse change in the relationship between the U.S. dollar and the applicable foreign currency during the period between the date on which the security is purchased or sold, or on which the dividend or interest payment is earned, and the date on which such payments are made or received. The fund may also engage in position hedging to protect against a decline in the value relative to the U.S. dollar of the currencies in which its portfolio securities are denominated or quoted (or an increase in the value of the currency in which securities the fund intends to buy are denominated or quoted).

The fund may purchase or sell a foreign currency on a spot (or cash) basis at the prevailing spot rate in connection with the settlement of transactions in portfolio securities denominated in that foreign currency or for other hedging or non-hedging purposes. If conditions warrant, for hedging or non-hedging purposes, the fund may also enter into contracts to purchase or sell foreign currencies at a future date ("forward contracts")



and purchase and sell foreign currency futures contracts. The fund may also purchase or sell exchange-listed and over-the-counter call and put options on foreign currency futures contracts and on foreign currencies. A foreign currency futures contract is a standardized exchange-traded contract for the future delivery of a specified amount of a foreign currency at a price set at the time of the contract. Foreign currency futures contracts traded in the United States are designed by and traded on exchanges regulated by the Commodity Futures Trading Commission (the "CFTC"), such as the New York Mercantile Exchange, and have margin requirements.

A foreign currency forward contract is a negotiated agreement to exchange currency at a future time, which may be any fixed number of days from the date of the contract as agreed by the parties, at a price set at the time of the contract. The contract price may be higher or lower than the current spot rate. In the case of a cancelable forward contract, the holder has the unilateral right to cancel the contract at maturity by paying a specified fee. Forward foreign currency exchange contracts differ from foreign currency futures contracts in certain respects. For example, the maturity date of a forward contract may be any fixed number of days from the date of the contract agreed upon by the parties, rather than a predetermined date in a given month. Forward contracts may be in any amount agreed upon by the parties rather than predetermined amounts. In addition, forward contracts are traded in the interbank market conducted directly between currency traders (usually large commercial banks) and their customers, so that no intermediary is required. A forward contract generally has no deposit requirement, and no commissions are charged at any stage for trades.

At the maturity of a forward or futures contract, the fund either may accept or make delivery of the currency specified in the contract, or at or prior to maturity enter into a closing transaction involving the purchase or sale of an offsetting contract. Closing transactions with respect to forward contracts are usually effected with the currency trader who is a party to the original forward contract. Closing transactions with respect to futures contracts may be effected only on a commodities exchange or board of trade which provides a secondary market in such contracts; a clearing corporation associated with the exchange assumes responsibility for closing out such contracts.

Although the fund intends to purchase or sell foreign currency futures contracts only on exchanges or boards of trade where there appears to be an active secondary market, there is no assurance that a secondary market on an exchange or board of trade will exist for any particular contract or at any particular time. In such event, it may not be possible to close a futures position and, in the event of adverse price movements, the fund would continue to be required to make daily cash payments of variation margin.

It is impossible to forecast with precision the market value of portfolio securities at the expiration or maturity of a forward or futures contract. Accordingly, it may be necessary for the fund to purchase additional foreign currency on the spot market (and bear the expense of such purchase) if the market value of the security or securities being hedged is less than the amount of foreign currency the fund is obligated to deliver and a decision is made to sell the security or securities and make delivery of the foreign currency. Conversely, it may be necessary to sell on the spot market some of the foreign currency received upon the sale of the portfolio security or securities if the market value of such security or securities exceeds the amount of foreign currency the fund is obligated to deliver.

As noted above, the fund may purchase or sell exchange-listed and over-the-counter call and put options on foreign currency futures contracts and on foreign currencies. A put option on a futures contract gives the fund the right to assume a short position in the futures contract until the expiration of the option. A put option on a currency gives the fund the right to sell the currency at an exercise price until the expiration of the option. A call option on a futures contract gives the fund the right to assume a long position in the futures contract until the expiration of the option. A call option on a currency gives the fund the right to purchase the currency at the exercise price until the expiration of the option.

Foreign currency options are traded primarily in the over-the-counter market, although options on foreign currencies are also listed on several exchanges. Options are traded not only on the currencies of individual nations, but also on the euro, the joint currency of most countries in the European Union.

The fund will only purchase or write foreign currency options when Putnam Management believes that a liquid secondary market exists for such options. There can be no assurance that a liquid secondary market will exist for a particular option at any specific time. Options on foreign currencies may be affected by all of those factors which influence foreign exchange rates and investments generally.

The fund's currency hedging transactions may call for the delivery of one foreign currency in exchange for another foreign currency and may at times not involve currencies in which its portfolio securities are then denominated. Putnam Management will engage in such "cross hedging" activities when it believes that such transactions provide significant hedging opportunities for the fund. Cross hedging transactions by the fund involve the risk of imperfect correlation between changes in the values of the currencies to which such transactions relate and changes in the value of the currency or other asset or liability which is the subject of the hedge.

Transaction and position hedging do not eliminate fluctuations in the underlying prices of the securities that the fund owns or intends to purchase or sell. They simply establish a rate of exchange which one can achieve at some future point in time. Additionally, although these techniques tend to minimize the risk of loss due to a decline in the value of the hedged currency, they involve costs to the fund and tend to limit any potential gain which might result from the increase in value of such currency.

The fund may also engage in non-hedging currency transactions. For example, Putnam Management may believe that exposure to a currency is in the fund's best interest but that securities denominated in that currency are unattractive. In this situation, the fund may purchase a currency forward contract or option in order to increase its exposure to the currency. In accordance with SEC regulations, the fund will set aside liquid assets on its books to cover forward contracts used for non-hedging purposes.

In addition, the fund may seek to increase its current return or to offset some of the costs of hedging against fluctuations in current exchange rates by writing covered call options and covered put options on foreign currencies. The fund receives a premium from writing a call or put option, which increases the fund's current return if the option expires unexercised or is closed out at a net profit. The fund may terminate an option that it has written prior to its expiration by entering into a closing purchase transaction in which it purchases an option having the same terms as the option written.

The value of any currency, including U.S. dollars and foreign currencies, may be affected by complex political and economic factors applicable to the issuing country. In addition, the exchange rates of foreign currencies (and therefore the values of foreign currency options, forward contracts and futures contracts) may be affected significantly, fixed, or supported directly or indirectly by U.S. and foreign government actions. Government intervention may increase risks involved in purchasing or selling foreign currency options, forward contracts and futures contracts, since exchange rates may not be free to fluctuate in response to other market forces. The value of a foreign currency option, forward contract or futures contract reflects the value of an exchange rate, which in turn reflects relative values of two currencies -- the U.S. dollar and the foreign currency in question. Although foreign exchange dealers do not charge a fee for currency conversion, they do realize a profit based on the difference (the "spread") between prices at which they are buying and selling various currencies. Thus, a dealer may offer to sell a foreign currency to the fund at one rate, while offering a lesser rate of exchange should the fund desire to resell that currency to the dealer. Because foreign currency transactions occurring in the interbank market involve substantially larger amounts than those that may be involved in the exercise of foreign currency options, forward contracts and futures contracts, investors may be disadvantaged by having to deal in an odd-lot market for the underlying foreign currencies in connection with options at prices that are less favorable than for round lots. Foreign governmental restrictions or taxes could result in adverse changes in the cost of acquiring or disposing of foreign currencies.

There is no systematic reporting of last sale information for foreign currencies and there is no regulatory requirement that quotations available through dealers or other market sources be firm or revised on a timely basis. Available quotation information is generally representative of very large round-lot transactions in the interbank market and thus may not reflect exchange rates for smaller odd-lot transactions (less than \$1 million) where rates may be less favorable. The interbank market in foreign currencies is a global, around-the-clock market. To the extent that options markets are closed while the markets for the underlying currencies remain open, significant price and rate movements may take place in the underlying markets that cannot be reflected in the options markets.

The decision as to whether and to what extent the fund will engage in foreign currency exchange transactions will depend on a number of factors, including prevailing market conditions, the composition of the fund's portfolio and the availability of suitable transactions. Accordingly, there can be no assurance that the fund will engage in foreign currency exchange transactions at any given time or from time to time.

### **Foreign Investments and Related Risks**

Foreign securities are normally denominated and traded in foreign currencies. As a result, the value of the fund's foreign investments and the value of its shares may be affected favorably or unfavorably by changes in currency exchange rates relative to the U.S. dollar. In addition, the fund is required to compute and distribute its income in U.S. dollars. Therefore, if the exchange rate for a foreign currency declines after a fund's income has been earned and translated into U.S. dollars (but before payment), the fund could be required to liquidate portfolio securities to make such distributions. Similarly, if an exchange rate declines between the time a fund incurs expenses in U.S. dollars and the time such expenses are paid, the amount of such currency required to be converted into U.S. dollars in order to pay such expenses in U.S. dollars will be greater than the equivalent amount in any such currency of such expenses at the time they were incurred.

There may be less information publicly available about a foreign issuer than about a U.S. issuer, and foreign issuers may not be subject to accounting, auditing and financial reporting standards and practices comparable to those in the United States. In addition, there may be less (or less effective) regulation of exchanges, brokers and listed companies in some foreign countries. The securities of some foreign issuers are less liquid and at times more volatile than securities of comparable U.S. issuers. Foreign brokerage commissions, custodial expenses and other fees are also generally higher than in the United States.

Foreign settlement procedures and trade regulations may be more complex and involve certain risks (such as delay in payment or delivery of securities or in the recovery of the fund's assets held abroad) and expenses not present in the settlement of investments in U.S. markets. For example, settlement of transactions involving foreign securities or foreign currencies (see below) may occur within a foreign country, and the fund may accept or make delivery of the underlying securities or currency in conformity with any applicable U.S. or foreign restrictions or regulations, and may pay fees, taxes or charges associated with such delivery. Such investments may also involve the risk that an entity involved in the settlement may not meet its obligations.

In addition, foreign securities may be subject to the risk of nationalization or expropriation of assets, imposition of sanctions (whether imposed by the local sovereign or by the United States government), currency exchange controls, foreign withholding or other taxes or restrictions on the repatriation of foreign currency, confiscatory taxation, political, social or financial instability and diplomatic developments which could affect the value of the fund's investments in certain foreign countries. Dividends or interest on, or proceeds from the sale of, foreign securities may be subject to foreign withholding or other taxes, and special U.S. tax considerations may apply.

*Note on MSCI indices.* MSCI, Inc. (MSCI) publishes two versions of its indices reflecting the reinvestment of dividends using two different methodologies: gross dividends and net dividends. While both versions reflect reinvested dividends, they differ with respect to the manner in which taxes associated with dividend payments are treated. In calculating the net dividends version, MSCI incorporates reinvested dividends applying the

withholding tax rate applicable to foreign non-resident institutional investors that do not benefit from double taxation treaties. Putnam Management believes that the net dividends version of MSCI indices better reflects the returns U.S. investors might expect were they to invest directly in the component securities of an MSCI index.

Legal remedies available to investors in certain foreign countries may be more limited than those available with respect to investments in the United States or in other foreign countries.

The laws of some foreign countries may limit the fund's 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 foreigners and limits on the types of companies in which foreigners may invest (e.g., 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 may have less advantageous terms or rights or preferences 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 such restrictions may be marketable abroad, they may be less liquid than foreign securities of the same class that are not subject to such restrictions. Foreign laws may also impact the availability of derivatives or hedging techniques relating to a foreign country's government securities. In each of these situations, the funds' ability to invest significantly in desired issuers, or the terms of such investments, could be negatively impacted as a result of the relevant legal restriction. Sanctions imposed by the United States government on other countries or persons or issuers operating in such countries could restrict the fund's ability to buy affected securities or to sell any affected securities it has previously purchased, which may subject the fund to greater risk of loss in those securities.

For purposes of some foreign 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. Thus, even if the fund does not intend to exceed applicable limits, it is possible that different clients managed by Putnam Management and its affiliates (including separate affiliates owned by Power Corporation of Canada outside the Putnam Investments group) may be aggregated for this purpose. These limits may adversely affect the fund's ability to invest in the applicable security.

The risks described above, including the risks of nationalization or expropriation of assets, typically are increased in connection with investments in developing countries, also known as "emerging markets." For example, political and economic structures in these countries may be in their infancy and developing rapidly, and such countries may lack the social, political and economic stability characteristic of more developed countries. Certain of these countries have in the past failed to recognize private property rights and have at times nationalized and expropriated the assets of private companies. High rates of inflation or currency devaluations may adversely affect the economies and securities markets of such countries. Investments in emerging markets may be considered speculative.

The currencies of certain emerging market countries have experienced devaluations relative to the U.S. dollar, and future devaluations may adversely affect the value of assets denominated in such currencies. Many emerging market countries have experienced substantial, and in some periods extremely high, rates of inflation or deflation for many years, and future inflation may adversely affect the economies and securities markets of such countries.

In addition, unanticipated political or social developments may affect the value of investments in emerging markets and the availability of additional investments in these markets. The small size, limited trading volume and relative inexperience of the securities markets in these countries may make investments in securities traded in emerging markets illiquid and more volatile than investments in securities traded in more developed countries, and the fund may be required to establish special custodial or other arrangements before making investments in securities traded in emerging markets. There may be little financial or accounting information

available with respect to issuers of emerging market securities, and it may be difficult as a result to assess the value or prospects of an investment in such securities.

American Depositary Receipts (“ADRs”) as well as other “hybrid” forms of ADRs, including European Depositary Receipts (“EDRs”) and Global Depositary Receipts (“GDRs”), are certificates evidencing ownership of shares of a foreign issuer. These certificates are issued by depository banks and generally trade on an established market in the United States or elsewhere. The underlying shares are held in trust by a custodian bank or similar financial institution in the issuer’s home country. The depository bank may not have physical custody of the underlying securities at all times and may charge fees for various services, including forwarding dividends and interest and corporate actions. ADRs are alternatives to directly purchasing the underlying foreign securities in their national markets and currencies. However, ADRs continue to be subject to many of the risks associated with investing in foreign securities.

Certain of the foregoing risks may also apply to some extent to securities of U.S. issuers that are denominated in foreign currencies or that are traded in foreign markets, or securities of U.S. issuers having significant foreign operations.

### **Forward Commitments and Dollar Rolls**

The fund may enter into contracts to purchase securities for a fixed price at a future date beyond customary settlement time (“forward commitments”) if the fund sets aside on its books liquid assets in an amount sufficient to meet the purchase price, or if the fund enters into offsetting contracts for the forward sale of other securities it owns. In the case of to-be-announced (“TBA”) purchase commitments, the unit price and the estimated principal amount are established when the fund enters into a contract, with the actual principal amount being within a specified range of the estimate. Forward commitments may be considered securities in themselves, and involve a risk of loss if the value of the security to be purchased declines prior to the settlement date, which risk is in addition to the risk of decline in the value of the fund's other assets. Where such purchases are made through dealers, the fund relies on the dealer to consummate the sale. The dealer's failure to do so may result in the loss to the fund of an advantageous yield or price. Although the fund will generally enter into forward commitments with the intention of acquiring securities for its portfolio or for delivery pursuant to options contracts it has entered into, the fund may dispose of a commitment prior to settlement if Putnam Management deems it appropriate to do so. The fund may realize short-term profits or losses upon the sale of forward commitments.

The fund may enter into TBA sale commitments to hedge its portfolio positions, to sell securities it owns under delayed delivery arrangements, or to take a short position in mortgage-backed securities. Proceeds of TBA sale commitments are not received until the contractual settlement date. During the time a TBA sale commitment is outstanding, either equivalent deliverable securities or an offsetting TBA purchase commitment deliverable on or before the sale commitment date are held as “cover” for the transaction, or other liquid assets in an amount equal to the notional value of the TBA sale commitment are segregated. Where the fund purchases or sells an option, which is to be settled in cash, to buy or sell a TBA sale commitment, the fund will segregate cash or liquid assets in an amount equal to the current “mark-to-market” value of the option. Unsettled TBA sale commitments are valued at current market value of the underlying securities. If the TBA sale commitment is closed through the acquisition of an offsetting purchase commitment, the fund realizes a gain or loss on the commitment without regard to any unrealized gain or loss on the underlying security. If the fund delivers securities under the commitment, the fund realizes a gain or loss from the sale of the securities based upon the unit price established at the date the commitment was entered into.

The fund may enter into dollar roll transactions (generally using TBAs) in which it sells a fixed income security for delivery in the current month and simultaneously contracts to purchase similar securities (for example, same type, coupon and maturity) at an agreed upon future time. By engaging in a dollar roll transaction, the fund foregoes principal and interest paid on the security that is sold, but receives the difference between the current sales price and the forward price for the future purchase. The fund would also be able to

earn interest on the proceeds of the sale before they are reinvested. The fund accounts for dollar rolls as purchases and sales. Because cash (or other assets determined to be liquid by Putnam Management in accordance with procedures established by the Trustees) in the amount of the fund's commitment under a dollar roll is set aside on the fund's books, the fund does not consider these transactions to be borrowings for purposes of its investment restrictions.

The obligation to purchase securities on a specified future date involves the risk that the market value of the securities that the fund is obligated to purchase may decline below the purchase price. In addition, in the event the other party to the transaction files for bankruptcy, becomes insolvent or defaults on its obligation, the fund may be adversely affected.

### **Futures Contracts and Related Options**

Subject to applicable law, the fund may invest without limit in futures contracts and related options for hedging and non-hedging purposes, such as to manage the effective duration of the fund's portfolio or as a substitute for direct investment. A financial futures contract sale creates an obligation by the seller to deliver the type of financial instrument called for in the contract in a specified delivery month for a stated price. A financial futures contract purchase creates an obligation by the purchaser to take delivery of the type of financial instrument called for in the contract in a specified delivery month at a stated price. The specific instruments delivered or taken, respectively, at settlement date are not determined until on or near that date. The determination is made in accordance with the rules of the exchange on which the futures contract sale or purchase was made. Futures contracts are traded in the United States only on commodity exchanges or boards of trade -- known as "contract markets" -- approved for such trading by the CFTC, and must be executed through a futures commission merchant or brokerage firm which is a member of the relevant contract market. Examples of futures contracts that the fund may use (which may include single-security futures) include, without limitation, U.S. Treasury security futures, index futures, corporate or municipal bond futures, Government National Mortgage Association certificate futures, interest rate swap futures, commodities futures, futures contracts on sovereign debt, and Eurodollar futures. In addition, as described elsewhere in this SAI, the fund may use foreign currency futures.

Although futures contracts (other than index futures and futures based on the volatility or variance experienced by an index) by their terms call for actual delivery or acceptance of commodities or securities, in most cases the contracts are closed out before the settlement date without the making or taking of delivery. Index futures and futures based on the volatility or variance experienced by an index do not call for actual delivery or acceptance of commodities or securities, but instead require cash settlement of the futures contract on the settlement date specified in the contract. Such contracts may also be closed out before the settlement date. Closing out a futures contract sale is effected by purchasing a futures contract for the same aggregate amount of the specific type of financial instrument or commodity with the same delivery date. If the price of the initial sale of the futures contract exceeds the price of the offsetting purchase, the seller is paid the difference and realizes a gain. Conversely, if the price of the offsetting purchase exceeds the price of the initial sale, the seller realizes a loss. If the fund is unable to enter into a closing transaction, the amount of the fund's potential loss is unlimited. The closing out of a futures contract purchase is effected by the purchaser's entering into a futures contract sale. If the offsetting sale price exceeds the purchase price, the purchaser realizes a gain, and if the purchase price exceeds the offsetting sale price, he realizes a loss.

Unlike when the fund purchases or sells a security, no price is paid or received by the fund upon the purchase or sale of a futures contract. Instead, upon entering into a contract, the fund is required to deliver to the futures broker an amount of liquid assets. This amount is known as "initial margin." The nature of initial margin in futures transactions is different from that of margin in security transactions in that futures contract margin does not involve the borrowing of funds to finance the transactions. Rather, initial margin is similar to a performance bond or good faith deposit which is returned to the fund upon termination of the futures contract, assuming all contractual obligations have been satisfied. Futures contracts also involve brokerage costs.

Subsequent payments, called "variation margin" or "maintenance margin," to and from the broker are made on a daily basis as the price of the underlying security or commodity fluctuates, making the long and short positions in the futures contract more or less valuable, a process known as "marking to the market." For example, when the fund has purchased a futures contract on a security and the price of the underlying security has risen, that position will have increased in value and the fund will receive from the broker a variation margin payment based on that increase in value. Conversely, when the fund has purchased a security futures contract and the price of the underlying security has declined, the position would be less valuable and the fund would be required to make a variation margin payment to the broker.

The fund may elect to close some or all of its futures positions at any time prior to their expiration in order to reduce or eliminate a position then currently held by the fund. The fund may close its positions by taking opposite positions which will operate to terminate the fund's position in the futures contracts. Final determinations of variation margin are then made, additional cash is required to be paid by or released to the fund, and the fund realizes a loss or a gain. Such closing transactions involve additional commission costs.

A portion of any capital gains from futures contracts in which the fund invests directly will be treated for federal income tax purposes as short-term capital gains that, when distributed to taxable shareholders, will be taxable as ordinary income. The fund's investments in futures may cause the fund to recognize income without receiving cash with which to make the distributions necessary to qualify and be eligible for treatment as a regulated investment company and avoid a fund-level tax. The fund may therefore need to liquidate other investments, including when it is not advantageous to do so, to meet its distribution requirement.

Except in the case of Putnam PanAgora Managed Futures Strategy and Putnam PanAgora Risk Parity Fund, no fund intends to purchase or sell futures or related options for other than hedging purposes, if, as a result, the sum of the initial margin deposits on the fund's existing futures and related options positions and premiums paid for outstanding options on futures contracts would exceed 5% of the fund's net assets.

Each of the funds and subsidiaries set forth below is a commodity pool under the Commodity Exchange Act (the "CEA"), and each of Putnam Management and PanAgora is registered as a "commodity pool operator" under the CEA with respect to each such fund. PanAgora is also registered as a Commodity Trading Advisor under the CEA. Since Putnam Management, PanAgora, and the funds and subsidiaries set forth below are subject to regulation by the CFTC under the CEA, they are required to comply with applicable CFTC disclosure, reporting, and recordkeeping requirements. The disclosure, reporting and, recordkeeping requirements associated with registration with the CFTC as a CPO would ordinarily be in addition to those requirements already imposed onto the funds, Putnam Management, and PanAgora by the SEC. In August 2013, the CFTC issued a rule that permits a registered investment company to elect to comply with certain CFTC obligations by agreeing to comply with certain SEC disclosure, reporting, and recordkeeping requirements. The funds listed below have elected to comply with certain CFTC disclosure, reporting, and recordkeeping requirements by agreeing to comply with applicable SEC requirements.

**Fund**

Putnam PanAgora Managed Futures Strategy  
Putnam PanAgora Risk Parity Fund

**Subsidiary**

Putnam PanAgora Managed Futures Strategy, Ltd.  
Putnam PanAgora Risk Parity Fund, Ltd.

As a result, additional CFTC-mandated disclosure, reporting and recordkeeping obligations apply to these Funds and their respective subsidiaries, and compliance with the CFTC's regulatory requirements could increase Fund expenses, adversely affecting a Fund's total return. With respect to each other Putnam fund, Putnam Management has claimed an exclusion from the definition of the term "commodity pool operator" under the CEA pursuant to Rule 4.5 under the CEA (the "exclusion") promulgated by the CFTC. Accordingly, Putnam Management (with respect to these funds) is not subject to registration or regulation as a "commodity pool operator" under the CEA. To remain eligible for the exclusion, each of these funds will be limited in its ability to use certain financial instruments regulated under the CEA ("commodity interests"), including futures and options on futures and certain swaps transactions. In the event that a fund's investments in commodity

interests are not within the thresholds set forth in the exclusion, Putnam Management may be required to register as a “commodity pool operator” and/or “commodity trading advisor” with the CFTC with respect to that fund. Putnam Management’s eligibility to claim the exclusion with respect to a fund will be based upon, among other things, the level and scope of the fund’s investment in commodity interests, the purposes of such investments and the manner in which the fund holds out its use of commodity interests. A fund’s ability to invest in commodity interests (including, but not limited to, futures and swaps on broad-based securities indexes and interest rates) is limited by Putnam Management’s intention to operate the fund in a manner that would permit Putnam Management to continue to claim the exclusion under Rule 4.5, which may adversely affect the fund’s total return. In the event the fund’s investments in commodity interests require Putnam Management to register with the CFTC as a commodity pool operator with respect to a fund, the fund’s expenses may increase, adversely affecting that fund’s total return.

**Index futures.** An index futures contract is a contract to buy or sell units of an index at a specified future date at a price agreed upon when the contract is made. Entering into a contract to buy units of an index is commonly referred to as buying or purchasing a contract or holding a long position in the index. Entering into a contract to sell units of an index is commonly referred to as selling a contract or holding a short position. A unit is the current value of the index. The fund may enter into stock index futures contracts, debt index futures contracts, or other index futures contracts appropriate to its objective(s). The fund may also purchase and sell options on index futures contracts.

For example, the Standard & Poor's 500 Composite Stock Price Index ("S&P 500") is composed of 500 selected U.S. common stocks. The S&P 500 assigns relative weightings to the common stocks included in the Index, and the value fluctuates with changes in the market values of those common stocks. In the case of the S&P 500, contracts are currently to buy or sell 250 units. Thus, if the value of the S&P 500 were \$150, one contract would be worth \$37,500 (250 units x \$150). The stock index futures contract specifies that no delivery of the actual stocks making up the index will take place. Instead, settlement in cash must occur upon the termination of the contract, with the settlement being the difference between the contract price and the actual level of the stock index at the expiration of the contract. For example, if the fund enters into a futures contract to buy 250 units of the S&P 500 at a specified future date at a contract price of \$150 and the S&P 500 is at \$154 on that future date, the fund will gain \$1,000 (250 units x gain of \$4). If the fund enters into a futures contract to sell 250 units of the stock index at a specified future date at a contract price of \$150 and the S&P 500 is at \$152 on that future date, the fund will lose \$500 (250 units x loss of \$2).

**Options on futures contracts.** The fund may purchase and write call and put options on futures contracts it may buy or sell and enter into closing transactions with respect to such options to terminate existing positions. In return for the premium paid, options on futures contracts give the purchaser the right to assume a position in a futures contract at the specified option exercise price at any time during the period of the option. Upon exercise of the option, the delivery of the futures position by the writer of the option to the holder of the option will be accompanied by delivery of the accumulated balance in the writer's futures margin account which represents the amount by which the market price of the futures contract, at exercise, exceeds (in the case of a call) or is less than (in the case of a put) the exercise price of the option on the future. If an option is exercised on the last trading day prior to its expiration date, the settlement will be made entirely in cash equal to the difference between the exercise price of the option and the closing level of the underlying asset on which the future is based on the expiration date. Purchasers of options who fail to exercise their options prior to the exercise date suffer a loss of the premium paid.

The fund may use options on futures contracts in lieu of writing or buying options directly on the underlying securities or indices or purchasing and selling the underlying futures contracts. For example, to hedge against a possible decrease in the value of its portfolio securities, the fund may purchase put options or write call options on futures contracts rather than selling futures contracts. Similarly, the fund may purchase call options or write put options on futures contracts as a substitute for the purchase of futures contracts to hedge against a possible increase in the price of securities which the fund expects to purchase. Such options generally operate in the same manner, and involve the same risks, as options purchased or written directly on the underlying



investments. In addition, the fund will be required to deposit initial margin and maintenance margin with respect to put and call options on futures contracts written by it pursuant to brokers' requirements similar to those described above in connection with the discussion of futures contracts. The writing of an option on a futures contract involves risks similar to those relating to the sale of futures contracts.

Compared to the purchase or sale of futures contracts, the purchase of call or put options on futures contracts generally involves less potential risk to the fund because the maximum amount at risk is the premium paid for the options (plus transaction costs). However, there may be circumstances when the purchase of a call or put option on a futures contract would result in a loss to the fund when the purchase or sale of a futures contract would not, such as when there is no movement in the prices of the hedged investments.

As an alternative to purchasing call and put options on index futures, the fund may purchase and sell call and put options on the underlying indices themselves. Such options would be used in a manner identical to the use of options on index futures.

**Risks of transactions in futures contracts and related options.** Successful use of futures contracts by the fund is subject to Putnam Management's ability to predict movements in various factors affecting securities markets, including interest rates and market movements, and, in the case of index futures and futures based on the volatility or variance experienced by an index, Putnam Management's ability to predict the future level of the index or the future volatility or variance experienced by an index. For example, it is possible that, where the fund has sold futures to hedge its portfolio against a decline in the market, the index on which the futures are written may advance and the value of securities held in the fund's portfolio, which may differ from those that comprise the index, may decline. If this occurred, the fund would lose money on the futures and also experience a decline in value in its portfolio securities. It is also possible that, if the fund has hedged against the possibility of a decline in the market adversely affecting securities held in its portfolio and securities prices increase instead, the fund will lose part or all of the benefit of the increased value of those securities it has hedged because it will have offsetting losses in its futures positions. In addition, in such situations, if the fund has insufficient cash, it may have to sell securities to meet daily variation margin requirements at a time when it is disadvantageous to do so.

The use of options and futures strategies also involves the risk of imperfect correlation among movements in the prices of the securities or other assets underlying the futures and options purchased and sold by the fund, of the options and futures contracts themselves, and, in the case of hedging transactions, of the securities which are the subject of a hedge. In addition to the possibility that there may be an imperfect correlation, or no correlation at all, between movements in the futures used by the fund and the portion of the portfolio being hedged, the prices of futures may not correlate perfectly with movements in the underlying asset due to certain market distortions. First, all participants in the futures market are subject to margin deposit and maintenance requirements. Rather than meeting additional margin deposit requirements, investors may close futures contracts through offsetting transactions which could distort the expected relationship between the underlying asset and futures markets. Second, margin requirements in the futures market are less onerous than margin requirements in the securities market, and as a result the futures market may attract more speculators than the securities market does. Increased participation by speculators in the futures market may also cause temporary price distortions. Due to the possibility of price distortions in the futures market and also because of the imperfect correlation between movements in the underlying asset and movements in the prices of related futures, even a correct forecast of general market trends by Putnam Management may still not result in a profitable position.

There is no assurance that higher than anticipated trading activity or other unforeseen events might not, at times, render certain market clearing facilities inadequate, and thereby result in the institution by exchanges of special procedures which may interfere with the timely execution of customer orders.

To reduce or eliminate a position held by the fund, the fund may seek to close out such position. The ability to establish and close out positions will be subject to the development and maintenance of a liquid secondary

market. It is not certain that this market will develop or continue to exist for a particular futures contract or option. Reasons for the absence of a liquid secondary market on an exchange include the following: (i) there may be insufficient trading interest in certain contracts or options; (ii) restrictions may be imposed by an exchange on opening transactions or closing transactions or both; (iii) trading halts, suspensions or other restrictions may be imposed with respect to particular classes or series of contracts or options, or underlying securities; (iv) unusual or unforeseen circumstances may interrupt normal operations on an exchange; (v) the facilities of an exchange or a clearing corporation may not at all times be adequate to handle current trading volume; or (vi) one or more exchanges could, for economic or other reasons, decide or be compelled at some future date to discontinue the trading of contracts or options (or a particular class or series of contracts or options), in which event the secondary market on that exchange for such contracts or options (or in the class or series of contracts or options) would cease to exist, although outstanding contracts or options on the exchange that had been issued by a clearing corporation as a result of trades on that exchange would continue to be exercisable in accordance with their terms.

## **Hybrid Instruments**

These instruments are generally considered derivatives and include indexed or structured securities, and combine the elements of futures contracts or options with those of debt, preferred equity or a depository instrument. A hybrid instrument may be a debt security, preferred stock, warrant, convertible security, certificate of deposit or other evidence of indebtedness on which a portion of or all interest payments, and/or the principal or stated amount payable at maturity, redemption or retirement is determined by reference to prices, changes in prices, or differences between prices, of securities, currencies, intangibles, goods, articles or commodities (collectively, “underlying assets”), or by another objective index, economic factor or other measure, including interest rates, currency exchange rates, or commodities or securities indices (collectively, “benchmarks”).

The risks of investing in hybrid instruments reflect a combination of the risks of investing in securities, options, futures and currencies. An investment in a hybrid instrument may entail significant risks that are not associated with a similar investment in a traditional debt instrument that has a fixed principal amount, is denominated in U.S. dollars or pays interest either at a fixed rate or a floating rate determined by reference to a common, nationally published benchmark. The risks of a particular hybrid instrument will depend upon the terms of the instrument, but may include the possibility of significant changes in the benchmark(s) or the prices of the underlying assets to which the instrument is linked. Such risks generally depend upon factors unrelated to the operations or credit quality of the issuer of the hybrid instrument, which may not be foreseen by the purchaser, such as economic and political events, the supply and demand of the underlying assets and interest rate movements. Hybrid instruments may be highly volatile and their use by the fund may not be successful.

Hybrid instruments may bear interest or pay preferred dividends at below market (or even relatively nominal) rates. Alternatively, hybrid instruments may bear interest at above market rates but bear an increased risk of principal loss (or gain). The latter scenario may result if “leverage” is used to structure the hybrid instrument. Leverage risk occurs when the hybrid instrument is structured so that a given change in a benchmark or underlying asset is multiplied to produce a greater value change in the hybrid instrument, thereby magnifying the risk of loss as well as the potential for gain.

Hybrid instruments can be an efficient means of creating exposure to a particular market, or segment of a market, with the objective of enhancing total return. For example, a fund may wish to take advantage of expected declines in interest rates in several European countries, but avoid the transaction costs associated with buying and currency-hedging the foreign bond positions. One solution would be to purchase a U.S. dollar-denominated hybrid instrument whose redemption price is linked to the average three year interest rate in a designated group of countries. The redemption price formula would provide for payoffs of less than par if rates were above the specified level. Furthermore, a fund could limit the downside risk of the security by establishing a minimum redemption price so that the principal paid at maturity could not be below a

predetermined minimum level if interest rates were to rise significantly. The purpose of this arrangement, known as a structured security with an embedded put option, would be to give the fund the desired European bond exposure while avoiding currency risk, limiting downside market risk, and lowering transaction costs. Of course, there is no guarantee that the strategy will be successful and the fund could lose money if, for example, interest rates do not move as anticipated or credit problems develop with the issuer of the hybrid instrument.

Hybrid instruments are potentially more volatile and carry greater market risks than traditional debt instruments. Depending on the structure of the particular hybrid instrument, changes in a benchmark may be magnified by the terms of the hybrid instrument and have an even more dramatic and substantial effect upon the value of the hybrid instrument. Also, the prices of the hybrid instrument and the benchmark or underlying asset may not move in the same direction or at the same time.

Hybrid instruments may also carry liquidity risk since the instruments are often “customized” to meet the portfolio needs of a particular investor, and therefore, the number of investors that are willing and able to buy such instruments in the secondary market may be smaller than that for more traditional debt securities. Under certain conditions, the redemption value of such an investment could be zero. In addition, because the purchase and sale of hybrid investments could take place in an over-the-counter market without the guarantee of a central clearing organization, or in a transaction between the fund and the issuer of the hybrid instrument, the creditworthiness of the counterparty of the issuer of the hybrid instrument would be an additional risk factor the fund would have to consider and monitor. In addition, uncertainty regarding the tax treatment of hybrid instruments may reduce demand for such instruments. Tax considerations may also limit the extent of the fund’s investments in certain hybrid instruments. Hybrid instruments also may not be subject to regulation by the CFTC, which generally regulates the trading of commodity futures by U.S. persons, the SEC, which regulates the offer and sale of securities by and to U.S. persons, or any other governmental regulatory authority.

### **Illiquid Investments**

Each Putnam money market fund will not invest in (a) securities which are not readily marketable, (b) securities restricted as to resale (excluding securities determined by the Trustees of the fund (or the person designated by the Trustees of the fund to make such determinations) to be readily marketable), and (c) repurchase agreements maturing in more than seven days, if, as a result, more than 10% of the fund’s net assets (taken at current value) would be invested in securities described in (a), (b) and (c). Effective December 1, 2018, Rule 22e-4 under the 1940 Act provides that mutual funds (other than money market funds) may not acquire any illiquid investment if, immediately after the acquisition, the fund would have invested more than 15% of its net assets in illiquid investments that are assets. The term “illiquid investment” for this purpose means any investment that a fund reasonably expects cannot be sold or disposed of in current market conditions in seven calendar days or less without the sale or disposition significantly changing the market value of the investment.

A fund’s illiquid investments may be considered speculative and may be difficult to sell. The sale of many of these investments may be prohibited or limited by law or contract. Illiquid investments may be difficult to value for purposes of calculating a fund’s net asset value. A fund may not be able to sell illiquid investments when Putnam Management considers it desirable to do so, or a fund may be able to sell them only at less than their value. The larger size of certain fund holdings and the lack of liquidity in securities markets may limit a fund’s ability to sell illiquid investments, or to sell them at appropriate prices, thereby negatively impacting the fund.

### **Inflation-Protected Securities**

The fund may invest in U.S. Treasury Inflation Protected Securities (“U.S. TIPS”), which are fixed income securities issued by the U.S. Department of Treasury, the principal amounts of which are adjusted daily based upon changes in the rate of inflation. The fund may also invest in other inflation-protected securities issued by

non-U.S. governments or by private issuers. U.S. TIPS pay interest on a semi-annual basis, equal to a fixed percentage of the inflation-adjusted principal amount. The interest rate on these bonds is fixed at issuance, but over the life of the bond this interest may be paid on an increasing or decreasing principal value that has been adjusted for inflation.

Repayment of the original bond principal upon maturity (as adjusted for inflation) is guaranteed for U.S. TIPS, even during a period of deflation. However, because the principal amount of U.S. TIPS would be adjusted downward during a period of deflation, the fund will be subject to deflation risk with respect to its investments in these securities. In addition, the current market value of the bonds is not guaranteed, and will fluctuate. If the fund purchases U.S. TIPS in the secondary market whose principal values have been adjusted upward due to inflation since issuance, the fund may experience a loss if there is a subsequent period of deflation. The fund may also invest in other inflation-related bonds which may or may not provide a guarantee of principal. If a guarantee of principal is not provided, the adjusted principal value of the bond repaid at maturity may be less than the original principal amount.

The periodic adjustment of U.S. TIPS is currently tied to the CPI-U, which is calculated by the U.S. Department of Treasury. The CPI-U is a measurement of changes in the cost of living, made up of components such as housing, food, transportation and energy. Inflation-protected bonds issued by a non-U.S. government are generally adjusted to reflect a comparable inflation index, calculated by that government. There can be no assurance that the CPI-U or any non-U.S. inflation index will accurately measure the real rate of inflation in the prices of goods and services. If interest rates rise due to reasons other than inflation (for example, due to changes in currency exchange rates), investors in these securities may not be protected to the extent that the increase is not reflected in the bond's inflation measure. In addition, there can be no assurance that the rate of inflation in a non-U.S. country will be correlated to the rate of inflation in the United States. In general, the value of inflation-protected bonds is expected to fluctuate in response to changes in real interest rates, which are in turn tied to the relationship between nominal interest rates and the rate of inflation. Therefore, if inflation were to rise at a faster rate than nominal interest rates, real interest rates might decline, leading to an increase in value of inflation-protected bonds. In contrast, if nominal interest rates increased at a faster rate than inflation, real interest rates might rise, leading to a decrease in value of inflation-protected bonds. If inflation is lower than expected during the period the fund holds the security, the fund may earn less on the security than on a conventional bond. Any increase in principal value is taxable in the year the increase occurs, even though holders do not receive cash representing the increase at that time. As a result, when the fund invests in inflation-protected securities, it could be required at times to liquidate other investments, including when it is not advantageous to do so, in order to satisfy its distribution requirements as a regulated investment company and to eliminate any fund-level income tax liability under the Code.

The U.S. Treasury began issuing inflation-protected bonds in 1997. Certain non-U.S. governments, such as the United Kingdom, Canada and Australia, have a longer history of issuing inflation-protected bonds, and there may be a more liquid market in certain of these countries for these securities.

### **Initial Public Offerings**

The fund may purchase debt or equity securities in initial public offerings ("IPOs"). These securities, which are often issued by unseasoned companies, may be subject to many of the same risks of investing in companies with smaller market capitalizations. Securities issued in IPOs have no trading history, and information about the companies may be available for very limited periods. Securities issued in an IPO frequently are very volatile in price, and the fund may hold securities purchased in an IPO for a very short period of time. As a result, the fund's investments in IPOs may increase portfolio turnover, which increases brokerage and administrative costs and may result in taxable distributions to shareholders.

At any particular time or from time to time the fund may not be able to invest in securities issued in IPOs, or invest to the extent desired because, for example, only a small portion (if any) of the securities being offered in an IPO may be made available to the fund. In addition, under certain market conditions a relatively small

number of companies may issue securities in IPOs. Similarly, as the number of Putnam funds to which IPO securities are allocated increases, the number of securities issued to any one fund may decrease. The investment performance of the fund during periods when it is unable to invest significantly or at all in IPOs may be lower than during periods when the fund is able to do so. In addition, as the fund increases in size, the impact of IPOs on the fund's performance will generally decrease.

### **Interfund Borrowing and Lending**

To satisfy redemption requests or to cover unanticipated cash shortfalls, the fund has entered into a Master Interfund Lending Agreement by and among each Putnam fund and Putnam Management (the "Interfund Lending Agreement") under which the fund may lend or borrow money for temporary purposes directly to or from another Putnam fund (an "Interfund Loan"), subject to meeting the conditions of an SEC exemptive order granted to the fund permitting such Interfund Loans. All Interfund Loans would consist only of uninvested cash reserves that the lending fund otherwise would invest in short-term repurchase agreements or other short-term instruments. At this time, Putnam Short-Term Investment Fund is the only Putnam fund expected to make its uninvested cash reserves available for Interfund Loans.

If the fund has outstanding borrowings, any Interfund Loans to the fund (a) would be at an interest rate equal to or lower than that of any outstanding bank loan, (b) would be secured at least on an equal priority basis with at least an equivalent percentage of collateral to loan value as any outstanding bank loan that requires collateral, and (c) would have a maturity no longer than any outstanding bank loan (and in any event not over seven days). In addition, if an event of default were to occur under any agreement evidencing an outstanding bank loan to the fund, the event of default would automatically (without need for action or notice by the lending fund) constitute an immediate event of default under the Interfund Lending Agreement entitling the lending fund to call the Interfund Loan (and exercise all rights with respect to any collateral) and such a call would be deemed made if the lending bank exercises its right to call its loan under its agreement with the borrowing fund.

The fund may make an unsecured borrowing under the Interfund Lending Agreement if its outstanding borrowings from all sources immediately after the interfund borrowing total 10% or less of its total assets; provided, that if the fund has a secured loan outstanding from any other lender, including but not limited to another Putnam fund, the fund's Interfund Loan would be secured on at least an equal priority basis with at least an equivalent percentage of collateral to loan value as any outstanding loan secured by collateral. If the fund's total outstanding borrowings immediately after an interfund borrowing would be greater than 10% of its total assets, the fund may borrow through the credit facility on a secured basis only. All secured Interfund Loans would be secured by the pledge of segregated collateral with a market value equal to at least 102% of the outstanding principal value of the Interfund Loan. The fund may not borrow from any source if its total outstanding borrowings immediately after the borrowing would exceed the limits imposed by Section 18 of the 1940 Act or the fund's fundamental investment restrictions.

The fund may not lend to another Putnam fund under the Interfund Lending Agreement if the Interfund Loan would cause its aggregate outstanding Interfund Loans to exceed 15% of the fund's current net assets at the time of the Interfund Loan. The fund's Interfund Loans to any one fund may not exceed 5% of the lending fund's net assets. The duration of Interfund Loans would be limited to the time required to receive payment for securities sold, but in no event may the duration exceed seven days. Interfund Loans effected within seven days of each other would be treated as separate loan transactions for purposes of this condition. Each Interfund Loan may be called on one business day's notice by a lending fund and may be repaid on any day by a borrowing fund.

The limitations detailed above and the other conditions of the SEC exemptive order permitting interfund lending are designed to minimize the risks associated with interfund lending for both the lending fund and the borrowing fund. However, no borrowing or lending activity is without risk. If the fund borrows money from another fund, there is a risk that the Interfund Loan could be called on one day's notice or not renewed, in

which case the fund may have to borrow from a bank at higher rates if an Interfund Loan were not available from another fund. A delay in repayment to a lending fund could result in a lost opportunity or additional lending costs, and interfund loans are subject to the risk that the borrowing fund could be unable to repay the loan when due.

### **Inverse Floaters**

These securities have variable interest rates that typically move in the opposite direction from movements in prevailing short-term interest rate levels – rising when prevailing short-term interest rate fall, and vice versa. The prices of inverse floaters can be considerably more volatile than the prices of bonds with comparable maturities.

### **Investments in Wholly-Owned Subsidiaries**

Each of Putnam PanAgora Managed Futures Strategy and Putnam PanAgora Risk Parity Fund may invest up to 25% of its total assets in its wholly-owned and controlled subsidiary, organized under the laws of the Cayman Islands as an exempted company (each, a “Subsidiary” and collectively, the “Subsidiaries”) in order to gain exposure to the commodities markets within the limitations of the federal tax laws, rules and regulations that apply to regulated investment companies.

Generally, each Subsidiary will invest primarily in commodity futures, and, in the case of Putnam PanAgora Risk Parity Fund, swaps on commodity futures, but each Subsidiary may also invest in other commodity-related instruments (such as financial futures, option and swap contracts). Each Subsidiary may also have exposure to equity and fixed income securities, cash and cash equivalents, pooled investment vehicles (including those that are not registered pursuant to the 1940 Act) and other investments, either as investments or to serve as margin or collateral for the Subsidiary’s derivative positions. Unlike a fund, the Subsidiary may invest without limitation in commodity-linked derivatives. By investing in a Subsidiary, each of Putnam PanAgora Managed Futures Strategy and Putnam PanAgora Risk Parity Fund is indirectly exposed to the risks associated with the Subsidiary’s investments. Except as described below, the Subsidiaries are not registered under the 1940 Act and are not subject to all of the investor protections of the 1940 Act. Changes in the laws of the United States and/or the Cayman Islands could result in the inability of the fund and/or the Subsidiary to operate as described in the prospectus and could adversely affect the fund.

The Chief Compliance Officer of Putnam PanAgora Managed Futures Strategy and Putnam PanAgora Risk Parity Fund oversees implementation of each Subsidiary’s policies and procedures, and makes periodic reports to the Board regarding each Subsidiary’s compliance with its policies and procedures. Putnam PanAgora Managed Futures Strategy, Putnam PanAgora Risk Parity Fund and each Subsidiary test for compliance with investment restrictions on a consolidated basis, except that with respect to its investments in certain securities that may involve leverage, each Subsidiary complies with asset segregation requirements to the same extent as the applicable fund.

PanAgora provides investment management and other services to each Subsidiary. PanAgora does not receive increased compensation by virtue of providing each Subsidiary with investment management or administrative services. However, Putnam Management pays PanAgora based on each of Putnam PanAgora Managed Futures Strategy’s and Putnam PanAgora Risk Parity Fund’s assets, including the assets invested in the applicable Subsidiary. Each Subsidiary will also enter into separate contracts for the provision of custody and audit services with the same or with affiliates of the same service providers that provide those services to the applicable fund.

The financial statements of each of Putnam PanAgora Managed Futures Strategy and Putnam PanAgora Risk Parity Fund will be consolidated with the financial statements of the applicable Subsidiary in the fund’s Annual and Semi-Annual Reports. The fund’s Annual and Semi-Annual Reports are distributed to

shareholders, and copies of the reports are provided without charge upon request as indicated on the back cover of the prospectus.

In order for the fund to qualify as a regulated investment company under Subchapter M of the Code the fund must derive at least 90 percent of its gross income each taxable year from certain sources of “qualifying income” specified in the Code. Income from certain commodity-linked derivative instruments in which the fund might invest may not be considered qualifying income. Each of Putnam PanAgora Managed Futures Strategy’s and Putnam PanAgora Risk Parity Fund’s investment in a Subsidiary is expected to provide the fund with exposure to the commodities markets within the limitations of the federal income tax requirements of Subchapter M of the Code. Each of Putnam PanAgora Managed Futures Strategy’s and Putnam PanAgora Risk Parity Fund’s pursuit of its investment strategy may be limited by the fund’s intention to qualify for treatment as a regulated investment company under Subchapter M of the Code. As noted below in “Taxes,” the rules regarding the extent to which annual net income, if any, realized by a Subsidiary and included in a fund’s annual income for U.S. federal income purposes will constitute “qualifying income” for purposes of the fund’s qualification as a regulated investment company under the Code are unclear and currently under consideration. If a net loss is realized by a Subsidiary, such loss is generally not available to offset income or capital gain generated from the fund’s other investments. In addition, a Subsidiary is not permitted to carry forward any net ordinary losses it realizes in a taxable year to offset ordinary income it realizes in subsequent taxable years.

### **Legal and Regulatory Risks Relating to Investment Strategy**

The fund may be adversely affected by new (or revised) laws or regulations that may be imposed by the CFTC, the SEC, the U.S. Federal Reserve or other banking regulators, or other governmental regulatory authorities or self-regulatory organizations that supervise the financial markets. These agencies are empowered to promulgate a variety of rules pursuant to financial reform legislation in the United States. The fund may also be adversely affected by changes in the enforcement or interpretation of existing statutes and rules. The regulatory environment for private funds is evolving, and changes in the regulation of private funds may adversely affect the value of the investments held by the fund and the ability of the fund to execute its investment strategy. In addition, the securities and futures markets are subject to comprehensive statutes, regulations and margin requirements. The CFTC, the SEC, the Federal Deposit Insurance Corporation, other regulators and self-regulatory organizations and exchanges are authorized to take extraordinary actions in the event of market emergencies. The regulation of derivatives transactions and funds that engage in such transactions is an evolving area of law and is subject to modification by government and judicial action.

In October 2016, the SEC adopted a liquidity risk management rule that will require each fund (other than Putnam money market funds) to establish a liquidity risk management program by December 1, 2018. The impact the rule will have on the funds, and on the open-end fund industry in general, is not yet fully known, but the rule could impact a fund’s performance and its ability to achieve its investment objective(s).

The U.S. government recently enacted legislation that provides for new regulation of the derivatives market, including new clearing, margin, reporting and registration requirements. Because the legislation leaves much to rule making, its ultimate impact remains unclear. New regulations could, among other things, adversely affect the value of the investments held by the fund, restrict the fund’s ability to engage in derivatives transactions (for example, by making certain types of derivatives transactions no longer available to the fund) and/or increase the costs of such derivatives transactions (for example, by increasing margin or capital requirements), and the fund may be unable to execute its investment strategy as a result. It is unclear how the regulatory changes will affect counterparty risk.

The CFTC and certain futures exchanges have established limits, referred to as “position limits,” on the maximum net long or net short positions which any person may hold or control in particular options and futures contracts. 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 position limits have been exceeded.

Thus, even if the fund does not intend to exceed applicable position limits, it is possible that different clients managed by Putnam Management and its affiliates may be aggregated for this purpose. Any modification of trading decisions or elimination of open positions that may be required to avoid exceeding such limits may adversely affect the profitability of the fund.

The SEC has in the past adopted interim rules requiring reporting of all short positions above a certain threshold and is expected to adopt rules requiring monthly public disclosure in the future. In addition, other non-U.S. jurisdictions where the fund may trade have adopted reporting requirements. If the fund's short positions or its strategy become generally known, the fund's ability to implement its investment strategy could be adversely affected. In particular, other investors could cause a "short squeeze" in the securities held short by the fund forcing the fund to cover its positions at a loss. Such reporting requirements may also limit the fund's ability to access management and other personnel at certain companies where the fund seeks to take a short position. In addition, if other investors engage in copycat behavior by taking positions in the same issuers as the fund, the cost of borrowing securities to sell short could increase drastically and the availability of such securities to the fund could decrease drastically. In addition, the SEC recently proposed additional restrictions on short sales, which could restrict the fund's ability to engage in short sales in certain circumstances. The SEC and regulatory authorities in other jurisdictions may adopt (and in certain cases, have adopted) bans on short sales of certain securities in response to market events. Bans on short selling may make it impossible for the fund to execute certain investment strategies.

Recently enacted federal legislation requires the adoption of regulations that will require any creditor that makes a loan and any securitizer of a loan to retain at least 5% of the credit risk on any loan that is transferred, sold or conveyed by such creditor or securitizer. It is currently unclear how these requirements will apply to loan participations, syndicated loans, and loan assignments. Investors, such as the fund, that seek or hold investments in loans could be adversely affected by the regulation.

### **Lower-rated Securities**

The fund may invest in lower-rated fixed-income securities (commonly known as "junk bonds"). The lower ratings reflect a greater possibility that adverse changes in the financial condition of the issuer or in general economic conditions, or both, or an unanticipated rise in interest rates, may impair the ability of the issuer to make payments of interest and principal. The inability (or perceived inability) of issuers to make timely payment of interest and principal would likely make the values of securities held by the fund more volatile and could limit the fund's ability to sell its securities at prices approximating the values the fund had placed on such securities. In the absence of a liquid trading market for securities held by it, the fund at times may be unable to establish the fair value of such securities.

Securities ratings are based largely on the issuer's historical financial condition and the rating agencies' analysis at the time of rating. Consequently, the rating assigned to any particular security is not necessarily a reflection of the issuer's current financial condition, which may be better or worse than the rating would indicate. In addition, the rating assigned to a security by Moody's Investors Service, Inc. or Standard & Poor's (or by any other nationally recognized securities rating agency) does not reflect an assessment of the volatility of the security's market value or the liquidity of an investment in the security. See "SECURITIES RATINGS."

Like those of other fixed-income securities, the values of lower-rated securities fluctuate in response to changes in interest rates. A decrease in interest rates will generally result in an increase in the value of the fund's fixed-income assets. Conversely, during periods of rising interest rates, the value of the fund's fixed-income assets will generally decline. The values of lower-rated securities may often be affected to a greater extent by changes in general economic conditions and business conditions affecting the issuers of such securities and their industries. Negative publicity or investor perceptions may also adversely affect the values of lower-rated securities. Changes by nationally recognized securities rating agencies in their ratings of any fixed-income security and changes in the ability of an issuer to make payments of interest and principal may also affect the value of these investments. Changes in the value of portfolio securities generally will not affect



income derived from these securities, but will affect the fund's net asset value. The fund will not necessarily dispose of a security when its rating is reduced below its rating at the time of purchase. However, Putnam Management will monitor the investment to determine whether its retention will assist in meeting the fund's goal(s).

Issuers of lower-rated securities are often highly leveraged, so that their ability to service their debt obligations during an economic downturn or during sustained periods of rising interest rates may be impaired. Such issuers may not have more traditional methods of financing available to them and may be unable to repay outstanding obligations at maturity by refinancing. The risk of loss due to default in payment of interest or repayment of principal by such issuers is significantly greater because such securities frequently are unsecured and subordinated to the prior payment of senior indebtedness.

At times, a substantial portion of the fund's assets may be invested in an issue of which the fund, by itself or together with other funds and accounts managed by Putnam Management or its affiliates, holds all or a major portion. Although Putnam Management generally considers such securities to be liquid because of the availability of an institutional market for such securities, it is possible that, under adverse market or economic conditions or in the event of adverse changes in the financial condition of the issuer, the fund could find it more difficult to sell these securities when Putnam Management believes it advisable to do so or may be able to sell the securities only at prices lower than if they were more widely held. Under these circumstances, it may also be more difficult to determine the fair value of such securities for purposes of computing the fund's net asset value. In order to enforce its rights in the event of a default, the fund may be required to participate in various legal proceedings or take possession of and manage assets securing the issuer's obligations on such securities. This could increase the fund's operating expenses and adversely affect the fund's net asset value. In the case of tax-exempt funds, any income derived from the fund's ownership or operation of such assets would not be tax-exempt. The ability of a holder of a tax-exempt security to enforce the terms of that security in a bankruptcy proceeding may be more limited than would be the case with respect to securities of private issuers. In addition, the fund's intention to qualify as a "regulated investment company" under the Code may limit the extent to which the fund may exercise its rights by taking possession of such assets.

To the extent the fund invests in securities in the lower rating categories, the achievement of the fund's goals is more dependent on Putnam Management's investment analysis than would be the case if the fund were investing in securities in the higher rating categories.

### **Market Risk**

The value of securities in a fund's portfolio may fall or fail to rise over extended periods of time for a variety of reasons, including general financial market conditions, changing market perceptions (including perceptions about the risk of default and expectations about monetary policy or interest rates), changes in government intervention in the financial markets, and factors related to a specific issuer, industry or sector. In addition, the increasing popularity of passive index-based investing may have the potential to increase security price correlations and volatility. (As passive strategies generally buy or sell securities based simply on inclusion and representation in an index, securities prices will have an increasing tendency to rise or fall based on whether money is flowing into or out of passive strategies rather than based on an analysis of the prospects and valuation of individual securities. This may result in increased market volatility as more money is invested through passive strategies). These and other factors may lead to increased volatility and reduced liquidity in the fund's portfolio holdings. During those periods, the fund may experience high levels of shareholder redemptions, and may have to sell securities at times when it would otherwise not do so, and at unfavorable price.

Legal political, regulatory and tax changes also may cause fluctuations in markets and securities prices. In recent periods, governmental and non-governmental issuers have defaulted on, or have been forced to restructure, their debts, and many other issuers have faced difficulties obtaining credit. These market conditions may continue, worsen or spread, including, without limitation, in Europe or Asia. Defaults or

restructurings by governments or others of their debts could have substantial adverse effects on economies, financial markets, and asset valuations around the world. In recent periods, financial regulators, including the U.S. Federal Reserve and the European Central Bank, have taken steps to maintain historically low interest rates, such as by purchasing bonds. Some governmental authorities have taken steps to devalue their currencies substantially or have taken other steps to counter actual or anticipated market or other developments. Steps by those regulators and authorities to implement, or to curtail or taper, these activities could have substantial negative effects on financial markets. The withdrawal of support, failure of efforts in response to a financial crisis, or investor perception that these efforts are not succeeding could negatively affect financial markets generally as well as the values and liquidity of certain securities.

In addition, the fund is subject to the risk that geopolitical events will disrupt securities markets and adversely affect global economies and markets. War, terrorism, and related geopolitical events have led, and in the future may lead, to increased short-term market volatility and may have adverse long-term effects on U.S. and world economies and markets generally. Likewise, natural and environmental disasters and systemic market dislocations may be highly disruptive to economies and markets. Those events as well as other changes in foreign and domestic economic and political conditions also could adversely affect individual issuers or related groups of issuers, securities markets, interest rates, credit ratings, inflation, investor sentiment, and other factors affecting the value of the fund's investments. Given the increasing interdependence among global economies and markets, conditions in one country, market, or region might adversely affect markets, issuers, and/or foreign exchange rates in other countries, including the U.S. Any partial or complete dissolution of the Economic and Monetary Union of the European Union, or any increased uncertainty as to its status, could have significant adverse effects on currency and financial markets, and on the values of the fund's investments. Securities and financial markets may be susceptible to market manipulation or other fraudulent trade practices, which could disrupt the orderly functioning of these markets or adversely affect the values of investments traded in these markets, including investments held by the fund. To the extent the fund has focused its investments in the market or index of a particular region, adverse geopolitical and other events could have a disproportionate impact on the fund.

### **Master Limited Partnerships (MLPs)**

A MLP generally is a publicly traded company organized as a limited partnership or limited liability company and treated as a partnership for U.S. federal income tax purposes. MLPs may derive income and gains from, among other things, the exploration, development, mining or production, processing, refining, transportation (including pipelines transporting gas, oil, or products thereof), or the marketing of any mineral or natural resources. MLPs generally have two classes of owners, the general partner and limited partners. The general partner of an MLP is typically owned by one or more of the following: a major energy company, an investment fund, or the direct management of the MLP. The general partner may be structured as a private or publicly traded corporation or other entity. The general partner typically controls the operations and management of the MLP through an up to 2% equity interest in the MLP plus, in many cases, ownership of common units and subordinated units. Limited partners own the remainder of the partnership through ownership of common units and have a limited role in the partnership's operations and management.

MLP securities in which certain funds may invest can include, but are not limited to: (i) equity securities of MLPs, including common units, preferred units or convertible subordinated units; (ii) debt securities of MLPs, including debt securities rated below investment grade; (iii) securities of MLP affiliates; (iv) securities of open-end funds, closed-end funds or exchange-traded funds ("ETFs") that invest primarily in MLP securities; or (v) exchange-traded notes whose returns are linked to the returns of MLPs or MLP indices.

MLP common units represent an equity ownership interest in a partnership, providing limited voting rights and entitling the holder to a share of the company's success through distributions and/or capital appreciation. Unlike shareholders of a corporation, common unit holders do not elect directors annually and generally have the right to vote only on certain significant events, such as mergers, a sale of substantially all of the assets, removal of the general partner or material amendments to the partnership agreement. In addition, state law

governing partnerships is often less restrictive than state law governing corporations. Accordingly, there may be fewer protections afforded investors in an MLP than investors in a corporation.

Additional risks involved with investing in an MLP are risks associated with the specific industry or industries in which the partnership invests. For example, companies operating in the energy MLP sector are subject to risks that are specific to the industry in which they operate. MLPs and other companies that provide crude oil, refined product and natural gas services are subject to supply and demand fluctuations in the markets they serve which may be impacted by a wide range of factors including fluctuating commodity prices, weather, increased conservation or use of alternative fuel sources, increased governmental or environmental regulation, depletion, rising interest rates, declines in domestic or foreign production, accidents or catastrophic events, and economic conditions, among others. Energy MLP companies are subject to varying demand for oil, natural gas or refined products in the markets they serve, as well as changes in the supply of products requiring gathering, transport, processing, or storage due to natural declines in reserves and production in the supply areas serviced by the companies' facilities. Declines in oil or natural gas prices, as well as adverse regulatory decisions, may cause producers to curtail production or reduce capital spending for production or exploration activities, which may in turn reduce the need for the services provided by energy MLP companies. Lower prices may also create lower processing margins. Energy MLPs may also be subject to regulation by the Federal Energy Regulatory Commission ("FERC") with respect to tariff rates that these companies may charge for interstate pipeline transportation services. An adverse determination by FERC with respect to tariff rates of a pipeline MLP could have a material adverse effect on the business, financial conditions, result of operations, cash flows and prospects of that pipeline MLP and its ability to make cash distributions to its equity owners.

### **Money Market Instruments**

Money market instruments, or short-term debt instruments, consist of obligations such as commercial paper, bank obligations (*i.e.*, certificates of deposit and bankers' acceptances), repurchase agreements and various government obligations, such as Treasury bills. These instruments have a remaining maturity of one year or less and are generally of high credit quality. Money market instruments may be structured to be, or may employ a trust or other form so that they are, eligible investments for money market funds. For example, put features can be used to modify the maturity of a security or interest rate adjustment features can be used to enhance price stability. If a structure fails to function as intended, adverse tax or investment consequences may result. Neither the IRS nor any other regulatory authority has ruled definitively on certain legal issues presented by certain structured securities. Future tax or other regulatory determinations could adversely affect the value, liquidity, or tax treatment of the income received from these securities or the nature and timing of distributions made by the funds.

Commercial paper is a money market instrument issued by banks or companies to raise money for short-term purposes. Unlike some other debt obligations, commercial paper is typically unsecured. Commercial paper may be issued as an asset-backed security (that is, backed by a pool of assets representing the obligations of a number of different issuers), in which case certain of the risks discussed in "Mortgage-backed and Asset-backed securities" would apply. Commercial paper is traded primarily among institutions.

Putnam Money Market Fund may invest in bankers' acceptances issued by banks with deposits in excess of \$2 billion (or the foreign currency equivalent) at the close of the last calendar year. If the Trustees change this minimum deposit requirement, shareholders would be notified. Other Putnam funds may invest in bankers' acceptances without regard to this requirement.

In accordance with rules issued by the SEC, the fund may from time to time invest all or a portion of its cash balances in money market and/or short-term bond funds advised by Putnam Management. In connection with such investments, Putnam Management may waive a portion of the advisory fees otherwise payable by the fund. See "Charges and expenses" in Part I of this SAI for the amount, if any, waived by Putnam Management in connection with such investments.

## **Mortgage-backed and Asset-backed Securities**

Mortgage-backed securities, including collateralized mortgage obligations ("CMOs") and certain stripped mortgage-backed securities, represent a participation in, or are secured by, mortgage loans. 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.

Mortgage-backed securities have yield and maturity characteristics corresponding to the underlying assets. Unlike traditional debt securities, which may pay a fixed rate of interest until maturity, when the entire principal amount comes due, payments on certain mortgage-backed securities include both interest and a partial repayment of principal. Besides the scheduled repayment of principal, repayments of principal may result from the voluntary prepayment, refinancing or foreclosure of the underlying mortgage loans. If property owners make unscheduled prepayments of their mortgage loans, these prepayments will result in early payment of the applicable mortgage-backed securities. In that event the fund may be unable to invest the proceeds from the early payment of the mortgage-backed securities in an investment that provides as high a yield as the mortgage-backed securities. Consequently, early payment associated with mortgage-backed securities may cause these securities to experience significantly greater price and yield volatility than that experienced by traditional fixed-income securities. The occurrence of mortgage prepayments is affected by factors including the level of interest rates, general economic conditions, the location and age of the mortgage and other social and demographic conditions. During periods of falling interest rates, the rate of mortgage prepayments tends to increase, thereby tending to decrease the life of mortgage-backed securities. During periods of rising interest rates, the rate of mortgage prepayments usually decreases, thereby tending to increase the life of mortgage-backed securities. If the life of a mortgage-backed security is inaccurately predicted, the fund may not be able to realize the rate of return it expected.

Adjustable rate mortgage securities ("ARMs"), like traditional mortgage-backed securities, are interests in pools of mortgage loans that provide investors with payments consisting of both principal and interest as mortgage loans in the underlying mortgage pool are paid off by the borrowers. Unlike fixed-rate mortgage-backed securities, ARMs are collateralized by or represent interests in mortgage loans with variable rates of interest. These interest rates are reset at periodic intervals, usually by reference to an interest rate index or market interest rate. Although the rate adjustment feature may act as a buffer to reduce sharp changes in the value of adjustable rate securities, these securities are still subject to changes in value based on, among other things, changes in market interest rates or changes in the issuer's creditworthiness. If rates increase due to a reset, the risk of default by underlying borrowers may increase. Because the interest rates are reset only periodically, changes in the interest rate on ARMs may lag changes in prevailing market interest rates. Also, some ARMs (or the underlying mortgages) are subject to caps or floors that limit the maximum change in the interest rate during a specified period or over the life of the security. As a result, changes in the interest rate on an ARM may not fully reflect changes in prevailing market interest rates during certain periods. The fund may also invest in "hybrid" ARMs, whose underlying mortgages combine fixed-rate and adjustable rate features.

Mortgage-backed and asset-backed securities are less effective than other types of securities as a means of "locking in" attractive long-term interest rates. One reason is the need to reinvest prepayments of principal; another is the possibility of significant unscheduled prepayments resulting from declines in interest rates. These prepayments would have to be reinvested at lower rates. The automatic interest rate adjustment feature of mortgages underlying ARMs likewise reduces the ability to lock-in attractive rates. As a result, mortgage-backed and asset-backed securities may have less potential for capital appreciation during periods of declining interest rates than other securities of comparable maturities, although they may have a similar risk of decline in market value during periods of rising interest rates. Prepayments may also significantly shorten the effective maturities of these securities, especially during periods of declining interest rates. Conversely, during periods of rising interest rates, a reduction in prepayments may increase the effective maturities of these securities, subjecting them to a greater risk of decline in market value in response to rising interest rates than traditional debt securities, and, therefore, potentially increasing the volatility of the fund. In certain circumstances, the

mishandling of related documentation may also affect the rights of the security holders in and to the underlying collateral.

At times, some mortgage-backed and asset-backed securities will have higher than market interest rates and therefore will be purchased at a premium above their par value. Prepayments may cause losses on securities purchased at a premium.

CMOs may be issued by a U.S. government agency or instrumentality or by a private issuer. Although payment of the principal of, and interest on, the underlying collateral securing privately issued CMOs may be guaranteed by the U.S. government or its agencies or instrumentalities, these CMOs represent obligations solely of the private issuer and are not insured or guaranteed by the U.S. government, its agencies or instrumentalities or any other person or entity.

Prepayments could cause early retirement of CMOs. CMOs are designed to reduce the risk of prepayment for investors by issuing multiple classes of securities, each having different maturities, interest rates and payment schedules, and with the principal and interest on the underlying mortgages allocated among the several classes in various ways. Payment of interest or principal on some classes or series of CMOs may be subject to contingencies or some classes or series may bear some or all of the risk of default on the underlying mortgages. CMOs of different classes or series are generally retired in sequence as the underlying mortgage loans in the mortgage pool are repaid. If enough mortgages are repaid ahead of schedule, the classes or series of a CMO with the earliest maturities generally will be retired prior to their maturities. Thus, the early retirement of particular classes or series of a CMO would have the same effect as the prepayment of mortgages underlying other mortgage-backed securities. Conversely, slower than anticipated prepayments can extend the effective maturities of CMOs, subjecting them to a greater risk of decline in market value in response to rising interest rates than traditional debt securities, and, therefore, potentially increasing their volatility.

Prepayments could result in losses on stripped mortgage-backed securities. Stripped mortgage-backed securities are usually structured with two classes that receive different portions of the interest and principal distributions on a pool of mortgage loans. The yield to maturity on an interest only or "IO" class of stripped mortgage-backed securities is extremely sensitive not only to changes in prevailing interest rates but also to the rate of principal payments (including prepayments) on the underlying assets. A rapid rate of principal prepayments may have a measurable adverse effect on the fund's yield to maturity to the extent it invests in IOs. If the assets underlying the IO experience greater than anticipated prepayments of principal, the fund may fail to recoup fully its initial investment in these securities. Conversely, principal only or "POs" tend to increase in value if prepayments are greater than anticipated and decline if prepayments are slower than anticipated. The secondary market for stripped mortgage-backed securities may be more volatile and less liquid than that for other mortgage-backed securities, potentially limiting the fund's ability to buy or sell those securities at any particular time.

The risks associated with other asset-backed securities (including in particular the risks of issuer default and of early prepayment) are generally similar to those described above for CMOs. In addition, because asset-backed securities generally do not have the benefit of a security interest in the underlying assets that is comparable to a mortgage, asset-backed securities present certain additional risks that are not present with mortgage-backed securities. The ability of an issuer of asset-backed securities to enforce its security interest in the underlying assets may be limited. For example, revolving credit receivables are generally unsecured and the debtors on such receivables are entitled to the protection of a number of state and federal consumer credit laws, many of which give debtors the right to set-off certain amounts owed, thereby reducing the balance due. Automobile receivables generally are secured, but by automobiles, rather than by real property.

Asset-backed securities may be collateralized by the fees earned by service providers. The value of asset-backed securities may be substantially dependent on the servicing of the underlying asset and are therefore subject to risks associated with negligence by, or defalcation of, their servicers. In certain circumstances, the mishandling of related documentation may also affect the rights of the security holders in and to the underlying

collateral. The insolvency of entities that generate receivables or that utilize the assets may result in added costs and delays in addition to losses associated with a decline in the value of the underlying assets.

## **Options on Securities**

**Writing covered options.** The fund may write covered call options and covered put options on optionable securities held in its portfolio or that it has an absolute and immediate right to acquire without additional cash consideration (or, if additional cash consideration is required, cash or other assets determined to be liquid by Putnam Management in accordance with procedures established by the Trustees, in such amount as are set aside on the fund's books), when in the opinion of Putnam Management such transactions are consistent with the fund's goal(s) and policies. Call options written by the fund give the purchaser the right to buy the underlying securities from the fund at a stated exercise price; put options give the purchaser the right to sell the underlying securities to the fund at a stated price.

The fund may write only covered options, which means that, so long as the fund is obligated as the writer of a call option, it will own the underlying securities subject to the option (or comparable securities satisfying the cover requirements of securities exchanges) or have an absolute and immediate right to acquire without additional cash consideration (or, if additional cash consideration is required, cash or other assets determined to be liquid by Putnam Management in accordance with procedures established by the Trustees, in such amount as are set aside on the fund's books). In the case of put options, the fund will set aside on its books assets determined to be liquid by Putnam Management in accordance with procedures established by the Trustees and equal in value to the price to be paid if the option is exercised. In addition, the fund will be considered to have covered a put or call option if and to the extent that it holds an option that offsets some or all of the risk of the option it has written. The fund may write combinations of covered puts and calls on the same underlying security.

The fund will receive a premium from writing a put or call option, which increases the fund's return in the event the option expires unexercised or is closed out at a profit. The amount of the premium reflects, among other things, the relationship between the exercise price and the current market value of the underlying security, the volatility of the underlying security, the amount of time remaining until expiration, current interest rates, and the effect of supply and demand in the options market and in the market for the underlying security. By writing a call option, if the fund holds the security, the fund limits its opportunity to profit from any increase in the market value of the underlying security above the exercise price of the option but continues to bear the risk of a decline in the value of the underlying security. If the fund does not hold the underlying security, the fund bears the risk that, if the market price exceeds the option strike price, the fund will suffer a loss equal to the difference at the time of exercise. By writing a put option, the fund assumes the risk that it may be required to purchase the underlying security for an exercise price higher than its then-current market value, resulting in a potential capital loss unless the security subsequently appreciates in value.

The fund may terminate an option that it has written prior to its expiration by entering into a closing purchase transaction, in which it purchases an offsetting option. The fund realizes a profit or loss from a closing transaction if the cost of the transaction (option premium plus transaction costs) is less or more than the premium received from writing the option. If the fund writes a call option but does not own the underlying security, and when it writes a put option, the fund may be required to deposit cash or securities with its broker as "margin," or collateral, for its obligation to buy or sell the underlying security. As the value of the underlying security varies, the fund may have to deposit additional margin with the broker. Margin requirements are complex and are fixed by individual brokers, subject to minimum requirements currently imposed by the Federal Reserve Board and by stock exchanges and other self-regulatory organizations.

**Purchasing put options.** The fund may purchase put options to protect its portfolio holdings in an underlying security against a decline in market value. Such protection is provided during the life of the put option since the fund, as holder of the option, is able to sell the underlying security at the put exercise price regardless of any decline in the underlying security's market price. In order for a put option to be profitable, the market

price of the underlying security must decline sufficiently below the exercise price to cover the premium and transaction costs. By using put options in this manner, the fund will reduce any profit it might otherwise have realized from appreciation of the underlying security by the premium paid for the put option and by transaction costs. The fund may also purchase put options for other investment purposes, including to take a short position in the security underlying the put option.

**Purchasing call options.** The fund may purchase call options to hedge against an increase in the price of securities that the fund wants ultimately to buy. Such hedge protection is provided during the life of the call option since the fund, as holder of the call option, is able to buy the underlying security at the exercise price regardless of any increase in the underlying security's market price. In order for a call option to be profitable, the market price of the underlying security must rise sufficiently above the exercise price to cover the premium and transaction costs. The fund may also purchase call options for other investment purposes.

**Risk factors in options transactions.** The successful use of the fund's options strategies depends on the ability of Putnam Management to forecast correctly interest rate and market movements. For example, if the fund were to write a call option based on Putnam Management's expectation that the price of the underlying security would fall, but the price were to rise instead, the fund could be required to sell the security upon exercise at a price below the current market price. Similarly, if the fund were to write a put option based on Putnam Management's expectation that the price of the underlying security would rise, but the price were to fall instead, the fund could be required to purchase the security upon exercise at a price higher than the current market price.

When the fund purchases an option, it runs the risk that it will lose its entire investment in the option in a relatively short period of time, unless the fund exercises the option or enters into a closing sale transaction before the option's expiration. If the price of the underlying security does not rise (in the case of a call) or fall (in the case of a put) to an extent sufficient to cover the option premium and transaction costs, the fund will lose part or all of its investment in the option. This contrasts with an investment by the fund in the underlying security, since the fund will not realize a loss if the security's price does not change.

The effective use of options also depends on the fund's ability to terminate option positions at times when Putnam Management deems it desirable to do so. There is no assurance that the fund will be able to effect closing transactions at any particular time or at an acceptable price. If a secondary market in options were to become unavailable, the fund could no longer engage in closing transactions. Lack of investor interest might adversely affect the liquidity of the market for particular options or series of options. A market may discontinue trading of a particular option or options generally. In addition, a market could become temporarily unavailable if unusual events -- such as volume in excess of trading or clearing capability -- were to interrupt its normal operations.

A market may at times find it necessary to impose restrictions on particular types of options transactions, such as opening transactions. For example, if an underlying security ceases to meet qualifications imposed by the market or the Options Clearing Corporation, new series of options on that security will no longer be opened to replace expiring series, and opening transactions in existing series may be prohibited. If an options market were to become unavailable, the fund as a holder of an option would be able to realize profits or limit losses only by exercising the option, and the fund, as option writer, would remain obligated under the option until expiration or exercise.

Disruptions in the markets for the securities underlying options purchased or sold by the fund could result in losses on the options. For example, if a fund is unable to purchase a security underlying a put option it had purchased, the fund may be unable to exercise the put option. If trading is interrupted in an underlying security, the trading of options on that security is normally halted as well. As a result, the fund as purchaser or writer of an option will be unable to close out its positions until options trading resumes, and it may be faced with considerable losses if trading in the security reopens at a substantially different price. In addition, the Options Clearing Corporation or other options markets may impose exercise restrictions. If a prohibition on exercise is

imposed at the time when trading in the option has also been halted, the fund as purchaser or writer of an option will be locked into its position until one of the two restrictions has been lifted. If the Options Clearing Corporation were to determine that the available supply of an underlying security appears insufficient to permit delivery by the writers of all outstanding calls in the event of exercise, it may prohibit indefinitely the exercise of put options. The fund, as holder of such a put option, could lose its entire investment if it is unable to exercise the put option prior to its expiration.

Foreign-traded options are subject to many of the same risks presented by internationally-traded securities. In addition, because of time differences between the United States and various foreign countries, and because different holidays are observed in different countries, foreign options markets may be open for trading during hours or on days when U.S. markets are closed. As a result, option premiums may not reflect the current prices of the underlying interest in the United States.

Over-the-counter ("OTC") options purchased by the fund and assets held to cover OTC options written by the fund may, under certain circumstances, be considered illiquid securities for purposes of any limitation on the fund's ability to invest in illiquid securities. The fund may use both European-style options, which are only exercisable immediately prior to their expiration, and American-style options, which are exercisable at any time prior to the expiration date.

In addition to options on securities and futures, the fund may also enter into options on futures, swaps, or other instruments as described elsewhere in this SAI.

### **Preferred Stocks and Convertible Securities**

The fund may invest in preferred stocks or convertible securities. A preferred stock generally pays dividends at a specified rate and has preference over common stock in the payment of dividends and the liquidation of an issuer's assets but is junior to the debt securities of the issuer in those same respects. The market prices of preferred stocks are subject to changes in interest rates and are more sensitive to changes in an issuer's creditworthiness than are the prices of debt securities. Shareholders of preferred stock may suffer a loss of value if dividends are not paid. Under ordinary circumstances, preferred stock does not carry voting rights. In addition, many preferred stocks may be called or redeemed prior to their maturity by the issuer under certain conditions.

Convertible securities include bonds, debentures, notes, preferred stocks and other securities that may be converted into or exchanged for, at a specific price or formula within a particular period of time, a prescribed amount of common stock or other equity securities of the same or a different issuer. Convertible securities entitle the holder to receive interest paid or accrued on debt or dividends paid or accrued on preferred stock until the security matures or is redeemed, converted or exchanged.

The market value of a convertible security is a function of its "investment value" and its "conversion value." A security's "investment value" represents the value of the security without its conversion feature (*i.e.*, a nonconvertible fixed income security). The investment value may be determined by reference to its credit quality and the current value of its yield to maturity or probable call date. At any given time, investment value is dependent upon such factors as the general level of interest rates, the yield of similar nonconvertible securities, the financial strength of the issuer and the seniority of the security in the issuer's capital structure. A security's "conversion value" is determined by multiplying the number of shares the holder is entitled to receive upon conversion or exchange by the current price of the underlying security.

If the conversion value of a convertible security is significantly below its investment value, the convertible security will trade like nonconvertible debt or preferred stock and its market value will not be influenced greatly by fluctuations in the market price of the underlying security. Conversely, if the conversion value of a convertible security is near or above its investment value, the market value of the convertible security will be



more heavily influenced by fluctuations in the market price of the underlying security. Convertible securities generally have less potential for gain than common stocks.

The fund's investments in convertible securities may at times include securities that have a mandatory conversion feature, pursuant to which the securities convert automatically into common stock or other equity securities at a specified date and a specified conversion ratio, or that are convertible at the option of the issuer. Because conversion of the security is not at the option of the holder, the fund may be required to convert the security into the underlying common stock even at times when the value of the underlying common stock or other equity security has declined substantially.

The fund's investments in preferred stocks and convertible securities, particularly securities that are convertible into securities of an issuer other than the issuer of the convertible security, may be illiquid. The fund may not be able to dispose of such securities in a timely fashion or for a fair price, which could result in losses to the fund.

### **Private Placements and Restricted Securities**

The fund may invest in securities that are purchased in private placements and, accordingly, are subject to restrictions on resale as a matter of contract or under federal securities laws. Because there may be relatively few potential purchasers for such investments, especially under adverse market or economic conditions or in the event of adverse changes in the financial condition of the issuer, the fund could find it more difficult to sell such securities when Putnam Management believes it advisable to do so or may be able to sell such securities only at prices lower than if such securities were more widely held. At times, it may also be more difficult to determine the fair value of such securities for purposes of computing the fund's net asset value.

While such private placements may offer attractive opportunities for investment not otherwise available on the open market, the securities so purchased are often "restricted securities," *i.e.*, securities which cannot be sold to the public without registration under the Securities Act of 1933 (the "Securities Act") or the availability of an exemption from registration (such as Rules 144 or 144A), or which are "not readily marketable" because they are subject to other legal or contractual delays in or restrictions on resale.

The absence of a trading market can make it difficult to ascertain a market value for illiquid investments. Disposing of illiquid investments may involve time-consuming negotiation and legal expenses, and it may be difficult or impossible for the fund to sell them promptly at an acceptable price. The fund may have to bear the extra expense of registering such securities for resale and the risk of substantial delay in effecting such registration. In addition, market quotations are less readily available. The judgment of Putnam Management may at times play a greater role in valuing these securities than in the case of publicly traded securities. Generally speaking, restricted securities may be sold only to qualified institutional buyers, or in a privately negotiated transaction to a limited number of purchasers, or in limited quantities after they have been held for a specified period of time and other conditions are met pursuant to an exemption from registration, or in a public offering for which a registration statement is in effect under the Securities Act. The fund may be deemed to be an "underwriter" for purposes of the Securities Act when selling restricted securities to the public, and in such event the fund may be liable to purchasers of such securities if the registration statement prepared by the issuer, or the prospectus forming a part of it, is materially inaccurate or misleading. The SEC Staff currently takes the view that any delegation by the Trustees of the authority to determine that a restricted security is readily marketable (as described in the investment restrictions of the funds) must be pursuant to written procedures established by the Trustees and the Trustees have delegated such authority to Putnam Management.

### **Real Estate Investment Trusts (REITs)**

The fund may invest in REITs. REITs are pooled investment vehicles that invest primarily in either real estate or real estate related loans. Like regulated investment companies such as the fund, REITs are not taxed on income distributed to shareholders provided that they comply with certain requirements under the Code. The

fund will indirectly bear its proportionate share of any expenses paid by REITs in which it invests in addition to the fund's own expenses.

REITs involve certain unique risks in addition to those risks associated with investing in the real estate industry in general (such as possible declines in the value of real estate, lack of availability of mortgage funds, or extended vacancies of property). REITs are generally classified as equity REITs, mortgage REITs or a combination of equity and mortgage REITs. Equity REITs invest the majority of their assets directly in real property and derive income primarily from the collection of rents. Equity REITs can also realize capital gains by selling properties that have appreciated in value. Mortgage REITs invest the majority of their assets in real estate mortgages and derive income from the collection of interest payments. Equity REITs may be affected by changes in the value of the underlying property owned by the REITs, while mortgage REITs may be affected by the risk of borrower default, the likelihood of which is increased for mortgage REITs that invest in sub-prime mortgages. REITs, and mortgage REITs in particular, are also subject to interest rate risk. REITs are dependent upon their operators' management skills, are generally not diversified (except to the extent the Code requires), and are subject to heavy cash flow dependency and the risk of default by borrowers. REITs are also subject to the possibility of failing to qualify for the tax-advantaged treatment available to REITs under the Code or failing to maintain their exemptions from registration under the 1940 Act. REITs may have limited financial resources, may trade less frequently and in a limited volume, and may be subject to more abrupt or erratic price movements than more widely held securities.

The fund's investment in a REIT may result in the fund making distributions that constitute a return of capital to fund shareholders for federal income tax purposes. In addition, distributions by a fund from REITs will not qualify for the corporate dividends-received deduction, or, generally, for treatment as qualified dividend income.

### **Redeemable Securities**

Certain securities held by the fund may permit the issuer at its option to "call" or redeem its securities. If an issuer were to redeem securities held by the fund during a time of declining interest rates, the fund may not be able to reinvest the proceeds in securities providing the same investment return as the securities redeemed.

### **Repurchase Agreements**

Under normal circumstances, each fund may enter into repurchase agreements amounting to not more than 25% of its total assets, except that this 25% limitation does not apply to repurchase agreements entered into in connection with short sales and to investments by a money market fund and Putnam Short Term Investment Fund. Money market funds and Putnam Short Term Investment Fund may invest without limit in repurchase agreements. A repurchase agreement is a contract under which the fund, the buyer under the contract, acquires a security subject to the obligation of the seller (or repurchase agreement counterparty) to repurchase, and the fund to resell, the security at a fixed time and price, which represents the fund's cost plus interest (or, for repurchase agreements under which the fund acquires a security and then sells it short, the fund's cost of "borrowing" the security). A repurchase agreement with a stated maturity of longer than one week is considered an illiquid investment. It is the fund's present intention to enter into repurchase agreements only with banks and registered broker-dealers. The fund may enter into repurchase agreements, including with respect to securities it wishes to sell short. See "Short Sales" in this SAI. Certain of the repurchase agreements related to securities sold short may provide that, at the option of the fund, settlement may be made by delivery of cash equal to the difference between (a) the sum of (i) the market value of the securities sold short at the time the repurchase agreement is closed out and (ii) transaction costs associated with the acquisition in the market by the repurchase agreement counterparty of the securities sold short and (b) the repurchase price specified in the repurchase agreement.

The fund may be exposed to the credit risk of the repurchase agreement counterparty (or seller) in the event that the counterparty is unable to close out the repurchase agreement in accordance with its terms. If the seller

defaults, the fund could realize a loss on the sale of the underlying security to the extent that the proceeds of the sale including accrued interest are less than the resale price provided in the agreement including interest. In addition, if the seller should be involved in bankruptcy or insolvency proceedings, the fund may incur delay and costs in selling the underlying security or may suffer a loss of principal and interest if the fund is treated as an unsecured creditor and required to return the underlying collateral to the seller's estate.

Pursuant to an exemptive order issued by the SEC, the fund may transfer uninvested cash balances into a joint account, along with cash of other Putnam funds and certain other accounts. These balances may be invested in one or more repurchase agreements and/or short-term money market instruments.

The fund may also enter into reverse repurchase agreements. Under a reverse repurchase agreement, the fund sells portfolio assets subject to an agreement by the fund to repurchase the same assets at an agreed upon price and date. The fund can use the proceeds received from entering into a reverse repurchase agreement to make additional investments, which generally causes the fund's portfolio to behave as if it were leveraged. If the buyer in a reverse repurchase agreement files for bankruptcy or becomes insolvent, the fund may be unable to recover the securities it sold and as a result would realize a loss equal to the difference between the value of those securities and the payment it received for them. The size of this loss will depend upon the difference between what the buyer paid for the securities the fund sold to it and the value of those securities (e.g., a buyer may pay \$95 for a bond with a market value of \$100). In the event of a buyer's bankruptcy or insolvency, the fund's use of proceeds from the sale of its securities may be restricted while the other party or its trustee or receiver determines whether to honor the fund's right to repurchase the securities. The fund's use of reverse repurchase agreements also subjects the fund to interest costs based on the difference between the sale and repurchase price of a security involved in such a transaction. Additionally, reverse repurchase agreements entail the same risks as over-the-counter derivatives. These include the risk that the counterparty to the reverse repurchase agreement may not be able to fulfill its obligations, as discussed above, that the parties may disagree as to the meaning or application of contractual terms, or that the instrument may not perform as expected.

### **Securities Loans**

The fund may make secured loans of its portfolio securities, on either a short-term or long-term basis, amounting to not more than 25% of its total assets, thereby realizing additional income. The risks in lending portfolio securities, as with other extensions of credit, consist of possible delay in recovery of the securities or possible loss of rights in the collateral should the borrower fail financially. If a borrower defaults, the value of the collateral may decline before the fund can dispose of it. As a matter of policy, securities loans are made to broker-dealers pursuant to agreements requiring that the loans be continuously secured by collateral consisting of cash or short-term debt obligations at least equal at all times to the value of the securities on loan, "marked-to-market" daily. The borrower pays to the fund an amount equal to any dividends or interest received on securities lent. The fund retains all or a portion of the interest received on investment of the cash collateral or receives a fee from the borrower. Although voting rights, or rights to consent, with respect to the loaned securities may pass to the borrower, the fund retains the right to call the loans at any time on reasonable notice, and it will do so to enable the fund to exercise voting rights on any matters materially affecting the investment. The fund may also call such loans in order to sell the securities. The fund may pay fees in connection with arranging loans of its portfolio securities.

### **Securities of Other Investment Companies**

Securities of other investment companies, including shares of open- and closed-end investment companies and unit investment trusts (which may include ETFs), represent interests in collective investment portfolios that, in turn, invest directly in underlying instruments. The fund may invest in other investment companies when it has more uninvested cash than Putnam Management believes is advisable, when it receives cash collateral from securities lending arrangements, when there is a shortage of direct investments available, or when Putnam Management believes that investment companies offer attractive values.

Investment companies may be structured to perform in a similar fashion to a broad-based securities index or may focus on a particular strategy or class of assets. ETFs typically seek to track the performance or dividend yield of specific indexes or companies in related industries. These indexes may be broad-based, sector-based or international. Investing in investment companies involves substantially the same risks as investing directly in the underlying instruments, but also involves expenses at the investment company-level, such as portfolio management fees and operating expenses. These expenses are in addition to the fees and expenses of the fund itself, which may lead to duplication of expenses while the fund owns another investment company's shares. In addition, investing in investment companies involves the risk that they will not perform in exactly the same fashion, or in response to the same factors, as the underlying instruments or index. To the extent the fund invests in other investment companies that are professionally managed, its performance will also depend on the investment and research abilities of investment managers other than Putnam Management.

Open-end investment companies typically offer their shares continuously at net asset value plus any applicable sales charge and stand ready to redeem shares upon shareholder request. The shares of certain other types of investment companies, such as ETFs and closed-end investment companies, typically trade on a stock exchange or over-the-counter at a premium or a discount to their net asset value. In the case of closed-end investment companies, the number of shares is typically fixed. The securities of closed-end investment companies and ETFs carry the risk that the price the fund pays or receives may be higher or lower than the investment company's net asset value. ETFs and closed-end investment companies are also subject to certain additional risks, including the risks of illiquidity and of possible trading halts due to market conditions or other reasons, based on the policies of the relevant exchange. The shares of investment companies, particularly closed-end investment companies, may also be leveraged, which would increase the volatility of the fund's net asset value.

The extent to which the fund can invest in securities of other investment companies, including ETFs, is generally limited by federal securities laws. For more information regarding the tax treatment of ETFs, please see "Taxes" below.

### **Short Sales**

The fund 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 fund does not own declines in value. Short sales are transactions in which the fund 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 fund may also engage in short sales by entering into a repurchase agreement with respect to the security it wishes to sell short. See "-- Repurchase Agreements" in this SAI. The fund will incur a gain if the price of the security declines between the date of the short sale and the date on which the fund replaces the borrowed security (or closes out the related repurchase agreement); and the fund will incur a loss if the price of the security increases between those dates. Such a loss is theoretically unlimited since the potential increase in the market price of the security sold short is not limited. Until the security is replaced, the fund must pay the lender (or repurchase agreement counterparty) any dividends or interest that accrues during the period of the loan (or repurchase agreement). To borrow (or enter into a repurchase agreement with respect to) the security, the fund also may be required to pay a premium, which would increase the cost of the security sold. The fund's successful use of short sales is subject to Putnam Management's ability to accurately predict movements in the market price of the security sold short. Short selling may involve financial leverage because the fund is exposed both to changes in the market price of the security sold short and to changes in the value of securities purchased with the proceeds of the short sale, effectively leveraging its assets. Under adverse market conditions, a fund may have difficulty purchasing securities to meet its short sale delivery obligations, and may be required to close out its short position at a time when the fund would not choose to do so, and may therefore have to sell portfolio securities to raise the capital necessary to meet its short sale obligations at a time when fundamental investment considerations may not favor such sales. While the fund has an open short position, it will segregate, by appropriate notation on its books or the books of its custodian, cash or liquid assets at least

equal in value to the market value of the securities sold short. The segregated amount will be “marked-to-market” daily. Because of this segregation, the fund does not consider these transactions to be “senior securities” for purposes of the 1940 Act. In connection with short sale transactions, the fund may be required to pledge certain additional assets for the benefit of the securities lender (or repurchase agreement counterparty) and the fund may, while such assets remain pledged, be limited in its ability to invest those assets in accordance with the fund’s investment strategies.

Certain of the repurchase agreements related to securities sold short may provide that, at the option of the fund, in lieu of delivering the securities sold short, settlement may be made by delivery of cash equal to the difference between (a) the sum of (i) the market value of the securities sold short at the time the repurchase agreement is closed out and (ii) transaction costs associated with the acquisition in the market by the repurchase agreement counterparty of the securities sold short and (b) the repurchase price specified in the repurchase agreement. Because that cash amount represents the fund’s maximum loss in the event of the insolvency of the counterparty, the fund will, except where the local market practice for foreign securities to be sold short requires payment prior to delivery of such securities, treat such amount, rather than the full notional amount of the repurchase agreement, as its “investment” in securities of the counterparty for purposes of all applicable investment restrictions, including its fundamental policy with respect to diversification.

### **Short-term Trading**

In seeking the fund's objective(s), Putnam Management will buy or sell portfolio securities whenever Putnam Management believes it appropriate to do so. From time to time the fund will buy securities intending to seek short-term trading profits. A change in the securities held by the fund is known as "portfolio turnover" and generally involves some expense to the fund. This expense may include brokerage commissions or dealer markups and other transaction costs on both the sale of securities and the reinvestment of the proceeds in other securities. If sales of portfolio securities cause the fund to realize net short-term capital gains, such gains will be taxable as ordinary income when distributed to taxable individual shareholders. As a result of the fund's investment policies, under certain market conditions the fund's portfolio turnover rate may be higher than that of other mutual funds. Portfolio turnover rate for a fiscal year is the ratio of the lesser of purchases or sales of portfolio securities to the monthly average of the value of portfolio securities -- excluding securities whose maturities at acquisition were one year or less. The fund's portfolio turnover rate is not a limiting factor when Putnam Management considers a change in the fund's portfolio.

### **Special Purpose Acquisition Companies**

The fund may invest in stock, warrants, and other securities of special purpose acquisition companies (“SPACs”) or similar special purpose entities that pool funds to seek potential acquisition opportunities. Unless and until an acquisition is completed, a SPAC generally invests its assets (less a portion retained to cover expenses) in U.S. government securities, money market securities and cash; if an acquisition that meets the requirements for the SPAC is not completed within a pre-established period of time, the invested funds are returned to the entity’s shareholders. Because SPACs and similar entities are in essence blank check companies without an operating history or ongoing business other than seeking acquisitions, the value of their securities is particularly dependent on the ability of the entity’s management to identify and complete a profitable acquisition. Some SPACs may pursue acquisitions only within certain industries or regions, which may increase the volatility of their prices. In addition, these securities, which are typically traded in the over-the-counter market, may be considered illiquid and/or be subject to restrictions on resale.

### **Structured Investments**

A structured investment is a security having a return tied to an underlying index or other security or asset class. Structured investments generally are individually negotiated agreements and may be traded over-the-counter. Structured investments are organized and operated to restructure the investment characteristics of the underlying security. This restructuring involves the deposit with or purchase by an entity, such as a

corporation or trust, or specified instruments (such as commercial bank loans) and the issuance by that entity or one or more classes of securities (“structured securities”) backed by, or representing interests in, the underlying instruments. The cash flow on the underlying instruments may be apportioned among the newly issued structured securities to create securities with different investment characteristics, such as varying maturities, payment priorities and interest rate provisions, and the extent of such payments made with respect to structured securities is dependent on the extent of the cash flow on the underlying instruments. Because structured securities typically involve no credit enhancement, their credit risk generally will be equivalent to that of the underlying instruments. Investments in structured securities are generally of a class of structured securities that is either subordinated or unsubordinated to the right of payment of another class. Subordinated structured securities typically have higher yields and present greater risks than unsubordinated structured securities. Structured securities are typically sold in private placement transactions, and there currently is no active trading market for structured securities. Investments in government and government-related and restructured debt instruments are subject to special risks, including the inability or unwillingness to repay principal and interest, requests to reschedule or restructure outstanding debt and requests to extend additional loan amounts.

### **Swap Agreements**

The fund may enter into swap agreements and other types of over-the-counter transactions such as caps, floors and collars with broker-dealers or other financial institutions for hedging or investment purposes. A swap involves the exchange by the fund with another party of their respective commitments to pay or receive cash flows, *e.g.*, an exchange of floating rate payments for fixed-rate payments. The purchase of a cap entitles the purchaser, to the extent that a specified index or other underlying financial measure exceeds a predetermined value on a predetermined date or dates, to receive payments on a notional principal amount from the party selling the cap. The purchase of a floor entitles the purchaser, to the extent that a specified index or other underlying financial measure falls or other underlying measure below a predetermined value on a predetermined date or dates, to receive payments on a notional principal amount from the party selling the floor. A collar combines elements of a cap and a floor.

Swap agreements and similar transactions can be individually negotiated and structured to include exposure to a variety of different types of investments or market factors. Depending on their structures, swap agreements may increase or decrease the fund's exposure to long- or short-term interest rates (in the United States or abroad), foreign currency values, mortgage securities, mortgage rates, corporate borrowing rates, or other factors such as security prices, inflation rates or the volatility of an index or one or more securities. For example, if the fund agrees to exchange payments in U.S. dollars for payments in a non-U.S. currency, the swap agreement would tend to decrease the fund's exposure to U.S. interest rates and increase its exposure to that non-U.S. currency and interest rates. The fund may also engage in total return swaps, in which payments made by the fund or the counterparty are based on the total return of a particular reference asset or assets (such as an equity or fixed-income security, a combination of such securities, or an index). A swap agreement may be structured with reference to an index of securities that is created and maintained by the swap counterparty. The fund may also enter into swap agreements on futures contracts including, but not limited to, index futures contracts. Swap agreements on futures contracts are generally subject to the same risks involved in the fund's use of futures contracts, in addition to the risks involved in the fund's use of swap agreements. See “—Futures Contracts and Related Options.” A total return swap, or a swap on a futures contract, may add leverage to a portfolio by providing investment exposure to an underlying asset or market where the fund does not own or take physical custody of such asset or invest directly in such market.

The fund's ability to realize a profit from such transactions will depend on the ability of the financial institutions with which it enters into the transactions to meet their obligations to the fund. If a counterparty's creditworthiness declines, the value of the agreement would be likely to decline, potentially resulting in losses. If a default occurs by the other party to such transaction, the fund will have contractual remedies pursuant to the agreements related to the transaction, which may be limited by applicable law in the case of a counterparty's insolvency. If the returns of an index upon which a swap is based are unavailable or cannot be

calculated (including where the index is created and maintained by the swap counterparty), the fund may experience difficulty in valuing the swap or in determining the amounts owed to or by the counterparty, regardless of whether the counterparty has defaulted. Under certain circumstances, suitable transactions may not be available to the fund, or the fund may be unable to close out its position under such transactions at the same time, or at the same price, as if it had purchased comparable publicly traded securities.

The fund's investments in swaps will generate ordinary income and losses for federal income tax purposes and may cause the fund to recognize income without receiving cash with which to make the distributions necessary to qualify and be eligible for treatment as a regulated investment company and avoid a fund-level tax. The fund may therefore need to liquidate other investments, including when it is not advantageous to do so, to meet its distribution requirement. The fund is not permitted to carry forward any net ordinary losses it realizes in a taxable year to offset ordinary income it realizes in subsequent taxable years.

The fund may also enter into options on swap agreements ("swaptions"). A swaption is a contract that gives a counterparty the right (but not the obligation) to enter into a new swap agreement or to shorten, extend, cancel or otherwise modify an existing swap agreement, at some designated future time on specified terms. The fund may write (sell) and purchase put and call swaptions to the same extent it may make use of standard options on securities or other instruments. Swaptions are generally subject to the same risks involved in the fund's use of options. See "—Options on Securities."

A credit default swap is an agreement between the fund and a counterparty that enables the fund to buy or sell protection against a credit event related to a particular issuer. One party, acting as a "protection buyer," makes periodic payments to the other party, a "protection seller," in exchange for a promise by the protection seller to make a payment to the protection buyer if a negative credit event (such as a delinquent payment or default) occurs with respect to a referenced bond or group of bonds. Credit default swaps may also be structured based on the debt of a basket of issuers, rather than a single issuer, and may be customized with respect to the default event that triggers purchase or other factors (for example, the Nth default within a basket, or defaults by a particular combination of issuers within the basket, may trigger a payment obligation). The fund may enter into credit default swap contracts for investment purposes. As a credit protection seller in a credit default swap contract, the fund would be required to pay the par (or other agreed-upon) value of a referenced debt obligation to the counterparty in the event of a default by a third party, such as a U.S. or non-U.S. corporate issuer, on the debt obligation. In return for its obligation, the fund would receive from the counterparty a periodic stream of payments over the term of the contract provided that no event of default has occurred. If no default occurs, the fund would keep the stream of payments and would have no payment obligations. As the seller, the fund would be subject to investment exposure on the notional amount of the swap.

The fund may also purchase credit default swap contracts in order to hedge against the risk of default of the debt of a particular issuer or basket of issuers or profit from changes in the creditworthiness of the particular issuer(s) (also known as "buying credit protection"). In these cases, the fund would function as the counterparty referenced in the preceding paragraph. This would involve the risk that the investment may expire worthless and would only generate income in the event of an actual default by the issuer(s) of the underlying obligation(s) (or, as applicable, a credit downgrade or other indication of financial instability). It would also involve the risk that the seller may fail to satisfy its payment obligations to the fund in the event of a default. The purchase of credit default swaps involves costs, which will reduce the fund's return.

## **Tax-exempt Securities**

**General description.** As used in this SAI, the term "Tax-exempt Securities" includes debt obligations issued by a state, its political subdivisions (for example, counties, cities, towns, villages, districts and authorities) and their agencies, instrumentalities or other governmental units, the interest from which is, in the opinion of bond counsel, exempt from federal income tax and (if applicable) the corresponding state's personal income tax. Such obligations are issued to obtain funds for various public purposes, including the construction of a wide range of public facilities, such as airports, bridges, highways, housing, hospitals, mass transportation, schools,

streets and water and sewer works. Other public purposes for which Tax-exempt Securities may be issued include the refunding of outstanding obligations or the payment of general operating expenses.

Short-term Tax-exempt Securities are generally issued by state and local governments and public authorities as interim financing in anticipation of tax collections, revenue receipts or bond sales to finance such public purposes.

In addition, certain types of "private activity" bonds may be issued by public authorities to finance projects such as privately operated housing facilities; certain local facilities for supplying water, gas or electricity; sewage or solid waste disposal facilities; student loans; or public or private institutions for the construction of educational, hospital, housing and other facilities. Such obligations are included within the term Tax-exempt Securities if the interest paid thereon is, in the opinion of bond counsel, exempt from federal income tax and (if applicable) state personal income tax (such interest may, however, be subject to federal alternative minimum tax). Other types of private activity bonds, the proceeds of which are used for the construction, repair or improvement of, or to obtain equipment for, privately operated industrial or commercial facilities, may also constitute Tax-exempt Securities, although the current federal tax laws place substantial limitations on the size of such issues.

Tax-exempt Securities share many of the structural features and risks of other bonds, as described elsewhere in this SAI. For example, the fund may purchase callable Tax-exempt Securities, zero-coupon Tax-exempt Securities, or "stripped" Tax-exempt Securities, which entail additional risks. The fund may also purchase structured or asset-backed Tax-exempt Securities, such as the securities (including preferred stock) of special purpose entities that hold interests in the Tax-exempt Securities of one or more issuers and issue "tranching" securities that are entitled to receive payments based on the cash flows from those underlying securities. See "—Redeemable securities," "—Zero-coupon and Payment-in-kind Bonds," "—Structured investments," and "—Mortgage-backed and Asset-backed Securities" in this SAI. Structured Tax-exempt Securities may involve increased risk that the interest received by the fund may not be exempt from federal or state income tax, or that such interest may result in liability for the alternative minimum tax for shareholders of the fund. For example, in certain cases, the issuers of certain securities held by a special purpose entity may not have received an unqualified opinion of bond counsel that the interest from the securities will be exempt from federal income tax and (if applicable) the corresponding state's personal income tax.

The amount of information about the financial condition of an issuer of Tax-exempt Securities may not be as extensive as that which is made available by corporations whose securities are publicly traded. As a result, the achievement of the fund's goals is more dependent on Putnam Management's investment analysis than would be the case if the fund were investing in securities of better-known issuers.

**Escrow-secured or pre-refunded bonds.** These securities are created when an issuer uses the proceeds from a new bond issue to buy high grade, interest-bearing debt securities, generally direct obligations of the U.S. government, in order to redeem (or "pre-refund"), before maturity, an outstanding bond issue that is not immediately callable. These securities are then deposited in an irrevocable escrow account held by a trustee bank to secure all future payments of principal and interest on the pre-refunded bond until that bond's call date. Pre-refunded bonds often receive an 'AAA' or equivalent rating. Because pre-refunded bonds still bear the same interest rate, and have a very high credit quality, their price may increase. However, as the original bond approaches its call date, the bond's price will fall to its call price. The interest on pre-refunded bonds issued on or before December 31, 2017 is exempt from federal income tax; the interest on such bonds issued after December 31, 2017 is not exempt from federal income tax.

**Residual interest bonds.** The fund may invest in residual interest bonds, which are created by depositing municipal securities in a trust and dividing the income stream of an underlying municipal bond in two parts, one, a variable rate security and the other, a residual interest bond. The interest rate for the variable rate security is determined by an index or a periodic auction process, while the residual interest bond holder receives the balance of the income from the underlying municipal bond less an auction fee. The market prices



of residual interest bonds may be highly sensitive to changes in market rates and may decrease significantly when market rates increase.

**Tobacco Settlement Revenue Bonds.** The fund may invest in tobacco settlement revenue bonds, which are secured by an issuing state's proportionate share of payments under the Master Settlement Agreement ("MSA"). The MSA is an agreement that was reached out of court in November 1998 between 46 states and six U.S. jurisdictions and tobacco manufacturers representing an overwhelming majority of U.S. market share. The MSA provides for annual payments by the manufacturers to the states and jurisdictions in perpetuity in exchange for releasing all claims against the manufacturers and a pledge of no further litigation. The MSA established a base payment schedule and a formula for adjusting payments each year. Tobacco manufacturers pay into a master escrow trust based on their market share, and each state receives a fixed percentage of the payment as set forth in the MSA. Within some states, certain localities may in turn be allocated a specific portion of the state's MSA payment pursuant to an arrangement with the state.

A number of state and local governments have securitized the future flow of payments under the MSA by selling bonds pursuant to indentures, some through distinct governmental entities created for such purpose. The bonds are backed by the future revenue flow that is used for principal and interest payments on the bonds. Annual payments on the bonds, and thus risk to the fund, are dependent on the receipt of future settlement payments by the state or its instrumentality. The actual amount of future settlement payments may vary based on, among other things, annual domestic cigarette shipments, inflation, the financial capability of participating tobacco companies, and certain offsets for disputed payments. Payments made by tobacco manufacturers could be reduced if cigarette shipments continue to decline below the base levels used in establishing manufacturers' payment obligations under the MSA. Demand for cigarettes in the U.S. could continue to decline based on many factors, including, without limitation, anti-smoking campaigns, tax increases, price increases implemented to recoup the cost of payments by tobacco companies under the MSA, reduced ability to advertise, enforcement of laws prohibiting sales to minors, elimination of certain sales venues such as vending machines, and the spread of local ordinances restricting smoking in public places.

Because tobacco settlement bonds are backed by payments from the tobacco manufacturers, and generally not by the credit of the state or local government issuing the bonds, their creditworthiness depends on the ability of tobacco manufacturers to meet their obligations. The bankruptcy of an MSA-participating manufacturer could cause delays or reductions in bond payments, which would affect the fund's net asset value. Under the MSA, a market share loss by MSA-participating tobacco manufacturers to non-MSA participating manufacturers would also cause a downward adjustment in the payment amounts under some circumstances.

The MSA and tobacco manufacturers have been and continue to be subject to various legal claims, including, among others, claims that the MSA violates federal antitrust law. In addition, the United States Department of Justice has alleged in a civil lawsuit that the major tobacco companies defrauded and misled the American public about the health risks associated with smoking cigarettes. An adverse outcome to this lawsuit or to any other litigation matters or regulatory actions relating to the MSA or affecting tobacco manufacturers could adversely affect the payment streams associated with the MSA or cause delays or reductions in bond payments by tobacco manufacturers.

In addition to the risks described above, tobacco settlement revenue bonds are subject to other risks described in this SAI, including the risks of asset-backed securities discussed under "Mortgage-backed and Asset-backed Securities."

**Participation interests (Money Market Funds only).** The money market funds may invest in Tax-exempt Securities either by purchasing them directly or by purchasing certificates of accrual or similar instruments evidencing direct ownership of interest payments or principal payments, or both, on Tax-exempt Securities, provided that, in the opinion of counsel, any discount accruing on a certificate or instrument that is purchased at a yield not greater than the coupon rate of interest on the related Tax-exempt Securities will be exempt from federal income tax to the same extent as interest on the Tax-exempt Securities. The money market funds may

also invest in Tax-exempt Securities by purchasing from banks participation interests in all or part of specific holdings of Tax-exempt Securities. These participations may be backed in whole or in part by an irrevocable letter of credit or guarantee of the selling bank. The selling bank may receive a fee from the money market funds in connection with the arrangement. The money market funds will not purchase such participation interests unless it receives an opinion of counsel or a ruling of the IRS that interest earned by it on Tax-exempt Securities in which it holds such participation interests is exempt from federal income tax. No money market fund expects to invest more than 5% of its assets in participation interests.

**Stand-by commitments.** When the fund purchases Tax-exempt Securities, it has the authority to acquire stand-by commitments from banks and broker-dealers with respect to those Tax-exempt Securities. A stand-by commitment may be considered a security independent of the Tax-exempt security to which it relates. The amount payable by a bank or dealer during the time a stand-by commitment is exercisable, absent unusual circumstances, would be substantially the same as the market value of the underlying Tax-exempt security to a third party at any time. The fund expects that stand-by commitments generally will be available without the payment of direct or indirect consideration. The fund does not expect to assign any value to stand-by commitments.

**Yields.** The yields on Tax-exempt Securities depend on a variety of factors, including general money market conditions, effective marginal tax rates, the financial condition of the issuer, general conditions of the Tax-exempt security market, the size of a particular offering, the maturity of the obligation and the rating of the issue. The ratings of nationally recognized securities rating agencies represent their opinions as to the credit quality of the Tax-exempt Securities which they undertake to rate. It should be emphasized, however, that ratings are general and are not absolute standards of quality. Consequently, Tax-exempt Securities with the same maturity and interest rate but with different ratings may have the same yield. Yield disparities may occur for reasons not directly related to the investment quality of particular issues or the general movement of interest rates and may be due to such factors as changes in the overall demand or supply of various types of Tax-exempt Securities or changes in the investment objectives of investors. Subsequent to purchase by the fund, an issue of Tax-exempt Securities or other investments may cease to be rated, or its rating may be reduced below the minimum rating required for purchase by the fund. Putnam Management will consider such an event in its determination of whether the fund should continue to hold an investment in its portfolio. Downgrades of Tax-exempt Securities held by a money market fund may require the fund to sell such securities, potentially at a loss.

**"Moral obligation" bonds.** The fund may invest in so-called "moral obligation" bonds, where repayment of the bond is backed by a moral (but not legally binding) commitment of an entity other than the issuer, such as a state legislature, to pay. Such a commitment may be in addition to the legal commitment of the issuer to repay the bond or may represent the only payment obligation with respect to the bond (where, for example, no amount has yet been specifically appropriated to pay the bond. See "—Municipal leases" below.)

**Municipal leases.** The fund may acquire participations in lease obligations or installment purchase contract obligations (collectively, "lease obligations") of municipal authorities or entities. Lease obligations do not constitute general obligations of the municipality for which the municipality's taxing power is pledged. Certain of these lease obligations contain "non-appropriation" clauses, which provide that the municipality has no obligation to make lease or installment purchase payments in future years unless money is appropriated for such purpose on a yearly basis. In the case of a "non-appropriation" lease, the fund's ability to recover under the lease in the event of non-appropriation or default will be limited solely to the repossession of the leased property, and in any event, foreclosure of that property might prove difficult.

**Additional risks.** Securities in which the fund may invest, including Tax-exempt Securities, are subject to the provisions of bankruptcy, insolvency and other laws affecting the rights and remedies of creditors, such as the federal Bankruptcy Code (including special provisions related to municipalities and other public entities), and laws, if any, that may be enacted by Congress or state legislatures extending the time for payment of principal or interest, or both, or imposing other constraints upon enforcement of such obligations. There is also the

possibility that, as a result of litigation or other conditions, the power, ability or willingness of issuers to meet their obligations for the payment of interest and principal on their Tax-exempt Securities may be materially affected.

From time to time, legislation may be introduced or litigation may arise that may restrict or eliminate the federal income tax exemption for interest on debt obligations issued by states and their political subdivisions. Federal tax laws limit the types and amounts of tax-exempt bonds issuable for certain purposes, especially industrial development bonds and private activity bonds. Such limits may affect the future supply and yields of these types of Tax-exempt Securities. Further proposals limiting the issuance of Tax-exempt Securities may well be introduced in the future. If it appeared that the availability of Tax-exempt Securities for investment by the fund and the value of the fund's portfolio could be materially affected by such changes in law, the Trustees of the fund would reevaluate its goal and policies and consider changes in the structure of the fund or its dissolution. Shareholders should consult their tax advisors for the current law on tax-exempt bonds and securities.

### **Warrants**

The fund may invest in warrants, which are instruments that give the fund the right to purchase certain securities from an issuer at a specific price (the "strike price") for a limited period of time. The strike price of warrants typically is much lower than the current market price of the underlying securities, yet they are subject to similar price fluctuations. As a result, warrants may be more volatile investments than the underlying securities and may offer greater potential for capital appreciation as well as capital loss. Warrants do not entitle a holder to dividends or voting rights with respect to the underlying securities and do not represent any rights in the assets of the issuing company. Also, the value of the warrant does not necessarily change with the value of the underlying securities and a warrant ceases to have value if it is not exercised prior to the expiration date. These factors can make warrants more speculative than other types of investments.

In addition to warrants on securities, the fund may purchase put warrants and call warrants whose values vary depending on the change in the value of one or more specified securities indices ("index warrants"). Index warrants are generally issued by banks or other financial institutions and give the holder the right, at any time during the term of the warrant, to receive upon exercise of the warrant a cash payment from the issuer based on the value of the underlying index at the time of exercise. In general, if the value of the underlying index rises above the exercise price of the index warrant, the holder of a call warrant will be entitled to receive a cash payment from the issuer upon exercise based on the difference between the value of the index and the exercise price of the warrant; if the value of the underlying index falls, the holder of a put warrant will be entitled to receive a cash payment from the issuer upon exercise based on the difference between the exercise price of the warrant and the value of the index. The holder of a warrant would not be entitled to any payments from the issuer at any time when, in the case of a call warrant, the exercise price is greater than the value of the underlying index, or, in the case of a put warrant, the exercise price is less than the value of the underlying index. If the fund were not to exercise an index warrant prior to its expiration, then the fund would lose the amount of the purchase price paid by it for the warrant.

The fund will normally use index warrants in a manner similar to its use of options on securities indices. The risks of the fund's use of index warrants are generally similar to those relating to its use of index options. Unlike most index options, however, index warrants are issued in limited amounts and are not obligations of a regulated clearing agency, but are backed only by the credit of the bank or other institution which issues the warrant. Also, index warrants generally have longer terms than index options. Index warrants are not likely to be as liquid as certain index options backed by a recognized clearing agency. In addition, the terms of index warrants may limit the fund's ability to exercise the warrants at such time, or in such quantities, as the fund would otherwise wish to do.

### **Zero-coupon and Payment-in-kind Bonds**

The fund may invest without limit in so-called "zero-coupon" bonds and "payment-in-kind" bonds. Zero-coupon bonds are issued at a significant discount from their principal amount in lieu of paying interest periodically. Payment-in-kind bonds allow the issuer, at its option, to make current interest payments on the bonds either in cash or in additional bonds. Because zero-coupon and payment-in-kind bonds do not pay current interest in cash, their value is subject to greater fluctuation in response to changes in market interest rates than bonds that pay interest currently. Both zero-coupon and payment-in-kind bonds allow an issuer to avoid the need to generate cash to meet current interest payments. Accordingly, such bonds may involve greater credit risks than bonds paying interest currently in cash. The fund is required to accrue interest income on such investments and to distribute such amounts at least annually to shareholders even though such bonds do not pay current interest in cash. Thus, it may be necessary at times for the fund to liquidate investments, including when it is not advantageous to do so, in order to satisfy its distribution requirements under the Code.

## TAXES

The following discussion of U.S. federal income tax consequences is based on the Code, existing U.S. Treasury regulations, and other applicable authority, as of the date of this SAI. These authorities are subject to change by legislative or administrative action, possibly with retroactive effect. The following discussion is only a summary of some of the important U.S. federal income tax considerations generally applicable to investments in the fund. There may be other tax considerations applicable to particular shareholders. Shareholders should consult their own tax advisors regarding their particular situation and the possible application of foreign, state and local tax laws.

**Taxation of the fund.** The fund intends to qualify each year as a regulated investment company under Subchapter M of the Code. In order to qualify for the special tax treatment accorded regulated investment companies and their shareholders, the fund must, among other things:

- (a) derive at least 90% of its gross income for each taxable year from (i) dividends, interest, payments with respect to certain securities loans, and gains from the sale or other disposition of stock, securities or foreign currencies, or other income (including but not limited to gains from options, futures, or forward contracts) derived with respect to its business of investing in such stock, securities or currencies, and (ii) net income from interests in "qualified publicly traded partnerships" (as defined below);
- (b) diversify its holdings so that, at the end of each quarter of the fund's taxable year, (i) at least 50% of the market value of the fund's total assets is represented by cash and cash items, U.S. government securities, securities of other regulated investment companies, and other securities limited in respect of any one issuer to a value not greater than 5% of the value of the fund's total assets and not more than 10% of the outstanding voting securities of such issuer, and (ii) not more than 25% of the value of the fund's total assets is invested, including through corporations in which the fund owns a 20% or more voting stock interest, (x) in the securities (other than those of the U.S. government or other regulated investment companies) of any one issuer or of two or more issuers which the fund controls and which are engaged in the same, similar, or related trades or businesses, or (y) in the securities of one or more qualified publicly traded partnerships (as defined below); and
- (c) distribute with respect to each taxable year at least 90% of the sum of its investment company taxable income (as that term is defined in the Code without regard to the deduction for dividends paid—generally, taxable ordinary income and the excess, if any, of net short-term capital gains over net long-term capital losses) and net tax-exempt interest income, for such year.

In general, for purposes of the 90% gross income requirement described in paragraph (a) above, income derived from a partnership will be treated as qualifying income only to the extent such income is attributable to items of income of the partnership which would be qualifying income if realized by the regulated investment company. However, 100% of the net income of a regulated investment company derived from an interest in a "qualified publicly traded partnership" (defined as a partnership (i) interests in which are traded on an

established securities market or readily tradable on a secondary market or the substantial equivalent thereof, and (ii) that derives less than 90% of its income from the qualifying income described in paragraph (a)(i) above) will be treated as qualifying income. In general, such entities will be treated as partnerships for federal income tax purposes because they meet the passive income requirement under Code section 7704(c)(2). In addition, although in general the passive loss rules of the Code do not apply to regulated investment companies, such rules do apply to a regulated investment company with respect to items attributable to an interest in a qualified publicly traded partnership.

For purposes of the diversification test in paragraph (b) above, identification of the issuer (or, in some cases, issuers) of a particular fund investment will depend on the terms and conditions of that investment. In some cases, identification of the issuer (or issuers) is uncertain under current law, and an adverse determination or future guidance by the IRS with respect to issuer identification for a particular type of investment may adversely affect the fund's ability to meet the diversification test in (b) above. Also, for the purposes of the diversification test in paragraph (b) above, the term "outstanding voting securities of such issuer" will include the equity securities of a qualified publicly traded partnership.

If the fund qualifies as a regulated investment company that is accorded special tax treatment, the fund will not be subject to U. S. federal income tax on income or gains distributed in a timely manner to its shareholders in the form of dividends (including Capital Gain Dividends, as defined below).

If the fund were to fail to meet the income, diversification or distribution test described above, the fund could in some cases cure such failure, including by paying a fund-level tax, paying interest, making additional distributions, or disposing of certain assets. If the fund were ineligible to or otherwise did not cure such failure for any year, or were otherwise to fail to qualify as a regulated investment company accorded special tax treatment in any taxable year, the fund would be subject to tax on its taxable income at corporate rates, and all distributions from earnings and profits, including any distributions of net tax-exempt income and net long-term capital gains, would be taxable to shareholders as ordinary income. Some portions of such distributions may be eligible for the dividends received deduction in the case of corporate shareholders, and may be eligible to be treated as "qualified dividend income" in the case of shareholders taxed as individuals, provided, in both cases, that the shareholder meets certain holding period and other requirements in respect of the fund's shares (as described below). In addition, the fund could be required to recognize unrealized gains, pay substantial taxes and interest and make substantial distributions before requalifying as a regulated investment company that is accorded special tax treatment.

The fund intends to distribute at least annually to its shareholders all or substantially all of its investment company taxable income (computed without regard to the dividends-paid deduction) and its net tax-exempt income (if any). The fund may distribute its net capital gain (that is, the excess of net long-term capital gain over net short-term capital loss, in each case determined with reference to any loss carryforwards). Investment company taxable income (which is retained by the fund) will be subject to tax at regular corporate rates. The fund may also retain for investment its net capital gain. If the fund retains any net capital gain, it will be subject to tax at regular corporate rates on the amount retained, but may designate the retained amount as undistributed capital gains in a notice to its shareholders who will be (i) required to include in income for U.S. federal income tax purposes, as long-term capital gain, their shares of such undistributed amount, and (ii) entitled to credit their proportionate shares of the tax paid by the fund on such undistributed amount against their U.S. federal income tax liabilities, if any, and to claim refunds on a properly-filed U.S. tax return to the extent the credit exceeds such liabilities. If the fund makes this designation, for U.S. federal income tax purposes, the tax basis of shares owned by a shareholder of the fund will be increased by an amount equal to the difference between the amount of undistributed capital gains included in the shareholder's gross income under clause (i) of the preceding sentence and the tax deemed paid by the shareholder under clause (ii) of the preceding sentence. The fund is not required to, and there can be no assurance the fund will, make this designation if it retains all or a portion of its net capital gain in a taxable year.

In determining its net capital gain, including in connection with determining the amount available to support a Capital Gain Dividend (as defined below), its taxable income and its earnings and profits, a regulated investment company generally may also elect to treat part or all of any post-October capital loss (defined as any net capital loss attributable to the portion, if any, of the taxable year after October 31 or, if there is no such loss, the net long-term capital loss or net short-term capital loss attributable to any such portion of the taxable year) or late-year ordinary loss (generally, the sum of its (i) net ordinary loss, if any, from the sale, exchange or other taxable disposition of property, attributable to the portion, if any, of the taxable year after October 31, and its (ii) other net ordinary loss, if any, attributable to the portion, if any, of the taxable year after December 31) as if incurred in the succeeding taxable year.

If the fund fails to distribute in a calendar year at least an amount equal to the sum of 98% of its ordinary income for such year and 98.2% of its capital gain net income for the one-year period ending October 31 of such year, plus any retained amount from the prior year, the fund will be subject to a nondeductible 4% excise tax on the undistributed amounts. For these purposes, ordinary gains and losses from the sale, exchange, or other taxable disposition of property that would otherwise be properly taken into account after October 31 are treated as arising on January 1 of the following calendar year. For purposes of the excise tax, the fund will be treated as having distributed any amount on which it has been subject to corporate income tax in the taxable year ending within the calendar year. A dividend paid to shareholders in January of a year generally is deemed to have been paid by the fund on December 31 of the preceding year, if the dividend was declared and payable to shareholders of record on a date in October, November or December of that preceding year. The fund intends generally to make distributions sufficient to avoid imposition of the 4% excise tax, although there can be no assurance that it will be able to do so.

The fund distributes its net investment income and capital gains to shareholders as dividends at least annually to the extent required to qualify as a regulated investment company under the Code and generally to avoid U.S. federal income or excise tax. Provided it is not treated as a “personal holding company” for U.S. federal income tax purposes, the fund is permitted to treat the portion of redemption proceeds paid to redeeming shareholders that represents the redeeming shareholders’ portion of the fund’s accumulated earnings and profits as a dividend on the fund’s tax return. This practice, which involves the use of tax equalization, will have the effect of reducing the amount of income and gains that the fund is required to distribute as dividends to shareholders in order for the fund to avoid U. S. federal income tax and excise tax. This practice may also reduce the amount of distributions required to be made to non-redeeming shareholders and the amount of any undistributed income will be reflected in the value of the shares of the fund; the total return on a shareholder’s investment will not be reduced as a result of this distribution policy.

**Fund distributions.** Distributions from the fund (other than exempt-interest dividends, as discussed below) generally are taxable to shareholders as ordinary income to the extent derived from the fund’s investment income and net short-term capital gains. Distributions are taxable whether shareholders receive them in cash or reinvest them in additional shares of the fund or other Putnam funds.

Taxes on distributions of capital gains are determined by how long the fund owned (or is deemed to have owned) the investments that generated them, rather than how long a shareholder has owned his or her shares. In general, the fund will recognize long-term capital gain or loss on investments it has owned for more than one year, and short-term capital gain or loss on investments it has owned for one year or less. Tax rules can alter the fund’s holding period in investments and thereby affect the tax treatment of gain or loss on such investments. Distributions of net capital gain that are properly reported by the fund as capital gain dividends (“Capital Gain Dividends”) will be treated as long-term capital gains includible in net capital gain and taxed to individuals at reduced rates. Distributions from capital gains generally are made after applying any available capital loss carryforwards. Distributions of net short-term capital gain (as reduced by any net long-term capital loss for the taxable year) will be taxable to shareholders as ordinary income. Investors who purchase shares shortly before the record date of a distribution will pay the full price for the shares and then receive some portion of the price back as a taxable distribution.

The Code generally imposes a 3.8% Medicare contribution tax on the net investment income of certain individuals, trusts and estates to the extent their income exceeds certain threshold amounts. For these purposes, “net investment income” generally includes, among other things, (i) distributions paid by the fund of net investment income and capital gains (other than exempt-interest dividends) as described herein, and (ii) any net gain from the sale, redemption, exchange or other taxable disposition of fund shares. Shareholders are advised to consult their tax advisers regarding the possible implications of this additional tax on their investment in the fund.

Distributions of investment income reported by the fund as “qualified dividend income” received by an individual will be taxed at the reduced rates applicable to net capital gain. In order for some portion of the dividends received by a fund shareholder to be qualified dividend income, the fund must meet holding period and other requirements with respect to some portion of the dividend-paying stocks in its portfolio and the shareholder must meet holding period and other requirements with respect to the fund’s shares. In general, a dividend will not be treated as qualified dividend income (at either the fund or shareholder level) (1) if the dividend is received with respect to any share of stock held for fewer than 61 days during the 121-day period beginning on the date which is 60 days before the date on which such share becomes ex-dividend with respect to such dividend (or, on the case of certain preferred stock, 91 days during the 181-day period beginning 90 days before such date), (2) to the extent that the recipient is under an obligation (whether pursuant to a short sale or otherwise) to make related payments with respect to positions in substantially similar or related property, (3) if the recipient elects to have the dividend income treated as investment interest, or (4) if the dividend is received from a foreign corporation that is (a) not eligible for the benefits of a comprehensive income tax treaty with the United States (with the exception of dividends paid on stock of such a foreign corporation readily tradable on an established securities market in the United States) or (b) treated as a passive foreign investment company. Each fund, other than fixed-income and money market funds, generally expects to report eligible dividends as qualified dividend income.

In general, distributions of investment income reported by the fund as derived from qualified dividend income will be treated as qualified dividend income by a shareholder taxed as an individual provided the shareholder meets the holding period and other requirements described above with respect to such fund’s shares. In any event, if the aggregate qualified dividends received by the fund during any taxable year are 95% or more of its gross income (excluding net long-term capital gain over net short-term capital loss), then 100% of the fund’s dividends (other than dividends properly reported as Capital Gain Dividends) will be eligible to be treated as qualified dividend income.

Subject to any future regulatory guidance to the contrary, any distribution of income attributable to qualified REIT dividends or qualified publicly traded partnership income from a fund's investment in a REIT or MLP, as applicable, will ostensibly not qualify for the deduction that would be available to a non-corporate shareholder were the shareholder to own such REIT or MLP directly.

In general, fixed-income and money market funds receive interest, rather than dividends, from their portfolio securities. As a result, it is not currently expected that any significant portion of such funds’ distributions to shareholders will be derived from qualified dividend income. For information regarding qualified dividend income received from underlying funds, see “Funds of funds” below.

In general, dividends of net investment income received by corporate shareholders of the fund will qualify for the dividends-received deduction generally available to corporations only to the extent of the amount of eligible dividends received by the fund from domestic corporations for the taxable year. A dividend received by the fund will not be treated as a dividend eligible for the dividends-received deduction (1) if it has been received with respect to any share of stock that the fund has held for less than 46 days (91 days in the case of certain preferred stock) during the 91-day period beginning on the date which is 45 days before the date on which such share becomes ex-dividend with respect to such dividend (during the 181-day period beginning 90 days before such date in the case of certain preferred stock) or (2) to the extent that the fund is under an obligation (pursuant to a short sale or otherwise) to make related payments with respect to positions in

substantially similar or related property. Moreover, the dividends received deduction may otherwise be disallowed or reduced (1) if the corporate shareholder fails to satisfy the foregoing requirements with respect to its shares of the fund or (2) by application of various provisions of the Code (for instance, the dividends-received deduction is reduced in the case of a dividend received on debt-financed portfolio stock (generally, stock acquired with borrowed funds)). For information regarding eligibility for the dividends-received deduction of dividend income derived from an underlying fund, see “Funds of funds” below.

**Exempt-interest dividends.** A fund will be qualified to pay exempt-interest dividends to its shareholders if, at the close of each quarter of the fund’s taxable year, at least 50% of the total value of the fund’s assets consists of obligations the interest on which is exempt from federal income tax under Section 103(a) of the Code. In some cases, the fund may also pass through to its shareholders the tax-exempt character of any exempt-interest dividends it receives from underlying funds in which it invests (see “Funds of funds,” below). Distributions that the fund reports as exempt-interest dividends are treated as interest excludable from shareholders’ gross income for federal income tax purposes but may be taxable for federal alternative minimum tax (“AMT”) purposes and for state and local purposes. If the fund intends to qualify to pay exempt-interest dividends, the fund may be limited in its ability to enter into taxable transactions involving forward commitments, repurchase agreements, financial futures and options contracts on financial futures, tax-exempt bond indices and other assets.

Part or all of the interest on indebtedness, if any, incurred or continued by a shareholder to purchase or carry shares of the fund paying exempt-interest dividends is not deductible. The portion of interest that is not deductible is equal to the total interest paid or accrued on the indebtedness, multiplied by the percentage of the fund’s total distributions (not including distributions from net long-term capital gains) paid to the shareholder that are exempt-interest dividends. Under rules used by the IRS to determine when borrowed funds are considered used for the purpose of purchasing or carrying particular assets, the purchase of shares may be considered to have been made with borrowed funds even though such funds are not directly traceable to the purchase of shares.

In general, exempt-interest dividends, if any, attributable to interest received on certain private activity obligations and certain industrial development bonds will not be tax-exempt to any shareholders who are “substantial users” of the facilities financed by such obligations or bonds or who are “related persons” of such substantial users.

A fund that is qualified to pay exempt-interest dividends will notify its shareholders in a written statement of the portion of distributions for the taxable year that constitutes exempt-interest dividends.

Exempt-interest dividends may be taxable for purposes of the federal AMT. For individual shareholders, exempt-interest dividends that are derived from interest on private activity bonds that are issued after August 7, 1986 (other than a “qualified 501(c)(3) bond,” as such term is defined in the Code) generally must be included in an individual’s tax base for purposes of calculating the shareholder’s liability for U.S. federal AMT. For taxable years beginning after December 31, 2017, corporations are no longer subject to the federal AMT. For taxable years beginning before 2018, corporate shareholders will be required to include all exempt-interest dividends in determining their federal AMT. The AMT calculation for corporations is based, in part, on a corporation’s earnings and profits for the year. A corporation must include all exempt-interest dividends in calculating its earnings and profits for the year. Putnam AMT-Free Municipal Fund intends to distribute exempt-interest dividends that will not be taxable for federal AMT purposes for individuals. It intends to make such distributions by investing in Tax-exempt Securities other than private activity bonds that are issued after August 7, 1986 (other than “qualified 501(c)(3) bonds,” as such term is defined in the Code). Because corporate shareholders are required to include all exempt-interest dividends in determining their federal AMT, exempt-interest dividends distributed by Putnam AMT-Free Municipal Fund will be taxable to corporate shareholders for purposes of the federal AMT for taxable years beginning on or before December 31, 2017.



**Funds of funds.** If the fund invests in shares of underlying funds, a portion of its distributable income and gains will consist of distributions from the underlying funds and gains and losses on the disposition of shares of the underlying funds. To the extent that an underlying fund realizes net losses on its investments for a given taxable year, the fund will not be able to recognize its share of those losses (so as to offset distributions of net income or capital gains from other underlying funds) until and only to the extent that it disposes of shares of the underlying fund in a transaction qualifying for sale or exchange treatment or those losses reduce distributions required to be made by the underlying fund. Moreover, even when the fund does make such a disposition, a portion of its loss may be recognized as a long-term capital loss, which will not be treated as favorably for U.S. federal income tax purposes as a short-term capital loss or an ordinary deduction. In particular, the fund will not be able to offset any capital losses from its dispositions of underlying fund shares against its ordinary income (including distributions of any net short-term capital gains realized by an underlying fund).

In addition, in certain circumstances, the “wash sale” rules under Section 1091 of the Code may apply to the fund’s sales of underlying fund shares that have generated losses. A wash sale occurs if shares of an underlying fund are sold by the fund at a loss and the fund acquires additional shares of that same underlying fund 30 days before or after the date of the sale. The wash-sale rules could defer losses in the fund’s hands on sales of underlying fund shares (to the extent such sales are wash sales) for extended (and, in certain cases, potentially indefinite) periods of time.

As a result of the foregoing rules, and certain other special rules, the amounts of net investment income and net capital gains that the fund will be required to distribute to shareholders may be greater than such amounts would have been had the fund invested directly in the securities held by the underlying funds, rather than investing in shares of the underlying funds. For similar reasons, the amount or timing of distributions from the fund qualifying for treatment as being of a particular character (e.g., as long-term capital gain, exempt interest, eligible for dividends-received deduction, etc.) will not necessarily be the same as it would have been had the fund invested directly in the securities held by the underlying funds.

If the fund receives dividends from an underlying fund that qualifies as a regulated investment company, and the underlying fund reports such dividends as “qualified dividend income,” then the fund may, in turn, report a portion of its distributions as “qualified dividend income” as well, provided the fund meets the holding period and other requirements with respect to shares of the underlying fund.

If the fund receives dividends from an underlying fund and the underlying fund reports such dividends as eligible for the dividends-received deduction, then the fund is permitted, in turn, to designate a portion of its distributions as eligible for the dividends-received deduction, provided the fund meets the holding period and other requirements with respect to shares of the underlying fund.

If the fund were to own 20% or more of the voting interests of an underlying fund, subject to a safe harbor in respect of certain fund of funds arrangements, the fund would be required to “look through” the underlying fund to its holdings and combine the appropriate percentage (as determined pursuant to the applicable Treasury Regulations) of the underlying fund’s assets with the fund’s assets for purposes of satisfying the 25% diversification test described above.

If, at the close of each quarter of the fund’s taxable year, at least 50% of its total assets consists of interests in other regulated investment companies (such fund, a “qualified fund of funds”), the fund will be permitted to distribute exempt-interest dividends and thereby pass through to its shareholders the tax-exempt character of any exempt-interest dividends it receives from underlying funds in which it invests, or interest on any tax-exempt obligations in which it directly invests, if any. For further information regarding exempt-interest dividends, see “Exempt-interest dividends,” above.

If the fund is a qualified fund of funds, the fund will be entitled to elect to pass through to its shareholders a credit or deduction for foreign taxes (if any) borne in respect of foreign securities income earned by the fund,

or by any underlying funds and passed through to the fund. If the fund so elects, shareholders will include in gross income from foreign sources their pro rata shares of such taxes, if any, treated as paid by the fund. Even if the fund is eligible to make such an election for a given year, it may determine not to do so. If the fund elects to pass through to its shareholders foreign tax credits or deductions, tax-exempt shareholders and those who invest in the fund through tax-advantaged accounts such as IRAs will not benefit from any such tax credit or deduction. See “Foreign taxes” below for more information.

**Derivatives, hedging and related transactions; certain exposure to commodities.** In general, option premiums received by the fund are not immediately included in the income of the fund. Instead, the premiums are recognized when the option contract expires, the option is exercised by the holder, or the fund transfers or otherwise terminates the option (e.g., through a closing transaction). If a call option written by the fund is exercised and the fund sells or delivers the underlying stock, the fund generally will recognize capital gain or loss equal to (a) the sum of the strike price and the option premium received by the fund minus (b) the fund’s basis in the stock. Such gain or loss generally will be short-term or long-term depending upon the holding period of the underlying stock. If securities are purchased by the fund pursuant to the exercise of a put option written by it, the fund generally will subtract the premium received for purposes of computing its cost basis in the securities purchased. Gain or loss arising in respect of a termination of the fund’s obligation under an option other than through the exercise of the option will be short-term gain or loss depending on whether the premium income received by the fund is greater or less than the amount paid by the fund (if any) in terminating the transaction. Thus, for example, if an option written by the fund expires unexercised, the fund generally will recognize short-term gain equal to the premium received.

Certain covered call writing activities of the fund may trigger the U.S. federal income tax straddle rules contained primarily in Section 1092 of the Code. Very generally, where applicable, Section 1092 requires (i) that losses be deferred on positions deemed to be offsetting positions with respect to “substantially similar or related property,” to the extent of unrealized gain in the latter, and (ii) that the holding period of such a straddle position that has not already been held for the long-term holding period be terminated and begin anew once the position is no longer part of a straddle. Options on single stocks that are not “deep in the money” may constitute qualified covered calls, which generally are not subject to the straddle rules; the holding period on stock underlying qualified covered calls that are “in the money” although not “deep in the money” will be suspended during the period that such calls are outstanding. Thus, the straddle rules and the rules governing qualified covered calls could cause gains that would otherwise constitute long-term capital gains to be treated as short-term capital gains, and distributions that would otherwise constitute “qualified dividend income” or qualify for the dividends-received deduction to fail to satisfy the holding period requirements and therefore to be taxed as ordinary income or to fail to qualify for the dividends-received deduction, as the case may be.

In general, 40% of the gain or loss arising from the closing out of a futures contract traded on an exchange approved by the Commodities Futures Trading Commission is treated as short-term gain or loss, and 60% is treated as long-term gain or loss, although certain foreign currency gains and losses from such contracts may be treated as ordinary in character. Also, such contracts held by the fund at the end of each taxable year (and, for purposes of the 4% excise tax, on certain other dates as prescribed under the Code) are “marked to market” with the result that unrealized gains or losses are treated as though they were realized and the resulting gain or loss is treated as ordinary or 60/40 gain or loss, as applicable.

The fund’s investment in swaps, if any, will generate ordinary income and losses for federal income tax purposes. The fund’s investments in futures and swaps may cause the fund to recognize income without receiving cash with which to make the distributions necessary to qualify and be eligible for treatment as a regulated investment company and avoid a fund-level tax. The fund may therefore need to liquidate other investments, including when it is not advantageous to do so, to meet its distribution requirement. The fund is not permitted to carry forward any net ordinary losses it realizes in a taxable year to offset ordinary income it realizes in subsequent taxable years.

In addition to the special rules described above in respect of options, futures transactions and swaps, the fund's derivative transactions, including transactions in options, futures contracts, straddles, securities loan and other similar transactions, including for hedging purposes, will be subject to special tax rules (including constructive sale, mark-to-market, straddle, wash sale, and short sale rules), the effect of which may be to accelerate income to the fund, defer losses to the fund, cause adjustments in the holding periods of the fund's securities, convert long-term capital gains into short-term capital gains, short-term capital losses into long-term capital losses, or capital gains into ordinary income. These rules could therefore affect the amount, timing and character of distributions to shareholders. The fund may make any applicable elections pertaining to such transactions consistent with the interests of the fund.

Because these and other tax rules applicable to these types of transactions are in some cases uncertain under current law, an adverse determination or future guidance by the IRS with respect to these rules (which determination or guidance could be retroactive) may affect whether the fund has made sufficient distributions, and otherwise satisfied the relevant requirements, to maintain its qualification as a regulated investment company and avoid a fund-level tax.

A fund's use of commodity-linked derivatives can be limited by the fund's intention to qualify as a regulated investment company and can bear on its ability to so qualify. Income and gains from certain commodity-linked derivatives do not constitute qualifying income to a regulated investment company for purposes of the 90% gross income test described above. The tax treatment of certain other commodity-linked derivative instruments in which the fund might invest is not certain, in particular with respect to whether income or gains from such instruments constitute qualifying income to a regulated investment company. If the fund were to treat income or gain from a particular instrument as qualifying income and the income or gain were later determined not to constitute qualifying income and, together with any other nonqualifying income, caused the fund's nonqualifying income to exceed 10% of its gross income in any taxable year, the fund would fail to qualify as a regulated investment company unless it is eligible to and does pay a tax at the fund level.

The tax rules are uncertain with respect to the treatment of income or gains arising in respect of commodity-linked exchange-traded notes ("ETNs") and certain commodity-linked structured notes; also, the timing and character of income or gains arising from ETNs can be uncertain. An adverse determination or future guidance by the IRS (which determination or guidance could be retroactive) may affect the fund's ability to qualify for treatment as a regulated investment company and to avoid a fund-level tax.

To the extent that, in order to achieve exposure to commodities, the fund invests in entities that are treated as pass-through vehicles for U.S. federal income tax purposes, including, for instance, certain ETFs (e.g., ETFs investing in gold bullion) and partnerships other than qualified publicly traded partnerships (as defined earlier), all or a portion of any income and gains from such entities could constitute non-qualifying income to the fund for purposes of the 90% gross income requirement described above. In such a case, the fund's investments in such entities could be limited by its intention to qualify as a regulated investment company and could bear on its ability to so qualify. Certain commodities-related ETFs may qualify as qualified publicly traded partnerships. In such cases, the net income derived from such investments will constitute qualifying income for purposes of the 90% gross income requirement. If, however, such a vehicle were to fail to qualify as a qualified publicly traded partnership in a particular year, a portion of the gross income derived from it in such year could constitute non-qualifying income to the fund for purposes of the 90% gross income requirement and thus could adversely affect the fund's ability to qualify as a regulated investment company for a particular year. In addition, the diversification requirement described above for regulated investment company qualification will limit the fund's investments in one or more vehicles that are qualified publicly traded partnerships to 25% of the fund's total assets as of the close of each quarter of the fund's taxable year.

Each of Putnam PanAgora Managed Futures Strategy and Putnam PanAgora Risk Parity Fund intends to gain exposure to commodities and commodity-related investments, in whole or in part, through each fund's respective Subsidiary. A U.S. person who owns (directly, indirectly or constructively) 10% or more of the total combined voting power of all classes of stock of a foreign corporation or 10% or more of the total value of

shares of all classes of stock of a foreign corporation is a “United States Shareholder” for purposes of the controlled foreign corporation (“CFC”) provisions of the Code. A foreign corporation is a CFC if, on any day of its taxable year, more than 50% of the voting power or value of its stock is owned (directly, indirectly or constructively) by “United States Shareholders.” Because each of Putnam PanAgora Managed Futures Strategy and Putnam PanAgora Risk Parity Fund is a U.S. person that owns all of the stock of its respective Subsidiary, each of Putnam PanAgora Managed Futures Strategy and Putnam PanAgora Risk Parity Fund is a “United States Shareholder” and each Subsidiary is a CFC. As a “United States Shareholder,” each of Putnam PanAgora Managed Futures Strategy and Putnam PanAgora Risk Parity Fund is required to include in gross income for United States federal income tax purposes, as ordinary income, all of its Subsidiary’s “subpart F income” for the CFC’s taxable year ending with or within the fund’s taxable year, whether or not such income is distributed by the applicable Subsidiary, which may increase the ordinary income recognized by the fund. “Subpart F income” generally includes interest, original issue discount, dividends, net gains from the disposition of stocks or securities, receipts with respect to securities loans and net payments received with respect to equity swaps and similar derivatives. “Subpart F income” also includes the excess of gains over losses from transactions (including futures, forward and similar transactions) in commodities. It is expected that all of the Subsidiaries’ income will be “subpart F income.” Each fund’s recognition of its Subsidiary’s “subpart F income” will increase such fund’s tax basis in its Subsidiary’s shares. Distributions by a Subsidiary to the applicable fund will be tax-free, to the extent of such Subsidiary’s previously undistributed “subpart F income,” and will correspondingly reduce the fund’s tax basis in its Subsidiary’s shares. “Subpart F income” is treated as ordinary income, regardless of the character of a Subsidiary’s underlying income. If a net loss is realized by a Subsidiary, such loss is not available to offset income or capital gain generated from the fund’s other investments. In addition, a Subsidiary is not permitted to carry forward any net ordinary losses it realizes in a taxable year to offset ordinary income it realizes in subsequent taxable years.

The rules regarding the extent to which such subpart F inclusions will be treated as “qualifying income” for purposes of the 90% gross income requirement described above are unclear and currently under consideration. In the absence of further guidance, Putnam PanAgora Managed Futures Strategy and Putnam PanAgora Risk Parity Fund will seek to ensure that they satisfy the 90% gross income requirement, including but not limited to by ensuring that each Subsidiary timely distributes to the applicable fund an amount equal to such Subsidiary’s subpart F income by the end of the Subsidiary’s taxable year. In order to make such distributions, a Subsidiary may be required to sell investments, including at a time when it may be disadvantageous to do so. If either of Putnam PanAgora Managed Futures Strategy and Putnam PanAgora Risk Parity Fund were to fail to meet the 90% gross income requirement or otherwise were to fail to qualify as a regulated investment company accorded special tax treatment in any taxable year, such fund would be subject to tax on its taxable income at corporate rates, and all distributions from earnings and profits, including any distributions of net tax-exempt income and net long-term capital gains, would be taxable to shareholders as ordinary income. In addition, the fund could be required to pay substantial taxes, penalties and interest, and to make substantial distributions, in order to re-qualify for such special treatment.

Certain of the fund’s investments in derivative instruments and foreign currency-denominated instruments, and any of the fund’s transactions in foreign currencies and hedging activities, are likely to produce a difference between its book income and its taxable income. If such a difference arises, and the fund’s book income is less than its taxable income (or, for tax-exempt funds, the sum of its net tax-exempt and taxable income), the fund could be required to make distributions exceeding book income to qualify as a regulated investment company that is accorded special tax treatment and to eliminate fund-level income tax. In the alternative, if the fund’s book income exceeds the sum of its taxable income and tax-exempt income, the distribution (if any) of such excess will be treated as (i) a dividend to the extent of the fund’s remaining earnings and profits (including earnings and profits arising from tax-exempt income), (ii) thereafter as a return of capital to the extent of the recipient’s basis in the shares, and (iii) thereafter as gain from the sale or exchange of a capital asset.

**Investments in REITs.** The fund’s investment in REIT equity securities may result in the fund’s receipt of cash in excess of the REIT’s earnings. If the fund distributes such amounts, such distribution could constitute a return of capital to the fund shareholders for U.S. federal income tax purposes. Dividends received by the

fund from a REIT generally will not constitute qualified dividend income and will not qualify for the corporate dividends-received deduction.

**Mortgage-related securities.** The fund may invest in REITs, including REITs that hold residual interests in real estate mortgage investment conduits (“REMICs”) (including by investing in residual interests in collateralized mortgage obligations (“CMOs”) with respect to which an election to be treated as a REMIC is in effect), REITs that are themselves taxable mortgage pools (“TMPs”) or REITs that invest in TMPs. Under a notice issued by the IRS in October 2006 and Treasury regulations that have not yet been issued, but apply retroactively, a portion of the fund’s income from a REIT that is attributable to the REIT’s residual interest in a REMIC or TMP (referred to in the Code as an “excess inclusion”) will be subject to U.S. federal income tax in all events. This notice also provides, and the regulations are expected to provide, that excess inclusion income of a regulated investment company, such as the fund, will be allocated to shareholders of the regulated investment company in proportion to the dividends received by such shareholders, with the same consequences as if the shareholders held the related REMIC or TMP residual interest directly. As a result, a fund investing in such interests may not be a suitable investment for charitable remainder trusts, as noted below.

In general, excess inclusion income allocated to shareholders (i) cannot be offset by net operating losses (subject to a limited exception for certain thrift institutions), (ii) will constitute unrelated business taxable income (“UBTI”) to entities (including a qualified pension plan, an individual retirement account, a 401(k) plan, a Keogh plan or other tax-exempt entity) subject to tax on UBTI, thereby potentially requiring such an entity that is allocated excess inclusion income, and otherwise might not be required to file a tax return, to file a tax return and pay tax on such income, and (iii) in the case of a non-U.S. shareholder, will not qualify for any reduction in U.S. federal withholding tax. A shareholder will be subject to U.S. federal income tax on such inclusions notwithstanding any exemption from such income tax otherwise available under the Code. Any investment in residual interests of CMO that has elected to be treated as a REMIC can create complex tax problems, especially if the fund has state or local governments or other tax-exempt organizations as shareholders.

Income of a fund that would be UBTI if earned directly by a tax-exempt entity generally will not constitute UBTI when distributed to a tax-exempt shareholder of the fund. Notwithstanding the foregoing, a tax-exempt shareholder will recognize UBTI by virtue of its investment in the fund if shares in the fund constitute debt-financed property in the hands of the tax-exempt shareholder within the meaning of Code Section 514(b). Furthermore, a tax-exempt shareholder may recognize UBTI if the fund recognizes excess inclusion income derived from direct or indirect investments in REMIC residual interests or TMPs if the amount of such income recognized by the fund exceeds the fund's investment company taxable income (after taking into account deductions for dividends paid by the fund).

Under legislation enacted in December 2006, a charitable remainder trust (“CRT”), as defined in Section 664 of the Code, that realizes UBTI for a taxable year must pay an excise tax annually of an amount equal to such UBTI. Under IRS guidance issued in October 2006, a CRT will not recognize UBTI solely as a result of investing in a fund that recognizes excess inclusion income. Rather, if at any time during any taxable year a CRT (or one of certain other tax-exempt shareholders, such as the United States, a state or political subdivision, or an agency or instrumentality thereof, and certain energy cooperatives) is a record holder of a share in a fund that recognizes excess inclusion income, then the fund will be subject to a tax on that portion of its excess inclusion income for the taxable year that is allocable to such shareholders at the highest federal corporate income tax rate. The extent to which this IRS guidance remains applicable in light of the December 2006 legislation is unclear. To the extent permitted under the 1940 Act, the fund may elect to specially allocate any such tax to the applicable CRT, or other shareholder, and thus reduce such shareholder’s distributions for the year by the amount of the tax that relates to such shareholder’s interest in the fund. CRTs and other tax-exempt investors are urged to consult their tax advisors concerning the consequences of investing in the fund.

**Return of capital distributions.** If the fund makes a distribution in and with respect to any taxable year to a shareholder in excess of the fund’s current and accumulated earnings and profits, the excess distribution will

be treated as a return of capital to the extent of such shareholder's tax basis in its shares, and thereafter as capital gain. A return of capital is not taxable, but it reduces a shareholder's tax basis in its shares, thus reducing any loss or increasing any gain on a subsequent taxable disposition by the shareholder of its shares. Dividends and distributions on the fund's shares generally are subject to federal income tax as described herein to the extent they do not exceed the fund's realized income and gains, even though such dividends and distributions may economically represent a return of a particular shareholder's investment. Such distributions are likely to occur in respect of shares purchased at a time when the fund's net asset value reflects gains that are either unrealized, or realized but not distributed. Such realized income and gains may be required to be distributed even when the fund's net asset value also reflects unrealized losses. Distributions are taxable to a shareholder even if they are paid from income or gains earned by the fund prior to the shareholder's investment (and thus included in the price paid by the shareholder).

**Securities issued or purchased at a discount.** Some debt obligations with a fixed maturity date of more than one year from the date of issuance (and zero-coupon debt obligations with a fixed maturity date of more than one year from the date of issuance) that are acquired by the fund will be treated as debt obligations that are issued originally at a discount. Generally, the amount of the original issue discount ("OID") is treated as interest income and is included in the fund's income (and required to be distributed by the fund) over the term of the debt security, even though payment of that amount is not received until a later time, upon partial or full repayment or disposition of the debt security. In addition, payment-in-kind securities will give rise to income which is required to be distributed and is taxable even though the fund holding the security receives no interest payment in cash on the security during the year.

Some debt obligations with a fixed maturity date of more than one year from the date of issuance that are acquired by the fund in the secondary market may be treated as having "market discount." Very generally, market discount is the excess of the stated redemption price of a debt obligation (or in the case of an obligation issued with OID, its "revised issue price") over the purchase price of such obligation. Subject to the discussion below regarding Section 451 of the Code, (i) generally any gain recognized on the disposition of, and any partial payment of principal on, a debt security having market discount is treated as ordinary income to the extent the gain, or principal payment, does not exceed the "accrued market discount" on such debt security, (ii) alternatively, the fund may elect to accrue market discount currently, in which case the fund will be required to include the accrued market discount in the fund's income (as ordinary income) and thus distribute it over the term of the debt security, even though payment of that amount is not received until a later time, upon partial or full repayment or disposition of the debt security, and (iii) the rate at which the market discount accrues, and thus is included in the fund's income, will depend upon which of the permitted accrual methods the Fund elects. Notwithstanding the foregoing, effective for taxable years beginning after 2017, Section 451 of the Code generally requires any accrual method taxpayer to take into account items of gross income no later than the time at which such items are taken into account as revenue in the taxpayer's financial statements. The application of Section 451 to the accrual of market discount is currently unclear. If Section 451 applies to the accrual of market discount, the Fund must include in income any market discount as it takes the same into account on its financial statements.

Some debt obligations with a fixed maturity date of one year or less from the date of issuance that are acquired by the fund may be treated as having "acquisition discount" (very generally, the excess of the stated redemption price over the purchase price) or OID. The fund will be required to include the acquisition discount or OID in income over the term of the debt security, even though payment of that amount is not received until a later time, usually when the debt security matures. The fund may make one or more of the elections applicable to debt obligations having acquisition discount or OID, which could affect the character and timing of recognition of income.

If the fund holds the foregoing kinds of obligations, or other obligations subject to special rules under the Code, it may be required to pay out as an income distribution each year an amount which is greater than the total amount of cash interest the fund actually received. Such distributions may be made from the cash assets of the fund or, if necessary, by disposition of portfolio securities including at a time when it may not be

advantageous to do so. These dispositions may cause the fund to realize higher amounts of short-term capital gains (generally taxed to shareholders at ordinary income tax rates) and, in the event the fund realizes net capital gains from such transactions, its shareholders may receive a larger capital gain distribution than if the fund had not held such obligations.

**Securities purchased at a premium.** Very generally, where the fund purchases a bond at a price that exceeds the redemption price at maturity (*i.e.*, a premium), the premium is amortizable over the remaining term of the bond. In the case of a taxable bond, if the fund makes an election applicable to all such bonds it purchases, which election is irrevocable without consent of the IRS, the fund reduces the current taxable income from the bond by the amortized premium and reduces its tax basis in the bond by the amount of such offset; upon the disposition or maturity of such bonds acquired on or after January 4, 2013, the fund is permitted to deduct any remaining premium allocable to a prior period. In the case of a tax-exempt bond, tax rules require the fund to reduce its tax basis by the amount of amortized premium.

**Higher-Risk obligations.** The fund may invest to a significant extent in debt obligations that are in the lowest rating categories or are unrated, including debt obligations of issuers not currently paying interest or who are in default. Investments in debt obligations that are at risk of or in default present special tax issues for the fund. Tax rules are not entirely clear about issues such as whether the fund should recognize market discount on a debt obligation and, if so, the amount of market discount the fund should recognize; when the fund may cease to accrue interest, OID or market discount, when and to what extent deductions may be taken for bad debts or worthless securities and how payments received on obligations in default should be allocated between principal and income. These and other related issues will be addressed by the fund when, as and if it invests in such obligations, in order to seek to ensure that it distributes sufficient income to preserve its status as a regulated investment company and does not become subject to U.S. federal income or excise tax.

**Capital loss carryforward.** Distributions from capital gains generally are made after applying any available capital loss carryforwards. Capital loss carryforwards are reduced to the extent they offset current-year net realized capital gains, whether the fund retains or distributes such gains. If a fund incurs or has incurred capital losses in excess of capital gains (“net capital losses”) in taxable years beginning after December 22, 2010 (“post-2010 losses”), those losses will be carried forward to one or more subsequent taxable years; any such carryforward losses will retain their character as short-term or long-term. If the fund incurred net capital losses in a taxable year beginning on or before December 22, 2010 (“pre-2011 losses”), the fund is permitted to carry such losses forward for eight taxable years; in the year to which they are carried forward, such losses are treated as short-term capital losses that first offset any short-term capital gains, and then offset long-term capital gains. The fund must use any post 2010 losses, which will not expire, before it uses any pre-2011 losses. This increases the likelihood that pre-2011 losses will expire unused at the conclusion of the eight-year carryforward period. The amounts and expiration dates, if any, of any capital loss carryforwards available to the fund are shown in Note 1 (Federal income taxes) to the financial statements included in this Part II of the SAI or incorporated by reference into this SAI.

**Foreign taxes.** If more than 50% of the fund’s assets at taxable year end consists of the securities of foreign corporations, the fund may elect to permit shareholders to claim a credit or deduction on their income tax returns for their pro rata portion of qualified taxes paid by the fund to foreign countries in respect of foreign securities the fund has held for at least the minimum period specified in the Code. A qualified fund of funds also may elect to pass through to its shareholders foreign taxes it has paid or foreign taxes passed through to it by any underlying fund that itself elected to pass through such taxes to shareholders (see “Funds of funds” above). In such a case, shareholders will include in gross income from foreign sources their pro rata shares of such taxes. A shareholder’s ability to claim a foreign tax credit or deduction in respect of foreign taxes paid by the fund may be subject to certain limitations imposed by the Code, as a result of which a shareholder may not get a full credit or deduction for the amount of such taxes. In particular, shareholders must hold their fund shares (without protection from risk of loss) on the ex-dividend date and for at least 15 additional days during the 30-day period surrounding the ex-dividend date to be eligible to claim a foreign tax credit with respect to a given dividend. Shareholders who do not itemize on their U.S. federal income tax returns may claim a credit

(but no deduction) for such foreign taxes. Even if the fund is eligible to make such an election for a given year, it may determine not to do so. However, even if the fund elects to pass through to its shareholders foreign tax credits or deductions, tax-exempt shareholders and those who invest in the fund through tax-advantaged accounts such as IRAs will not benefit from any such tax credit or deduction.

**Passive Foreign Investment Companies.** Investments treated as equity for federal income tax purposes in certain “passive foreign investment companies” (“PFICs”, as defined below) could subject the fund to a U.S. federal income tax (including interest charges) on distributions received from the company or on the proceeds from the disposition of its investment in such a company. This tax cannot be eliminated by making distributions to fund shareholders; however, this tax can be avoided by making an election to mark such investments to market annually or to treat the passive foreign investment company as a “qualified electing fund.” The QEF and mark-to-market elections may have the effect of accelerating the recognition of income (without the receipt of cash) and increasing the amount required to be distributed by the fund to avoid taxation. Making either of these elections therefore may require the fund to liquidate other investments to meet its distribution requirement, which may also accelerate the recognition of gain and affect the fund’s total return. Dividends paid by PFICs will not be eligible to be treated as “qualified dividend income.” If the fund indirectly invests in PFICs by virtue of the fund’s investments in other funds, it may not make such PFIC elections; rather, the underlying funds directly investing in the PFICs would decide whether to make such elections.

Because it is not always possible to identify a foreign corporation as a PFIC, the fund may incur the tax and interest charges described above in some instances.

A PFIC is any foreign corporation: (i) 75 percent or more of the income of which for the taxable year is passive income, or (ii) the average percentage of the assets of which (generally by value, but by adjusted tax basis in certain cases) that produce or are held for the production of passive income is at least 50 percent. Generally, passive income for this purpose means dividends, interest (including income equivalent to interest), royalties, rents, annuities, the excess of gains over losses from certain property transactions and commodities transactions, and foreign currency gains. Passive income for this purpose does not include rents and royalties received by the foreign corporation from active business and certain income received from related persons.

**Foreign currency-denominated transactions and related hedging transactions.** The fund’s transactions in foreign currencies, foreign currency-denominated debt obligations and certain foreign currency options, futures contracts and forward contracts (and similar instruments) may give rise to ordinary income or loss to the extent such income or loss results from fluctuations in the value of the foreign currency concerned. Any such net gains could require a larger dividend toward the end of the calendar year. Any such net losses generally will reduce and potentially require the recharacterization of prior ordinary income distributions. Such ordinary income treatment may accelerate fund distributions to shareholders and increase the distributions taxed to shareholders as ordinary income. Any net ordinary losses so created cannot be carried forward by the fund to offset income or gains earned in subsequent taxable years.

**Sale, exchange or redemption of shares.** The sale, exchange or redemption of fund shares may give rise to a gain or loss. In general, any gain or loss realized upon a taxable disposition of shares will be treated as long-term capital gain or loss if the shares have been held for more than 12 months. Otherwise the gain or loss on the sale, exchange or redemption of fund shares will be treated as short-term capital gain or loss. However, if a shareholder sells shares at a loss within six months of purchase, any loss generally will be disallowed for federal income tax purposes to the extent of any exempt-interest dividends received on such shares. This loss disallowance, however, does not apply with respect to redemptions of fund shares held for six months or less with respect to a regular exempt-interest dividend paid by the fund if such fund declares substantially all of its net tax-exempt income as exempt-interest dividends on a daily basis, and pays such dividends at least on a monthly basis. In addition, any loss (not already disallowed as provided in the preceding sentences) realized upon a taxable disposition of shares held for six months or less will be treated as long-term, rather than short-term, to the extent of any Capital Gain Dividends received (or deemed received) by the shareholder with



respect to the shares. All or a portion of any loss realized upon a taxable disposition of fund shares will be disallowed if other shares of the same fund are purchased within 30 days before or after the disposition. In such a case, the basis of the newly purchased shares will be adjusted to reflect the disallowed loss.

**Cost basis reporting.** Upon the redemption or exchange of a shareholder's shares in the fund, the fund, or, if such shareholder's shares are then held through a financial intermediary, the financial intermediary, will be required to provide the shareholder and the IRS with cost basis and certain other related tax information about the fund shares the shareholder redeemed or exchanged. This cost basis reporting requirement is effective for shares purchased, including through dividend reinvestment, on or after January 1, 2012. Shareholders can visit [www.putnam.com/costbasis](http://www.putnam.com/costbasis), or call the fund at 1-800-225-1581, or consult their financial representatives, as appropriate, for more information regarding available methods for cost basis reporting and how to select a particular method. Shareholders should consult their tax advisors to determine which available cost basis method is best for them.

**Shares purchased through tax-qualified plans.** Special tax rules apply to investments through employer-sponsored retirement plans and other tax-qualified plans or tax-advantaged arrangements. Shareholders should consult their tax advisors to determine the suitability of shares of the fund as an investment through such plans and arrangements and the precise effect of an investment on their particular tax situation.

**Backup withholding.** The fund generally is required to withhold and remit to the U.S. Treasury a percentage of the taxable dividends and other distributions paid to any individual shareholder who fails to furnish the fund with a correct taxpayer identification number (TIN), who has under-reported dividends or interest income, or who fails to certify to the fund that he or she is not subject to such withholding. The backup withholding rules may also apply to distributions that are properly reported as exempt-interest dividends. Backup withholding is not an additional tax. Any amounts withheld may be credited against the shareholder's U.S. federal income tax liability, provided the appropriate information is furnished to the IRS.

In order for a foreign investor to qualify for exemption from the backup withholding tax rates and for reduced withholding tax rates under income tax treaties, the foreign investor must comply with special certification and filing requirements. Foreign investors in a fund should consult their tax advisors in this regard.

**Tax shelter reporting regulations.** Under U.S. Treasury regulations, if a shareholder recognizes a loss on disposition of fund shares of \$2 million or more for an individual shareholder or \$10 million or more for a corporate shareholder, the shareholder must file with the IRS a disclosure statement on Form 8886. Direct shareholders of portfolio securities are in many cases excepted from this reporting requirement, but under current guidance, shareholders of a regulated investment company are not excepted. Future guidance may extend the current exception from this reporting requirement to shareholders of most or all regulated investment companies. The fact that a loss is reportable under these regulations does not affect the legal determination of whether the taxpayer's treatment of the loss is proper. Shareholders should consult their tax advisors to determine the applicability of these regulations in light of their individual circumstances.

**Non-U.S. shareholders.** Distributions by the fund to shareholders that are not "U.S. persons" within the meaning of the Code ("foreign shareholders") properly reported by the fund as (1) Capital Gain Dividends, (2) interest-related dividends, (3) short-term capital gain dividends, each as defined below and subject to certain conditions described below, and (4) exempt-interest dividends generally are not subject to withholding of U.S. federal income tax.

In general, the Code defines (1) "short-term capital gain dividends" as distributions of net short-term capital gains in excess of net long-term capital losses and (2) "interest-related dividends" as distributions from U.S. source interest income of types similar to those not subject to U.S. federal income tax if earned directly by an individual foreign shareholder, in each case to the extent such distributions are properly reported as such by the fund in a written notice to shareholders. The exceptions to withholding for Capital Gain Dividends and short-term capital gain dividends do not apply to (A) distributions to an individual foreign shareholder who is

present in the United States for a period or periods aggregating 183 days or more during the year of the distribution and (B) distributions attributable to gain that is treated as effectively connected with the conduct by the foreign shareholder of a trade or business within the United States under special rules regarding the disposition of U.S. real property interests as described below. The exception to withholding for interest-related dividends does not apply to distributions to a foreign shareholder (A) that has not provided a satisfactory statement that the beneficial owner is not a U.S. person, (B) to the extent that the dividend is attributable to certain interest on an obligation if the foreign shareholder is the issuer or is a 10% shareholder of the issuer, (C) that is within certain foreign countries that have inadequate information exchange with the United States, or (D) to the extent the dividend is attributable to interest paid by a person that is a related person of the foreign shareholder and the foreign shareholder is a controlled foreign corporation. If the fund invests in other regulated investment companies that pay Capital Gain Dividends, short-term capital gain dividends or interest-related dividends to the fund, such distributions retain their character as not subject to withholding if properly reported when paid by the fund to foreign shareholders. The fund is permitted to report such part of its dividends as interest-related and/or short-term capital gain dividends as are eligible, but is not required to do so. In the case of shares held through an intermediary, the intermediary may withhold even if the fund reports all or a portion of a payment as an interest-related or short-term capital gain dividend to shareholders.

The fact that a fund achieves its goals by investing in underlying funds generally does not adversely affect the fund's ability to pass on to foreign shareholders the full benefit of the interest-related dividends and short-term capital gain dividends that it receives from its investments in underlying funds, except possibly to the extent that (1) interest-related dividends received by the fund are offset by deductions allocable to the fund's qualified interest income or (2) short-term capital gain dividends received by the fund are offset by the fund's net short- or long-term capital losses, in which case the amount of a distribution from the fund to a foreign shareholder that is properly reported as either an interest-related dividend or a short-term capital gain dividend, respectively, may be less than the amount that such shareholder would have received had they invested directly in the underlying funds.

Distributions by the fund to foreign shareholders other than Capital Gain Dividends, interest-related dividends, and short-term capital gain dividends and exempt-interest dividends (e.g., dividends attributable to dividend and foreign-source interest income or to short-term capital gains or U.S.-source interest income to which the exception from withholding described above does not apply) are generally subject to withholding of U.S. federal income tax at a rate of 30% (or lower applicable treaty rate).

Under U.S. federal tax law, a beneficial holder of shares who is a foreign shareholder is not, in general, subject to U.S. federal income tax on gains (and is not allowed a deduction for losses) realized on the sale of shares of the fund, unless (i) such gain is effectively connected with the conduct of a trade or business carried on by such holder within the United States; (ii) in the case of an individual holder, the holder is present in the United States for a period or periods aggregating 183 days or more during the year of the sale and certain other conditions are met; or (iii) the special rules relating to gain attributable to the sale or exchange of "U.S. real property interests" ("USRPIs") apply to the foreign shareholder's sale of shares of the fund (as described below).

If a beneficial holder who is a foreign shareholder has a trade or business in the United States, and the dividends are effectively connected with the conduct by the beneficial holder of a trade or business in the United States, the dividend will be subject to U.S. federal net income taxation at regular income tax rates and, in the case of a foreign corporation, may also be subject to a branch profits tax. If a foreign shareholder is eligible for the benefits of a tax treaty, any effectively connected income or gain will generally be subject to U.S. federal income tax on a net basis only if it is also attributable to a permanent establishment maintained by the shareholder in the United States. More generally, foreign shareholders who are residents in a country with an income tax treaty with the United States may obtain different tax results than those described herein, and are urged to consult their tax advisors.

Special rules would apply if the fund were a qualified investment entity (“QIE”) because it is either a “U.S. real property holding corporation” (“USRPHC”) or would be a USRPHC but for the operation of certain exceptions to the definition of USRPIs described below. Very generally, a USRPHC is a domestic corporation that holds USRPIs the fair market value of which equals or exceeds 50% of the sum of the fair market values of the corporation’s USRPIs, interests in real property located outside the United States, and other trade or business assets. USRPIs generally are defined as any interest in U.S. real property and any interest (other than solely as a creditor) in a USRPHC or, very generally, an entity that has been a USRPHC in the last five years. A fund that holds, directly or indirectly, significant interests in REITs may be a USRPHC. Interests in domestically controlled QIEs, including regulated investment companies and REITs that are QIEs, not-greater-than-10% interests in publicly traded classes of stock in REITs and not-greater-than-5% interests in publicly traded classes of stock in regulated investment companies generally are not USRPIs, but these exceptions do not apply for purposes of determining whether a fund is a QIE.

If an interest in the fund were a USRPI, the fund would be required to withhold U.S. tax on the proceeds of a share redemption by a greater-than-5% foreign shareholder, in which case such foreign shareholder generally would also be required to file U.S. tax returns and pay any additional taxes due in connection with the redemption.

If the fund were a QIE under a special “look-through” rule, any distributions by the fund to a foreign shareholder (including, in certain cases, distributions made by the fund in redemption of its shares) attributable directly or indirectly to (i) distributions received by the fund from a lower-tier regulated investment company or REIT that the fund is required to treat as USRPI gain in its hands and (ii) gains realized on the disposition of USRPIs by the fund would retain their character as gains realized from USRPIs in the hands of the fund’s foreign shareholders and would be subject to U.S. tax withholding. In addition, such distributions could result in the foreign shareholder being required to file a U.S. tax return and pay tax on the distributions at regular U.S. federal income tax rates. The consequences to a foreign shareholder, including the rate of such withholding and character of such distributions (e.g., as ordinary income or USRPI gain), would vary depending upon the extent of the foreign shareholder’s current and past ownership of the fund.

Foreign shareholders of the fund also may be subject to “wash sale” rules to prevent the avoidance of the tax-filing and -payment obligations discussed above through the sale and repurchase of fund shares.

Foreign shareholders should consult their tax advisers and, if holding shares through intermediaries, their intermediaries, concerning the application of these rules to their investment in the fund.

**Other reporting and withholding requirements.** Sections 1471-1474 of the Code and the U.S. Treasury and IRS guidance issued thereunder (collectively, “FATCA”) generally require a fund to obtain information sufficient to identify the status of each of its shareholders under FATCA or under an applicable intergovernmental agreement (an “IGA”) between the United States and a foreign government. If a shareholder fails to provide the requested information or otherwise fails to comply with FATCA or an IGA, the fund may be required to withhold under FATCA at a rate of 30% with respect to that shareholder on ordinary dividends it pays and 30% of the gross proceeds of share redemptions or exchanges and certain Capital Gain Dividends it pays on or after January 1, 2019. If a payment by the fund is subject to FATCA withholding, the fund is required to withhold even if such payment would otherwise be exempt from withholding under the rules applicable to foreign shareholders described above (e.g., Capital Gain Dividends, short-term capital gain dividends and interest-related dividends).

Each prospective investor is urged to consult its tax advisor regarding the applicability of FATCA and any other reporting requirements with respect to the prospective investor’s own situation, including investments through an intermediary.

**General Considerations.** The U.S. federal income tax discussion set forth above is for general information only. Prospective investors should consult their tax advisers regarding the specific federal tax consequences of

purchasing, holding, and disposing of shares of the fund, as well as the effects of state, local and foreign tax law and any proposed tax law changes.

## MANAGEMENT

### Trustees

<b>Name, Address<sup>1</sup>, Year of Birth, Position(s) Held with Fund and Length of Service as a Putnam Fund Trustee<sup>2</sup></b>	<b>Principal Occupation(s) During Past 5 Years</b>	<b>Other Directorships Held by Trustee</b>
<b>Liaquat Ahamed</b> (Born 1952), Trustee since 2012	Author; won Pulitzer Prize for Lords of Finance: The Bankers Who Broke the World.	Trustee of the Brookings Institution (a nonprofit public policy organization). Mr. Ahamed is also a director of the Rohatyn Group, an emerging-market fund complex that manages money for institutions. Mr. Ahamed has 25 years experience in the management of fixed income portfolios and was previously the Chief Executive Officer of Fischer Francis Trees & Watts, Inc., a fixed-income investment management subsidiary of BNP Paribas. Mr. Ahamed holds a B.A. in economics from Trinity College, Cambridge University and an M.A. in economics from Harvard University.
<b>Ravi Akhoury</b> (Born 1947), Trustee since 2009	Served as Chairman and CEO of MacKay Shields (a multi-product investment management firm) from 1992 to 2007.	Director of English Helper, Inc. (each a private software company). Mr. Akhoury previously served as Director of Jacob Ballas Capital India (a non-banking finance company focused on private equity advisory services) and a member of its Compensation Committee. He also served as Director and on the Compensation Committee of MaxIndia/New York Life Insurance Company in India. Mr. Akhoury is also a Trustee of the Rubin Museum, serving on the Investment Committee. Mr. Akhoury is a former Vice President and Investment Policy Committee member of Fischer, Francis, Trees and Watts (a fixed-income investment management subsidiary of BNP Paribas). He previously served on the Board of Bharti Telecom (an Indian telecommunications company) and was a member of its Audit and Compensation Committees. He also served on the Board of Thompson Press (a publishing company) and was a member of its Audit Committee. Mr. Akhoury graduated from the Indian Institute of Technology with a BS in Engineering and obtained an MS in Quantitative Methods from SUNY at Stony Brook.

<b>Name, Address<sup>1</sup>, Year of Birth, Position(s) Held with Fund and Length of Service as a Putnam Fund Trustee<sup>2</sup></b>	<b>Principal Occupation(s) During Past 5 Years</b>	<b>Other Directorships Held by Trustee</b>
<p><b>Barbara M. Baumann</b> (Born 1955), Trustee since 2010</p>	<p>President of Cross Creek Energy Corporation, a strategic consultant to domestic energy firms and direct investor in energy projects.</p>	<p>Director of Buckeye Partners, L.P. (a publicly traded master limited partnership focused on pipeline transport, storage and distribution of petroleum products) and Devon Energy Corporation (a leading independent natural gas and oil exploration and production company). She is the Chair of the Board of Trustees of Mount Holyoke College, and serves on the Finance Committee of the Children’s Hospital of Colorado. She is the Treasurer of the Board of The Denver Foundation, and chairs its Finance Committee. Until September 2014, Ms. Baumann was a director of UNS Energy Corporation (a publicly held electric and gas utility in Arizona). Until May 2014, Ms. Baumann was a Director of SM Energy Corporation (a publicly held U.S. exploration and production company). Until May 2012, Ms. Baumann was a Director of CVR Energy, Inc. (a publicly held petroleum refiner and fertilizer manufacturer). Prior to 2003, she was Executive Vice President of Associated Energy Managers, LLC (a domestic private equity firm). From 1981 until 2000 she held a variety of financial and operational management positions with the global energy company Amoco Corporation and its successor, BP. Ms. Baumann holds a B.A. from Mount Holyoke College and an MBA from The Wharton School of the University of Pennsylvania.</p>
<p><b>Katinka Domotorffy</b> (Born 1975), Trustee since 2012</p>	<p>Voting member of the Investment Committees of the Anne Ray Foundation and Margaret A. Cargill Foundation, part of the Margaret A. Cargill Philanthropies. Prior to 2012, Ms. Domotorffy was Partner, Chief Investment Officer, and Global Head of Quantitative Investment Strategies at Goldman Sachs Asset Management.</p>	<p>Director of the Great Lakes Science Center, and of College Now Greater Cleveland. Ms. Domotorffy holds a BSc in Economics from the University of Pennsylvania and an MSc in Accounting and Finance from the London School of Economics.</p>

<b>Name, Address<sup>1</sup>, Year of Birth, Position(s) Held with Fund and Length of Service as a Putnam Fund Trustee<sup>2</sup></b>	<b>Principal Occupation(s) During Past 5 Years</b>	<b>Other Directorships Held by Trustee</b>
<b>Catharine Bond Hill</b> (Born 1954), Trustee since 2017	Managing Director of Ithaca S+R (a not-for-profit service that helps the academic community navigate economic and technological change). From 2006 to 2016, Dr. Hill served as the 10th president of Vassar College. Prior to 2006, she was the provost of Williams College.	Director of Yale-NUS College; Alumni Fellow to the Yale Corporation. Dr. Hill graduated from Williams College, earned a bachelor's degree and a master's degree at Brasenose College, Oxford University, and completed her doctorate in economics at Yale University.
<b>Paul L. Joskow</b> (Born 1947), Trustee since 1997	Dr. Joskow is the Elizabeth and James Killian Professor of Economics, Emeritus at the Massachusetts Institute of Technology (MIT), where he joined the faculty in 1972. He was the Head of the MIT Department of Economics from 1994 to 1998 and the Director of the MIT Center for Energy and Environmental Policy Research from 1999 through 2007. Dr. Joskow was the President of the Alfred P. Sloan Foundation (a philanthropic institution focused primarily on research and education on issues related to science, technology and economic performance) from 2008-2017.	Trustee of Yale University; a Director of Exelon Corporation (an energy company focused on power services); and a Member of the Board of Overseers of the Boston Symphony Orchestra. Prior to April 2013, he served as Director of TransCanada Corporation and TransCanada Pipelines Ltd. (energy companies focused on natural gas transmission, oil pipelines, and power services.) Prior to August 2007, he served as a Director of National Grid (a U.K.-based holding company with interests in electric and gas transmission and distribution and telecommunications infrastructure). Prior to July, 2006, he served as President of the Yale University Council. Prior to February 2005, he served on the board of the Whitehead Institute for Biomedical Research (a non-profit research institution). Prior to February 2002, he was a Director of State Farm Indemnity Company (an automobile insurance company), and prior to March 2000, he was a Director of New England Electric System (a public utility holding company). Dr. Joskow holds a Ph.D. and a M.Phil. from Yale University and a B.A. from Cornell University.

<b>Name, Address<sup>1</sup>, Year of Birth, Position(s) Held with Fund and Length of Service as a Putnam Fund Trustee<sup>2</sup></b>	<b>Principal Occupation(s) During Past 5 Years</b>	<b>Other Directorships Held by Trustee</b>
<p><b>Kenneth R. Leibler</b> (Born 1949), Trustee since 2006, Vice Chair from 2016 to 2018 and Chair since 2018</p>	<p>A founder and former Chairman of the Boston Options Exchange (an electronic market place for the trading of listed derivatives securities). He is currently Vice Chairman Emeritus of the Board of Trustees of Beth Israel Deaconess Hospital in Boston and a former Director of Beth Israel Deaconess Care Organization, an accountable care group jointly owned by the medical center and its affiliated physicians network. He is also Director of Eversource Corporation, which operates New England's largest energy delivery system.</p>	<p>Until November 2010, Mr. Leibler was a Director of Ruder Finn Group (a global communications and advertising firm). Prior to December 2006, Mr. Leibler served as a Director of the Optimum Funds Group. Prior to October 2006, he served as a Director of ISO New England (the organization responsible for the operation of the electric generation system in the New England states). Prior to 2000, he was a Director of the Investment Company Institute in Washington, D.C. Prior to January 2005, Mr. Leibler served as Chairman and Chief Executive Officer of the Boston Stock Exchange. Prior to January 2000, he served as President and Chief Executive Officer of Liberty Financial Companies (a publicly traded diversified asset management organization). Prior to June 1990, he served as President and Chief Operating Officer of the American Stock Exchange (AMEX). Prior to serving as AMEX President, he held the position of Chief Financial Officer, and headed its management and marketing operations. Mr. Leibler graduated with a B.A. in Economics from Syracuse University.</p>
<p><b>Robert E. Patterson</b> (Born 1945), Trustee since 1984</p>	<p>Prior to March 15, 2017, Co-Chairman of Cabot Properties, Inc. (a private equity firm investing in commercial real estate) and Chairman or Co-Chairman of the Investment Committees for various Cabot Funds. He formerly served as Senior Advisor to these entities.</p>	<p>Mr. Patterson is past Chairman and served as a Trustee of the Joslin Diabetes Center. Prior to December 2001, Mr. Patterson served as the President and as a Trustee of Cabot Industrial Trust (a publicly-traded real estate investment trust). He has also served as a Trustee of the Sea Education Association. Prior to 1998, he was Executive Vice President and Director of Acquisitions of Cabot Partners Limited Partnership (a registered investment adviser involved in institutional real estate investments). Prior to 1990, he served as Executive Vice President of Cabot, Cabot &amp; Forbes Realty Advisers, Inc. (the predecessor company of Cabot Partners). Mr. Patterson practiced law and held various positions in state government, and was the founding Executive Director of the Massachusetts Industrial Finance Agency. Mr. Patterson is a graduate of Harvard College and Harvard Law School.</p>

<b>Name, Address<sup>1</sup>, Year of Birth, Position(s) Held with Fund and Length of Service as a Putnam Fund Trustee<sup>2</sup></b>	<b>Principal Occupation(s) During Past 5 Years</b>	<b>Other Directorships Held by Trustee</b>
<b>George Putnam, III</b> (Born 1951), Trustee since 1984	Chairman of New Generation Research, Inc. (a publisher of financial advisory and other research services) and President of New Generation Advisors, LLC (a registered investment adviser to private funds), which are firms he founded in 1986. Prior to June 2007, Mr. Putnam was President of the Putnam Funds.	Director of The Boston Family Office, LLC (a registered investment advisor) and a Trustee of the Marine Biological Laboratory. Until 2017, Mr. Putnam was a Trustee of Epiphany School. Until 2010, Mr. Putnam was a Trustee of St. Mark’s School. Until 2006, Mr. Putnam was a Trustee of Shore Country Day School. Until 2002, he was a Trustee of the Sea Education Association. Mr. Putnam is a graduate of Harvard College, Harvard Business School and Harvard Law School.
<b>Manoj P. Singh</b> (Born 1952), Trustee since 2017	Until 2015, chief operating officer and global managing director at Deloitte Touche Tohmatsu, Ltd. (a global professional services organization). He served on the Deloitte U.S. board of directors and the boards of Deloitte member firms in China, Mexico and Southeast Asia.	Director of Abt Associates (a global research firm working in the fields of health, social and environmental policy, and international development); Trustee of Carnegie Mellon University; Trustee of the Rubin Museum; Director of Pratham USA (an organization dedicated to children’s education in India); member of the advisory board of Altimetrik (a business transformation and technology solutions firm); and Director of DXC Technology (a global IT services and consulting company). Mr. Singh holds a bachelor’s degree in electrical engineering from the Indian Institute of Technology and an MS in industrial administration from Carnegie Mellon University.



Name, Address <sup>1</sup> , Year of Birth, Position(s) Held with Fund and Length of Service as a Putnam Fund Trustee <sup>2</sup>	Principal Occupation(s) During Past 5 Years	Other Directorships Held by Trustee
<b>Interested Trustees</b>		
* <b>Robert L. Reynolds</b> (Born 1952), Trustee since 2008	President and Chief Executive Officer of Putnam Investments since 2008 and, since 2014, President and Chief Executive Officer of Great-West Financial, a financial services company that provides retirement savings plans, life insurance, and annuity and executive benefits products, and of Great-West Lifeco U.S. Inc., a holding company that owns Putnam Investments and Great-West Financial. Member of Putnam Investments' and Great-West Financial's Board of Directors. Prior to joining Putnam Investments in 2008, Mr. Reynolds was Vice Chairman and Chief Operating Officer of Fidelity Investments from 2000 to 2007.	Director of several not-for-profit boards, including West Virginia University Foundation, the Concord Museum, Dana-Farber Cancer Institute, Massachusetts Competitive Partnership (Chairman), and Boston Chamber of Commerce. He is a member of the Chief Executives Club of Boston, the National Innovation Initiative, the Massachusetts General Hospital President's Council, and the Council on Competitiveness, and he is a former President of the Commercial Club of Boston. Prior to 2008, he served as a Director of FMR Corporation, Fidelity Investments Insurance Ltd., Fidelity Investments Canada Ltd., and Fidelity Management Trust Company and as a Trustee of the Fidelity Family of Funds. Mr. Reynolds received a B.S. in Business Administration with a major in Finance from West Virginia University.

<sup>1</sup> The address of each Trustee is One Post Office Square, Boston, MA 02109. As of December 31, 2017, there were 106 Putnam funds.

<sup>2</sup> Each Trustee serves for an indefinite term, until his or her resignation, retirement during the year he or she reaches age 75, death or removal.

\*Trustee who is an “interested person” (as defined in the 1940 Act) of the fund and Putnam Management. Mr. Reynolds is deemed an “interested person” by virtue of his positions as an officer of the fund and Putnam Management. Mr. Reynolds is the President and Chief Executive Officer of Putnam Investments, LLC and President of your fund and each of the other Putnam funds.

### Trustee Qualifications

Each of the fund’s Trustees, with the exception of Dr. Hill and Mr. Singh, was most recently elected by shareholders of the fund during 2014, although most of the Trustees have served on the Board for many years. The Board Policy and Nominating Committee is responsible for recommending proposed nominees for election to the full Board of Trustees for its approval. As part of its deliberative process, the Committee

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considers the experience, qualifications, attributes and skills that it determines would benefit the Putnam funds at the time.

In recommending the election of the board members as Trustees, the Committee generally considered the educational, business and professional experience of each Trustee in determining his or her qualifications to serve as a Trustee of the fund, including the Trustee's record of service as a director or trustee of public and private organizations. (This included, but was not limited to, consideration of the specific experience noted in the preceding table.) In the case of most members of the Board, the Committee considered his or her previous service as a member of the Board of Trustees of the Putnam funds, which demonstrated a high level of diligence and commitment to the interests of fund shareholders and an ability to work effectively and collegially with other members of the Board.

The Committee also considered, among other factors, the particular attributes described below with respect to the various individual Trustees and considered the attributes as indicative of the person's ability to deal effectively with the types of financial, regulatory, and/or investment matters that typically arise in the course of a Trustee's work:

Liaquat Ahamed -- Mr. Ahamed's experience as Chief Executive Officer of a major investment management organization and as head of the investment division at the World Bank, as well as his experience as an author of economic literature.

Ravi Akhoury -- Mr. Akhoury's experience as Chairman and Chief Executive Officer of a major investment management organization.

Barbara M. Baumann -- Ms. Baumann's experience in the energy industry as a consultant, an investor, and in both financial and operational management positions at a global energy company, and her service as a director of multiple NYSE companies.

Katinka Domotorffy -- Ms. Domotorffy's experience as Chief Investment Officer and Global Head of Quantitative Investment Strategies at a major asset management organization.

Catharine Bond Hill -- Dr. Hill's education and experience as an economist and as president and provost of colleges in the United States.

Paul L. Joskow -- Dr. Joskow's education and experience as a professional economist familiar with financial economics and related issues and his service on multiple for-profit boards.

Kenneth R. Leibler -- Mr. Leibler's extensive experience in the financial services industry, including as Chief Executive Officer of a major asset management organization, and his service as a director of various public and private companies.

Robert E. Patterson -- Mr. Patterson's training and experience as an attorney and his experience as president of a NYSE company.

George Putnam, III -- Mr. Putnam's training and experience as an attorney, his experience as the founder and Chief Executive Officer of an investment management firm and his experience as an author of various publications on the subject of investments.

Manoj P. Singh -- Mr. Singh's experience as chief operating officer and global managing director of a global professional services organization that provided accounting, consulting, tax, risk management, and financial advisory services.

#### Interested Trustee

Robert L. Reynolds -- Mr. Reynolds's extensive experience as a senior executive of one of the largest mutual fund organizations in the United States and his current role as President and Chief Executive Officer of Putnam Investments.

On March 23, 2016, Great-West Financial, a company under common control with Putnam Investments, LLC and of which Mr. Reynolds is the Chief Executive Officer, entered into a loan agreement as the lending party with Cabot Industrial Core Fund Operating Partnership, L.P. ("Cabot OP"), the guarantor for a collection of six borrowing parties, each being a limited liability company wholly owned by Cabot OP. The loan is intended to provide long-term financing in the form of a 7 year loan totaling \$72.25 million to Cabot Industrial Core Fund, L.P. (the "Cabot Fund"). Cabot OP is an entity through which the Cabot Fund holds certain investments. The interest rate for the loan is 3.48%. Mr. Patterson may be deemed to have had an indirect interest in the transaction, or an indirect relationship with Great-West Financial, through his former position as an officer of Cabot OP and as the former Co-Chairman of the Investment Committee of the Cabot Fund, which approved the proposed loan on behalf of the borrowing parties. Prior to his retirement on March 15, 2017, Mr. Patterson had an 18.3% ownership interest in Cabot Properties, Inc., the highest controlling entity of Cabot OP, and was also a 14.3% partner in Cabot Properties, L.P., the asset manager of the Cabot Fund. Upon his retirement, pursuant to the terms of the governing agreements of Cabot Properties, Inc. and Cabot Properties, L.P., Mr. Patterson ceased to have any rights as a stockholder or partner, except with respect to his right to receive payment.

### Officers

In addition to Robert L. Reynolds, the fund's President, the other officers of the fund are shown below. All of the officers of your fund are employees of Putnam Management or its affiliates or are members of the Trustees' independent administrative staff.

<b>Name, Address<sup>1</sup>, Year of Birth, Position(s) Held with Fund</b>	<b>Length of Service with the Putnam Funds<sup>2</sup></b>	<b>Principal Occupation(s) During Past 5 Years and Position(s) with Fund's Investment Adviser and Distributor<sup>3</sup></b>
<b>Jonathan S. Horwitz<sup>4</sup></b> (Born 1955) Executive Vice President, Principal Executive Officer, and Compliance Liaison	Since 2004	Executive Vice President, Principal Executive Officer, and Compliance Liaison, The Putnam Funds.
<b>Robert T. Burns</b> (Born 1961) Vice President and Chief Legal Officer	Since 2011	General Counsel, Putnam Investments, Putnam Management and Putnam Retail Management.
<b>James F. Clark<sup>3</sup></b> (Born 1974) Vice President and Chief Compliance Officer	Since 2016	Chief Compliance Officer, Putnam Investments and Putnam Management (2016 – Present). Associate General Counsel, Putnam Investments, Putnam Management and Putnam Retail Management (2003-2015).
<b>Michael J. Higgins<sup>4</sup></b> (Born 1976) Vice President, Treasurer, and Clerk	Since 2010	Vice President, Treasurer, and Clerk, The Putnam Funds
<b>Janet C. Smith</b> (Born 1965) Vice President, Principal Financial Officer, Principal Accounting Officer, and Assistant Treasurer	Since 2007	Head of Fund Administration Services, Putnam Investments and Putnam Management.
<b>Susan G. Malloy</b> (Born 1957) Vice President and Assistant Treasurer	Since 2007	Head of Accounting, Middle Office, and Control Services, Putnam Investments, and Putnam Management.

<b>Name, Address<sup>1</sup>, Year of Birth, Position(s) Held with Fund</b>	<b>Length of Service with the Putnam Funds<sup>2</sup></b>	<b>Principal Occupation(s) During Past 5 Years and Position(s) with Fund's Investment Adviser and Distributor<sup>3</sup></b>
<b>Mark C. Trenchard</b> (Born 1962) Vice President and BSA Compliance Officer	Since 2002	Director of Operational Compliance, Putnam Investments and Putnam Retail Management
<b>Nancy E. Florek<sup>4</sup></b> (Born 1957) Vice President, Director of Proxy Voting and Corporate Governance, Assistant Clerk, and Assistant Treasurer	Since 2000	Vice President, Director of Proxy Voting and Corporate Governance, Assistant Clerk, and Assistant Treasurer, The Putnam Funds.
<b>Denere P. Poulack<sup>4</sup></b> (Born 1968) Assistant Vice President, Assistant Clerk, and Assistant Treasurer	Since 2004	Assistant Vice President, Assistant Clerk, and Assistant Treasurer, The Putnam Funds.

<sup>1</sup>The address of each Officer is One Post Office Square, Boston, MA 02109.

<sup>2</sup>Each officer serves for an indefinite term, until his or her resignation, retirement, death or removal.

<sup>3</sup>Prior positions and/or officer appointments with the fund or the fund's investment adviser and distributor have been omitted.

<sup>4</sup>Officers of the fund indicated are members of the Trustees' independent administrative staff. Compensation for these individuals is fixed by the Trustees and reimbursed to Putnam Management by the funds.

Except as stated above, the principal occupations of the officers and Trustees for the last five years have been with the employers as shown above, although in some cases they have held different positions with such employers.

### **Leadership Structure and Standing Committees of the Board of Trustees**

**For details regarding the number of times the standing committees of the Board of Trustees met during a fund's last fiscal year, see "Trustee responsibilities and fees" in Part I of this SAI.**

**Board Leadership Structure.** Currently, 10 of the 11 Trustees of your fund are Independent Trustees, meaning that they are not considered "interested persons" of your fund or its investment manager. These Independent Trustees must vote separately to approve all financial arrangements and other agreements with your fund's investment manager and other affiliated parties. The role of independent trustees has been characterized as that of a "watchdog" charged with oversight to protect shareholders' interests against overreaching and abuse by those who are in a position to control or influence a fund. Your fund's Independent Trustees meet regularly as a group in executive session (*i.e.*, without representatives of your fund's investment manager or its affiliates present). An Independent Trustee currently serves as chair of the Board.

Taking into account the number, the diversity and the complexity of the funds overseen by the Board and the aggregate amount of assets under management, your fund's Trustees have determined that the efficient conduct of the Board's affairs makes it desirable to delegate responsibility for certain specific matters to committees of the Board. The Executive Committee, Audit, Compliance and Distributions Committee, and Board Policy and Nominating Committee are authorized to take action on certain matters as specified in their charters or in policies and procedures relating to the governance of the funds; with respect to other matters, these committees review and evaluate and make recommendations to the Trustees as they deem appropriate. The other committees also review and evaluate matters specified in their charters and make recommendations to the Trustees as they deem appropriate. Each committee may utilize the resources of your fund's independent staff, counsel and independent registered public accountants as well as other experts. The committees meet as often as appropriate, either in conjunction with regular meetings of the Trustees or otherwise. The membership and

chair of each committee are appointed by the Trustees upon recommendation of the Board Policy and Nominating Committee. Each committee is chaired by an Independent Trustee and, except as noted below, the membership and chairs of each committee consist exclusively of Independent Trustees.

The Trustees have determined that this committee structure also allows the Board to focus more effectively on the oversight of risk as part of its broader oversight of the fund's affairs. While risk management is the primary responsibility of the fund's investment manager, the Trustees receive reports regarding investment risks, compliance risks and other risks. The Board and certain committees also meet periodically with the funds' Chief Compliance Officer to receive compliance reports. In addition, the Board and its Investment Oversight Committees meet periodically with the portfolio managers of the funds to receive reports regarding the management of the funds. The Board's committee structure allows separate committees to focus on different aspects of these risks and their potential impact on some or all of the funds and to discuss with the fund's investment manager how it monitors and controls risks.

The Board recognizes that the reports it receives concerning risk management matters are, by their nature, typically summaries of the relevant information. Moreover, the Board recognizes that not all risks that may affect your fund can be identified in advance; that it may not be practical or cost effective to eliminate or to mitigate certain risks; that it may be necessary to bear certain risks (such as investment-related risks) in seeking to achieve your fund's investment objectives; and that the processes, procedures and controls employed to address certain risks may be limited in their effectiveness. As a result of the foregoing and for other reasons, the Board's risk management oversight is subject to substantial limitations.

**Audit, Compliance and Distributions Committee.** The Audit, Compliance and Distributions Committee provides oversight on matters relating to the preparation of the funds' financial statements, compliance matters, internal audit functions, and Codes of Ethics issues. This oversight is discharged by regularly meeting with management and the funds' independent registered public accountants and keeping current on industry developments. Duties of this Committee also include the review and evaluation of all matters and relationships pertaining to the funds' independent registered public accountants, including their independence. The Committee also oversees all dividends and distributions by the funds. The Committee makes recommendations to the Trustees of the funds regarding the amount and timing of distributions paid by the funds, and determines such matters when the Trustees are not in session. The Committee also oversees the policies and procedures pursuant to which Putnam Management prepares recommendations for distributions, and meets regularly with representatives of Putnam Management to review the implementation of these policies and procedures. The Committee reports to the Trustees and makes recommendations to the Trustees regarding these matters. The members of the Committee include only Independent Trustees. Each member of the Committee also is "independent," as that term is interpreted for purposes of Rule 10A-3(b)(1) of the Securities Exchange Act of 1934, as amended (the "Exchange Act") and the listing standards of the NYSE. The Board has adopted a written charter for the Committee, a current copy of which is available at [putnam.com/about-putnam](http://putnam.com/about-putnam). The Committee currently consists of Mses. Baumann (Chairperson) and Domotorffy, and Messrs. Akhoury, Patterson and Singh.

**Board Policy and Nominating Committee.** The Board Policy and Nominating Committee reviews matters pertaining to the operations of the Board of Trustees and its Committees, the compensation of the Trustees and their staff, and the conduct of legal affairs for the funds. The Committee evaluates and recommends all candidates for election as Trustees and recommends the appointment of members and chairs of each board committee. The Committee will consider nominees for Trustee recommended by shareholders of a fund provided that such recommendations are submitted by the date disclosed in the fund's proxy statement and otherwise comply with applicable securities laws, including Rule 14a-8 under the Exchange Act. The Committee also reviews policy matters affecting the operation of the Board and its independent staff. In addition, the Committee oversees the voting of proxies associated with portfolio investments of the funds with the goal of ensuring that these proxies are voted in the best interest of the funds' shareholders. The Committee reports to the Trustees and makes recommendations to the Trustees regarding these matters. The Committee generally believes that the Board benefits from diversity of background, experience and views among its

members, and considers this as a factor in evaluating the composition of the Board, but has not adopted any specific policy in this regard. The Committee is composed entirely of Independent Trustees and currently consists of Dr. Joskow (Chairperson), Messrs. Leibler, Patterson and Putnam, and Ms. Baumann.

**Brokerage Committee.** The Brokerage Committee reviews the funds' policies regarding the execution of portfolio trades and Putnam Management's practices and procedures relating to the implementation of those policies. The Committee reviews periodic reports on the cost and quality of execution of portfolio transactions and the extent to which brokerage commissions have been used (i) by Putnam Management to obtain brokerage and research services generally useful to it in managing the portfolios of the funds and of its other clients, and (ii) by the funds to pay for certain fund expenses. The Committee reports to the Trustees and makes recommendations to the Trustees regarding these matters. The Committee currently consists of Messrs. Ahamed (Chairperson), Leibler and Putnam, and Drs. Hill and Joskow.

**Contract Committee.** The Contract Committee reviews and evaluates at least annually all arrangements pertaining to (i) the engagement of Putnam Management and its affiliates to provide services to the funds, (ii) the expenditure of the funds' assets for distribution purposes pursuant to Distribution Plans of the funds, and (iii) the engagement of other persons to provide material services to the funds, including in particular those instances where the cost of services is shared between the funds and Putnam Management and its affiliates or where Putnam Management or its affiliates have a material interest. The Committee also reviews the proposed organization of new fund products, proposed structural changes to existing funds and matters relating to closed-end funds. The Committee reports and makes recommendations to the Trustees regarding these matters. The Committee currently consists of Messrs. Putnam (Chairperson), Ahamed and Leibler, and Drs. Hill and Joskow.

**Executive Committee.** The functions of the Executive Committee are twofold. The first is to ensure that the funds' business may be conducted at times when it is not feasible to convene a meeting of the Trustees or for the Trustees to act by written consent. The Committee may exercise any or all of the power and authority of the Trustees when the Trustees are not in session. The second is to review annual and ongoing goals, objectives and priorities for the Board and to facilitate coordination of all efforts between the Trustees and Putnam Management on behalf of the shareholders of the funds. The Committee currently consists of Messrs. Leibler (Chairperson) and Putnam, and Ms. Baumann.

**Investment Oversight Committees.** The Investment Oversight Committees regularly meet with investment personnel of Putnam Management to review the investment performance and strategies of the funds in light of their stated goals and policies. The Committees seek to identify any compliance issues that are unique to the applicable categories of funds and work with the appropriate board committees to ensure that any such issues are properly addressed. Investment Oversight Committee A currently consists of Ms. Domotorffy (Chairperson) and Baumann, Messrs. Leibler and Putnam, and Drs. Hill and Joskow. Investment Oversight Committee B currently consists of Messrs. Akhoury (Chairperson), Ahamed, Patterson, Reynolds and Singh.

**Pricing Committee.** The Pricing Committee oversees the valuation of assets of the Putnam funds and reviews the funds' policies and procedures for achieving accurate and timely pricing of fund shares. The Committee also oversees implementation of these policies, including fair value determinations of individual securities made by Putnam Management or other designated agents of the funds. The Committee also oversees compliance by money market funds with Rule 2a-7 under the 1940 Act and the correction of occasional pricing errors. The Committee also reviews matters related to the liquidity of portfolio holdings. The Committee reports to the Trustees and makes recommendations to the Trustees regarding these matters. The Committee currently consists of Messrs. Singh (Chairperson), Akhoury and Patterson, and Ms. Baumann and Domotorffy.

## **Indemnification of Trustees**

The Agreement and Declaration of Trust of each fund provides that the fund will indemnify its Trustees and officers against liabilities and expenses incurred in connection with litigation in which they may be involved because of their offices with the fund, except if it has been finally adjudicated that (a) they have not acted in good faith, (b) they have not acted in the reasonable belief that their actions were (i) in the best interests of the fund or (ii) at least were not opposed to the best interests of the fund, (c) in the case of a criminal proceeding, they had reasonable cause to believe the action was unlawful or (d) they were liable to the fund or its shareholders by reason of willful misfeasance, bad faith, gross negligence or reckless disregard of his or her duties. The fund, at its expense, provides liability insurance for the benefit of its Trustees and officers.

**For details of Trustees' fees paid by the fund and information concerning retirement guidelines for the Trustees, see "Charges and expenses" in Part I of this SAI.**

## **Putnam Management and its Affiliates**

Putnam Management is one of America's oldest and largest money management firms. Putnam Management's staff of experienced portfolio managers and research analysts selects securities and constantly supervises the fund's portfolio. By pooling an investor's money with that of other investors, a greater variety of securities can be purchased than would be the case individually; the resulting diversification helps reduce investment risk. Putnam Management has been managing mutual funds since 1937.

Putnam Management is a subsidiary of Putnam Investments. Great-West Lifeco Inc., a financial services holding company with operations in Canada, the United States and Europe and a member of the Power Financial Corporation group of companies, owns a majority interest in Putnam Investments. Power Financial Corporation, a diversified management and holding company with direct and indirect interests in the financial services sector in Canada, the United States and Europe, is a subsidiary of Power Corporation of Canada, a diversified international management and holding company with interests in companies in the financial services, communications and other business sectors. The Desmarais Family Residuary Trust, a trust established pursuant to the Last Will and Testament of the Honourable Paul G. Desmarais, directly and indirectly controls a majority of the voting shares of Power Corporation of Canada.

Trustees and officers of the fund who are also officers of Putnam Management or its affiliates or who are stockholders of Putnam Investments or its parent companies will benefit from the advisory fees, sales commissions, distribution fees and transfer agency fees paid or allowed by the fund.

## **The Management Contract**

Under a Management Contract between the fund and Putnam Management, subject to such policies as the Trustees may determine, Putnam Management, at its expense, furnishes continuously an investment program for the fund and makes investment decisions on behalf of the fund. Subject to the control of the Trustees, Putnam Management also manages, supervises and conducts the other affairs and business of the fund, furnishes office space and equipment, provides bookkeeping and clerical services (including determination of the fund's net asset value, but excluding shareholder accounting services) and places all orders for the purchase and sale of the fund's portfolio securities. Putnam Management may place fund portfolio transactions with broker-dealers that furnish Putnam Management, without cost to it, certain research, statistical and quotation services of value to Putnam Management and its affiliates in advising the fund and other clients. In so doing, Putnam Management may cause the fund to pay greater brokerage commissions than it might otherwise pay.

**For details of Putnam Management's compensation under the Management Contract, see "Charges and expenses" in Part I of this SAI.** Putnam Management's compensation under the Management Contract may be reduced in any year if the fund's expenses exceed the limits on investment company expenses imposed by any statute or regulatory authority of any jurisdiction in which shares of the fund are qualified for offer or sale.

The term “expenses” is defined in the statutes or regulations of such jurisdictions, and generally excludes brokerage commissions, taxes, interest, extraordinary expenses and, if the fund has a distribution plan, payments made under such plan.

**Fund-specific expense limitation.** Under the Management Contract, Putnam Management may reduce its compensation to the extent that the fund’s expenses exceed such lower expense limitation as Putnam Management may, by notice to the fund, declare to be effective. For the purpose of determining any such limitation on Putnam Management’s compensation, expenses of the fund shall not reflect the application of commissions or cash management credits that may reduce designated fund expenses. **The terms of any such expense limitation specific to a particular fund are described in the prospectus and/or Part I of this SAI.**

#### **General expense limitation.**

**For retail open-end funds except Putnam Dynamic Asset Allocation Equity Fund, Putnam Global Sector Fund, Putnam Mortgage Opportunities Fund, Putnam Retirement Income Fund Lifestyle 1, Putnam RetirementReady® Funds, and Putnam Short-Term Investment Fund.** Through the expiration of the one-year period following the effective date of the annual update of each fund’s Registration Statement, Putnam Management will waive fees and/or reimburse expenses of the fund to the extent necessary to limit the cumulative expenses of the fund, exclusive of brokerage, interest, taxes, investment-related expenses (including borrowing costs, *i.e.*, short selling and lines of credit costs), extraordinary expenses, acquired fund fees and expenses, and payments under the fund’s investor servicing contract, the fund’s investment management contract (including any applicable performance-based upward or downward adjustment to a fund’s base management fee), and the fund’s distribution plans, to an annual (measured on a fiscal year basis) rate of 0.20% of the fund’s average net assets.

For Putnam Dynamic Asset Allocation Equity Fund Only: Putnam Management has contractually agreed to waive fees and/or reimburse expenses of the fund through September 30, 2018 to the extent necessary to limit the cumulative expenses of the fund, exclusive of brokerage, interest, taxes, investment-related expenses (including borrowing costs, *i.e.*, short selling and lines of credit costs), extraordinary expenses, acquired fund fees and expenses, and payments under the fund’s investor servicing contract, the fund’s investment management contract, and the fund’s distribution plans, to an annual (measured on a fiscal year basis) rate of 0.02% of the fund’s average net assets.

For all funds: In addition to the fee paid to Putnam Management, the fund reimburses Putnam Management for the compensation and related expenses of certain officers of the fund and their assistants who provide certain administrative services for the fund and the other Putnam funds, each of which bears an allocated share of the foregoing costs. The aggregate amount of all such payments and reimbursements is determined annually by the Trustees.

**The amount of this reimbursement for the fund’s most recent fiscal year is included in “Charges and expenses” in Part I of this SAI.** Putnam Management pays all other salaries of officers of the fund. The fund pays all expenses not assumed by Putnam Management including, without limitation, auditing, legal, custodial, investor servicing and shareholder reporting expenses. The fund pays the cost of typesetting for its prospectuses and the cost of printing and mailing any prospectuses sent to its shareholders. Putnam Retail Management pays the cost of printing and distributing all other prospectuses.

The Management Contract provides that Putnam Management shall not be subject to any liability to the fund or to any shareholder of the fund for any act or omission in the course of or connected with rendering services to the fund in the absence of willful misfeasance, bad faith, gross negligence or reckless disregard of its duties on the part of Putnam Management.

The Management Contract may be terminated without penalty by vote of the Trustees or the shareholders of the fund, or by Putnam Management, on not less than 60 days’ written notice. It may be amended only by a



vote of the shareholders of the fund. The Management Contract also terminates without payment of any penalty in the event of its assignment. The Management Contract provides that it will continue in effect only so long as such continuance is approved at least annually by vote of either the Trustees or the shareholders, and, in either case, by a majority of the Trustees who are not “interested persons” of Putnam Management or the fund. In each of the foregoing cases, the vote of the shareholders is the affirmative vote of a “majority of the outstanding voting securities” as defined in the 1940 Act.

Putnam Management has entered into a Master Sub-Accounting Services Agreement with State Street Bank and Trust Company ("State Street"), under which Putnam Management has delegated to State Street responsibility for providing certain administrative, pricing, and bookkeeping services for the fund. Putnam Management pays State Street a fee, monthly, based on a combination of fixed annual charges and charges based on the fund's assets and the number and types of securities held by the fund, and reimburses State Street for certain out-of-pocket expenses.

### **The Sub-Manager**

If so disclosed in the fund’s prospectus, PIL, an affiliate of Putnam Management, has been retained as the sub-manager for a portion of the assets of the fund, as determined by Putnam Management from time to time, pursuant to a sub-management agreement between Putnam Management and PIL. Under the terms of the sub-management contract, PIL, at its own expense, furnishes continuously an investment program for that portion of each such fund that is allocated to PIL from time to time by Putnam Management and makes investment decisions on behalf of such portion of the fund, subject to the supervision of Putnam Management. Putnam Management may also, at its discretion, request PIL to provide assistance with purchasing and selling securities for the fund, including placement of orders with certain broker-dealers. PIL, at its expense, furnishes all necessary investment and management facilities, including salaries of personnel, required for it to execute its duties.

The sub-management contract provides that PIL shall not be subject to any liability to Putnam Management, the fund or any shareholder of the fund for any act or omission in the course of or connected with rendering services to the fund in the absence of willful misfeasance, bad faith, gross negligence or reckless disregard of its obligations and duties on the part of PIL.

The sub-management contract may be terminated with respect to a fund without penalty by vote of the Trustees or the shareholders of the fund, or by PIL or Putnam Management, on not more than 60 days’ nor less than 30 days’ written notice. The sub-management contract also terminates without payment of any penalty in the event of its assignment. Subject to applicable law, it may be amended by a majority of the Trustees who are not “interested persons” of Putnam Management or the fund. The sub-management contract provides that it will continue in effect only so long as such continuance is approved at least annually by vote of either the Trustees or the shareholders, and, in either case, by a majority of the Trustees who are not “interested persons” of Putnam Management or the fund. In each of the foregoing cases, the vote of the shareholders is the affirmative vote of a “majority of the outstanding voting securities” as defined in the 1940 Act.

### **The Sub-Adviser**

*The Putnam Advisory Company, LLC*

If so disclosed in the fund’s prospectus, PAC, an affiliate of Putnam Management, has been retained as a sub-adviser for a portion of the assets of the fund, as determined from time to time by Putnam Management or, with respect to portions of a fund’s assets for which PIL acts as sub-manager as described above, by PIL pursuant to a sub-advisory contract among Putnam Management, PIL and PAC. Under certain terms of the sub-advisory contract, PAC, at its own expense, furnishes continuously an investment program for that portion of each such fund that is allocated to PAC from time to time by Putnam Management or PIL, as applicable and makes investment decisions on behalf of such portion of the fund, subject to the supervision of Putnam

Management or PIL, as the case may be. Putnam Management or PIL, as the case may be, may also, at its discretion, request PAC to provide assistance with purchasing and selling securities for the fund, including placement of orders with certain broker-dealers.

PAC, at its expense, furnishes all necessary investment and management facilities, including salaries of personnel, required for it to execute its duties. The sub-advisory contract provides that PAC shall not be subject to any liability to Putnam Management, PIL, the fund or any shareholder of the fund for any act or omission in the course of or connected with rendering services to the fund in the absence of willful misfeasance, bad faith, gross negligence or reckless disregard of its obligations and duties on the part of PAC.

The sub-advisory contract may be terminated with respect to a fund without penalty by vote of the Trustees or the shareholders of the fund, or by PAC, PIL or Putnam Management, on not more than 60 days' nor less than 30 days' written notice. The sub-advisory contract also terminates without payment of any penalty in the event of its assignment. Subject to applicable law, it may be amended by a majority of the Trustees who are not "interested persons" of Putnam Management or the fund. The sub-advisory contract provides that it will continue in effect only so long as such continuance is approved at least annually by vote of either the Trustees or the shareholders, and, in either case, by a majority of the Trustees who are not "interested persons" of Putnam Management or the fund. In each of the foregoing cases, the vote of the shareholders is the affirmative vote of a "majority of the outstanding voting securities" as defined in the 1940 Act.

#### *PanAgora*

If so disclosed in the fund's prospectus, PanAgora, an affiliate of Putnam Management, has been retained as the sub-adviser for a portion of the assets of the fund, as determined from time to time by Putnam Management, by Putnam Management pursuant to a sub-advisory agreement between Putnam Management and PanAgora.

PanAgora, a Delaware corporation, is located at 470 Atlantic Avenue, 8th Floor, Boston, Massachusetts 02210. PanAgora was founded in 1989 and is jointly owned by Power Financial Corporation (through a series of subsidiaries, including Great West Lifeco Inc. and Putnam Investments, LLC), Nippon Life Insurance ("NLI") of Japan, and certain key employees.

Under certain terms of the sub-advisory agreement, PanAgora, at its own expense, furnishes continuously an investment program for that portion of each such fund that is allocated to PanAgora from time to time by Putnam Management, and makes investment decisions on behalf of such portion of the fund, subject to the supervision of the Board of Trustees and Putnam Management.

PanAgora, at its expense, furnishes all necessary investment and management facilities, including salaries of personnel, required for it to execute its duties. The sub-advisory agreement provides that PanAgora shall not be subject to any liability to Putnam Management, the fund or any shareholder of the fund for any act or omission in the course of or connected with rendering services to the fund in the absence of willful misfeasance, bad faith, gross negligence or reckless disregard of its obligations and duties on the part of PanAgora.

The sub-advisory agreement may be terminated with respect to a fund without penalty by vote of the Trustees or the shareholders of the fund, or by PanAgora or Putnam Management, on not more than 60 days' nor less than 30 days' written notice. The sub-advisory agreement also terminates without payment of any penalty in the event of its assignment. Subject to applicable law, it may be amended by a majority of the Trustees who are not "interested persons" of Putnam Management or the fund. The sub-advisory agreement provides that it will continue in effect only so long as such continuance is approved at least annually by vote of either the Trustees or the shareholders, and, in either case, by a majority of the Trustees who are not "interested persons" of Putnam Management or the fund. In each of the foregoing cases, the vote of the shareholders is the affirmative vote of a "majority of the outstanding voting securities" as defined in the 1940 Act.

## **Portfolio Transactions**

### **Potential conflicts of interest in managing multiple accounts.**

#### *Putnam Management*

Like other investment professionals with multiple clients, the fund's Portfolio Manager(s) may face certain potential conflicts of interest in connection with managing both the fund and the other accounts listed under "**PORTFOLIO MANAGER(S)**" "**Other accounts managed**" at the same time. The paragraphs below describe some of these potential conflicts, which Putnam Management believes are faced by investment professionals at most major financial firms. As described below, Putnam Management and the Trustees of the Putnam funds have adopted compliance policies and procedures that attempt to address certain of these potential conflicts.

The management of accounts with different advisory fee rates and/or fee structures, including accounts that pay advisory fees based on account performance ("performance fee accounts"), may raise potential conflicts of interest by creating an incentive to favor higher-fee accounts. These potential conflicts may include, among others:

- The most attractive investments could be allocated to higher-fee accounts or performance fee accounts.
- The trading of higher-fee accounts could be favored as to timing and/or execution price. For example, higher-fee accounts could be permitted to sell securities earlier than other accounts when a prompt sale is desirable or to buy securities at an earlier and more opportune time.
- The trading of other accounts could be used to benefit higher-fee accounts (front-running).
- The investment management team could focus their time and efforts primarily on higher-fee accounts due to a personal stake in compensation.

Putnam Management attempts to address these potential conflicts of interest relating to higher-fee accounts 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 example, under Putnam Management's policies:

- Performance fee accounts must be included in all standard trading and allocation procedures with all other accounts.
- All accounts must be allocated to a specific category of account and trade in parallel with allocations of similar accounts based on the procedures generally applicable to all accounts in those groups (e.g., 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 (*i.e.*, no special treatment is permitted for performance fee accounts or higher-fee accounts based on account fee structure).
- Front running is strictly prohibited.
- Except as provided in Part I of this SAI, the fund's Portfolio Manager(s) may not be guaranteed or specifically allocated any portion of a performance fee.

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

Potential conflicts of interest may also arise when the Portfolio Manager(s) have personal investments in other accounts that may create an incentive to favor those accounts. As a general matter and subject to limited exceptions, Putnam Management's investment professionals do not have the opportunity to invest in client accounts, other than the Putnam funds. However, in the ordinary course of business, Putnam Management or related persons may from time to time establish "pilot" or "incubator" funds for the purpose of testing proposed investment strategies and products prior to offering them to clients. These pilot accounts may be in the form of registered investment companies, private funds such as partnerships or separate accounts established by Putnam Management or an affiliate. Putnam Management or an affiliate supplies the funding for these accounts. Putnam employees, including the fund's Portfolio Manager(s), may also invest in certain pilot accounts. Putnam Management, and to the extent applicable, the Portfolio Manager(s) will benefit from the favorable investment performance of those funds and accounts. Pilot funds and accounts may, and frequently do, invest in the same securities as the client accounts. Putnam Management's policy is to treat pilot accounts in the same manner as client accounts for purposes of trading allocation – neither favoring nor disfavoring them except as is legally required. For example, pilot accounts are normally included in Putnam Management's daily block trades to the same extent as client accounts (except that pilot accounts do not participate in initial public offerings).

A potential conflict of interest may arise when the fund and other accounts purchase or sell the same securities. On occasions when the Portfolio Manager(s) consider the purchase or sale of a security to be in the best interests of the fund as well as other accounts, Putnam Management's trading desk may, to the extent permitted by applicable laws and regulations and where practicable, aggregate the securities to be sold or purchased in order to obtain the best execution and lower brokerage commissions, if any. Aggregation of trades may create the potential for unfairness to the fund or another account if one account is favored over another in allocating the securities purchased or sold – for example, by allocating a disproportionate amount of a security that is likely to increase in value to a favored account. Putnam Management's trade allocation policies generally provide that each day's transactions in securities that are purchased or sold by multiple accounts are, insofar as possible, averaged as to price and allocated between such accounts (including the fund) in a manner which in Putnam Management's opinion is equitable to each account and in accordance with the amount being purchased or sold by each account. However, accounts advised or sub-advised by PII will only place trades at an execution-only commission rate, whereas other Putnam accounts may pay an additional amount for research and other products and services (a "bundled" or "full service" rate). Putnam Management may aggregate trades in PII accounts with other Putnam accounts that pay a bundled rate as long as all participating accounts pay the same execution rate. To the extent that non-PII accounts pay a bundled rate, the PII and other Putnam Management accounts would not be paying the same total commission rate. Certain other exceptions exist for specialty, regional or sector accounts. Trade allocations are reviewed on a periodic basis as part of Putnam Management's trade oversight procedures in an attempt to ensure fairness over time across accounts.

"Cross trades," in which one Putnam account sells a particular security to another account (potentially saving transaction costs for both accounts), may also pose a potential conflict of interest. Cross trades may be seen to 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 such trades result in more attractive investments being allocated to higher-fee accounts. Putnam Management and the fund's Trustees have adopted compliance procedures that provide that any transactions between the fund and another Putnam-advised account are to be made at an independent current market price, as required by law.

Another potential conflict of interest may arise based on the different goals and strategies of the fund and other accounts. For example, another account may have a shorter-term investment horizon or different goals, policies or restrictions than the fund. Depending on goals or other factors, the Portfolio Manager(s) may give

advice and make decisions for another account that may differ from advice given, or the timing or nature of decisions made, with respect to the fund. In addition, investment decisions are the product of many factors in addition to basic suitability for the particular account involved. Thus, a particular security may be bought or sold for certain accounts even though it could have been bought or sold for other accounts at the same time. More rarely, a particular security may be bought for one or more accounts managed by the Portfolio Manager(s) when one or more other accounts are selling the security (including short sales). There may be circumstances when purchases or sales of portfolio securities for one or more accounts may have an adverse effect on other accounts. As noted above, Putnam Management has implemented trade oversight and review procedures to monitor whether any account is systematically favored over time.

Under federal securities laws, a short sale of a security by another client of Putnam Management or its affiliates (other than another registered investment company) 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 the fund from participating in the public offering, which could cause the fund to miss an otherwise favorable investment opportunity or to pay a higher price for the securities in the secondary markets.

The fund's Portfolio Manager(s) may also face other potential conflicts of interest in managing the fund, and the description above is not a complete description of every conflict that could be deemed to exist in managing both the fund and other accounts. For information on restrictions imposed on personal securities transactions of the fund's Portfolio Manager(s), please see "Personal Investments by Employees of Putnam Management and Putnam Retail Management and Officers and Trustees of the Fund."

#### *PanAgora*

The portfolio managers' management of other accounts may give rise to potential conflicts of interest in connection with their management of the fund's investments, on the one hand, and the investments of the other accounts, on the other. The other accounts include retirement plans and separately managed accounts, as well as incubated accounts. The other accounts might have similar investment objectives as the fund, or hold, purchase or sell securities that are eligible to be held, purchased or sold by the fund. While the portfolio managers' management of other accounts may give rise to the following potential conflicts of interest, PanAgora does not believe that the conflicts, if any, are material or, to the extent any such conflicts are material, PanAgora believes that it has designed policies and procedures to manage those conflicts in an appropriate way.

A potential conflict of interest may arise as a result of the portfolio managers' day-to-day management of the fund. Because of their positions with the fund, the portfolio managers know the size, timing and possible market impact of the fund's trades. It is theoretically possible that the portfolio managers could use this information to the advantage of other accounts they manage and to the possible detriment of the fund. However, PanAgora has adopted policies and procedures reasonably designed to allocate investment opportunities on a fair and equitable basis over time.

A potential conflict of interest may arise as a result of the portfolio managers' management of the fund, and other accounts, which, in theory, may allow them to allocate investment opportunities in a way that favors other accounts over the fund. This conflict of interest may be exacerbated to the extent that PanAgora or the portfolio managers receive, or expect to receive, greater compensation from their management of the other accounts than the fund. Notwithstanding this theoretical conflict of interest, it is PanAgora's policy to manage each account based on its investment objectives and related restrictions and, as discussed above, PanAgora has adopted policies and procedures reasonably designed to allocate investment opportunities on a fair and equitable basis over time and in a manner consistent with each account's investment objectives and related restrictions. For example, while the portfolio managers may buy for other accounts securities that differ in identity or quantity from securities bought for the fund, such securities might not be suitable for the fund given its investment objective and related restrictions.

For information about other funds and accounts managed by the fund's Portfolio Manager(s), please refer to "Who oversees and manages the fund(s)?" in the prospectus and "**PORTFOLIO MANAGER(S)**" "**Other accounts managed**" in Part I of the SAI.

### **Brokerage and research services.**

Transactions on stock exchanges, commodities markets and futures markets and other agency transactions involve the payment by the fund of negotiated brokerage commissions. Such commissions may vary among different brokers. A particular broker may charge different commissions according to such factors as execution venue and exchange. Although the fund does not typically pay commissions for principal transactions in the over-the-counter markets, such as the markets for most fixed income securities and certain derivatives, an undisclosed amount of profit or "mark-up" is included in the price the fund pays. In underwritten offerings, the price paid by the fund includes a disclosed, fixed commission or discount retained by the underwriter or dealer. **See "Charges and expenses" in Part I of this SAI for information concerning commissions paid by the fund.**

It has for many years been a common practice in the investment advisory business for broker-dealers that execute portfolio transactions for the clients of advisers of investment companies and other institutional investors to provide those advisers with brokerage and research services, as defined in Section 28(e) of the Exchange Act. Consistent with this practice, Putnam Management receives brokerage and research services from broker-dealers with which Putnam Management places the fund's portfolio transactions. The products and services that broker-dealers may provide to Putnam Management's managers and analysts include, among others, trading systems and other brokerage services, economic and political analysis, fundamental and macro investment research, industry and company reviews, statistical information, market data, evaluations of investments, strategies, markets and trading venues, recommendations as to the purchase and sale of investments, performance measurement services and meetings with management of current or prospective portfolio companies or with industry experts. Some of these services are of value to Putnam Management and its affiliates in advising various of their clients (including the fund), although not all of these services are necessarily useful and of value in managing the fund. Research services provided by broker-dealers are supplemental to Putnam Management's own research efforts and relieve Putnam Management of expenses it might otherwise have borne in generating such research. The management fee paid by the fund is not reduced because Putnam Management and its affiliates receive brokerage and research services even though Putnam Management might otherwise be required to purchase some of these services for cash. Putnam Management may also use portfolio transactions to generate "soft dollar" credits to pay for "mixed-use" services (*i.e.*, products or services that may be used both for investment/brokerage- and non-investment/brokerage-related purposes), but in such instances Putnam Management uses 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. Putnam Management may also allocate trades to generate soft dollar credits for third-party investment research reports and related fundamental research.

Putnam Management places all orders for the purchase and sale of portfolio investments for the funds, and buys and sells investments for the funds, through a substantial number of brokers and dealers. In selecting broker-dealers to execute the funds' portfolio transactions, Putnam Management uses its best efforts to obtain for each fund the most favorable price and execution reasonably available under the circumstances, except to the extent it may be permitted to pay higher brokerage commissions as described below. In seeking the most favorable price and execution and in considering the overall reasonableness of the brokerage commissions paid, Putnam Management, having in mind the fund's best interests, considers all factors it deems relevant, including, in no particular order of importance, and by way of illustration, the price, 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 services provided by a broker-dealer (except that research is not a factor in selecting broker-dealers in the case of funds sub-advised by PIL), 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-dealer to facilitate the efficient execution of the transaction and the quality of service rendered by the broker-dealer in other transactions.

Except with respect to research services for funds sub-advised by PIL, Putnam Management may cause the fund to pay a broker-dealer that provides "brokerage and research services" (as defined in the Exchange Act and as described above) to Putnam Management an amount of disclosed commission for effecting securities transactions on stock exchanges and other transactions for the fund on an agency basis in excess of the commission another broker-dealer would have charged for effecting that transaction. Putnam Management may also instruct an executing broker to "step out" a portion of the trades placed with a broker to other brokers that provide brokerage and research services to Putnam Management. Putnam Management's authority to cause the fund to pay any such greater commissions or to instruct a broker to "step out" a portion of a trade is subject to the requirements of applicable law and such policies as the Trustees may adopt from time to time. It is the position of the staff of the SEC that Section 28(e) of the Exchange Act does not apply to the payment of such greater commissions in "principal" transactions. Accordingly, Putnam Management will use its best effort to obtain the most favorable price and execution available with respect to such transactions, as described above.

Commencing in 2018, PIL may not obtain research using brokerage commissions paid by funds sub-advised by PIL. 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.

The Trustees of the funds have directed Putnam Management, subject to seeking most favorable pricing and execution, to use its best efforts to allocate a portion of overall fund trades to trading programs which generate commission credits to pay fund expenses (other than funds for which PIL serves as sub-adviser) such as shareholder servicing and custody charges. The extent of any commission credits generated for this purpose may vary significantly from time to time and from fund to fund depending on, among other things, the nature of each fund's trading activities and market conditions.

The Management Contract provides that commissions, fees, brokerage or similar payments received by Putnam Management or an affiliate in connection with the purchase and sale of portfolio investments of the fund, less any direct expenses approved by the Trustees, shall be recaptured by the fund through a reduction of the fee payable by the fund under the Management Contract. Putnam Management seeks to recapture for the fund soliciting dealer fees on the tender of the fund's portfolio securities in tender or exchange offers. Any such fees which may be recaptured are likely to be minor in amount.

### **Principal Underwriter**

Putnam Retail Management, located at One Post Office Square, Boston, MA 02109, is the principal underwriter of shares of the fund and the other continuously offered Putnam funds. Putnam Retail Management is not obligated to sell any specific amount of shares of the fund and will purchase shares for resale only against orders for shares. **See "Charges and expenses" in Part I of this SAI for information on sales charges and other payments received by Putnam Retail Management.**

### **Personal Investments by Employees of Putnam Management and Putnam Retail Management and Officers and Trustees of the Fund**

Employees of Putnam Management, PIL, PAC, PanAgora and Putnam Retail Management and officers and Trustees of the fund are subject to significant restrictions on engaging in personal securities transactions. These restrictions are set forth in the Codes of Ethics adopted by Putnam Management, PIL, PAC and Putnam Retail Management (the "Putnam Investments Code of Ethics"), by PanAgora (the "PanAgora Code of Ethics") and by the fund (the "Putnam Funds Code of Ethics" and each of the Putnam Investments Code of Ethics, the PanAgora Code of Ethics and the Putnam Funds Code of Ethics, a "Code of Ethics"). Each Code of Ethics, in accordance with Rule 17j-1 under the 1940 Act, contain provisions and requirements designed to

identify and address certain conflicts of interest between personal investment activities and the interests of the fund.

The Putnam Investments Code of Ethics and, as applicable, the PanAgora Code of Ethics do not prohibit personnel from investing in securities that may be purchased or held by the fund. However, each Code of Ethics, consistent with standards recommended by the Investment Company Institute's Advisory Group on Personal Investing and requirements established by Rule 17j-1 and rules adopted under the Investment Advisers Act of 1940, among other things, prohibits personal securities investments without pre-clearance, imposes time periods during which personal transactions may not be made in certain securities by employees with access to investment information, and requires the timely submission of broker confirmations and quarterly reporting of personal securities transactions. Additional restrictions apply to portfolio managers, traders, research analysts and others involved in the investment advisory process.

The Putnam Funds Code of Ethics incorporates and applies the restrictions of the Putnam Investments Code of Ethics to officers and Trustees of the fund who are affiliated with Putnam Investments. The Putnam Funds Code of Ethics does not prohibit unaffiliated officers and Trustees from investing in securities that may be held by the fund; however, the Putnam Funds Code of Ethics regulates the personal securities transactions of unaffiliated Trustees of the fund, including limiting the time periods during which they may personally buy and sell certain securities and requiring them to submit reports of personal securities transactions under certain circumstances.

The fund's Trustees, in compliance with Rule 17j-1, approved each Code of Ethics and are required to approve any material changes to each Code of Ethics. The Trustees also provide continued oversight of personal investment policies and annually evaluate the implementation and effectiveness of each Code of Ethics.

### **Investor Servicing Agent**

Putnam Investor Services, located at One Post Office Square, Boston, MA 02109, is the fund's investor servicing agent (transfer, plan and dividend disbursing agent), for which it receives fees that are paid monthly by the fund.

The fee paid to Putnam Investor Services with respect to assets attributable to non-defined contribution plan accounts (which include accounts maintained directly with the fund, accounts underlying omnibus accounts maintained by financial intermediaries with the fund, accounts of Section 529 college savings plans that are allocated to the fund and accounts of certain funds that operate as funds-of-funds (other than the Putnam RetirementReady Funds) that are allocated to the fund (collectively "retail accounts")) holding class A, class B, class C, class M, class N, class R and class Y shares, subject to certain limitations, is an annual fee that includes (1) a per account fee for each retail account of the fund that is applicable to the funds in its specified product category, and (2) a fee based on a specified rate of each fund's average daily net assets that is based on the rate applicable to the funds in its specified product category. The fund categories used for purposes of calculating the per account fee described above are based on product type. The accounts of 529 plans and certain funds-of-funds (other than the Putnam RetirementReady Funds) are included in the determination of the number of accounts at the underlying fund level in proportion to the percentage of the investing fund's net assets that are invested in the particular underlying fund.

For the Putnam RetirementReady Funds, the fees paid to Putnam Investor Services with respect to assets attributable to retail accounts holding class A, class B, class C, class M, class N, class R and class Y shares, are based on a specified rate of the fund's average daily net assets attributable to such retail accounts. The fees paid to Putnam Investor Services with respect to defined contribution plan accounts holding class A, class B, class C, class M, class N, class R and class Y shares are based on a specified rate of the average of the net assets attributable to such defined contribution plan accounts invested in a fund as of the end of the month and the end of the prior month.



Putnam Investor Services has agreed, through August 31, 2018, that the aggregate investor servicing fees for each fund's retail and defined contribution plan accounts will not exceed an annual rate of 0.250% of the fund's average daily net assets attributable to such accounts.

The fee paid to Putnam Investor Services with respect to class R5 shares is based on an annual rate of 0.15% of each fund's average daily net assets attributable to class R5 shares, except that an annual rate of 0.12% of each fund's average daily net assets attributable to class R5 shares applies to Putnam Dynamic Asset Allocation Conservative Fund, Putnam Global Income Trust and Putnam Income Fund.

The fee paid to Putnam Investor Services with respect to class R6 shares is based on an annual rate of 0.05% of each fund's average daily net assets attributable to class R6 shares.

The fee paid to Putnam Investor Services with respect to class I, class G and class P shares is based on an annual rate of 0.01% of each fund's average daily net assets attributable to class I shares, class G and class P shares, respectively.

Financial intermediaries (including brokers, dealers, banks, bank trust departments, registered investment advisers, financial planners, and retirement plan administrators) may own shares of the fund for the benefit of their customers in an omnibus account (including retirement plans). In these circumstances, the financial intermediaries or other third parties may provide certain sub-accounting and similar recordkeeping services for their customers' accounts.

In recognition of these services, Putnam Investor Services may make payments to these financial intermediaries or other third parties. Payments may be based on the number of underlying accounts in an omnibus account or the assets or share class held in an account. Putnam Investor Services also makes payments to financial intermediaries that charge networking fees for certain services provided in connection with the maintenance of shareholder accounts. These payments are described above under the heading "Distribution Plans – Additional Dealer Payments."

### **Custodian**

State Street Bank and Trust Company, located at 2 Avenue de Lafayette, Boston, Massachusetts 02111, is the fund's custodian and the custodian of each Subsidiary. State Street is responsible for safeguarding and controlling the fund's cash and securities, handling the receipt and delivery of securities, collecting interest and dividends on the fund's investments, serving as the fund's foreign custody manager, providing reports on foreign securities depositories, making payments covering the expenses of the fund and performing other administrative duties. State Street does not determine the investment policies of the fund or decide which securities the fund will buy or sell. State Street has a lien on the fund's assets to secure charges and advances made by it. The fund may from time to time enter into brokerage arrangements that reduce or recapture fund expenses, including custody expenses. The fund also has an offset arrangement that may reduce the fund's custody fee based on the amount of cash maintained by its custodian.

### **Counsel to the Fund and the Independent Trustees**

Ropes & Gray LLP serves as counsel to the fund and the Independent Trustees, and is located at Prudential Tower, 800 Boylston Street, Boston, Massachusetts 02199.

### **DETERMINATION OF NET ASSET VALUE**

The fund determines the net asset value per share of each class of shares once each day the NYSE is open. Currently, the NYSE is closed Saturdays, Sundays and the following holidays: New Year's Day, Rev. Dr. Martin Luther King, Jr. Day, Presidents' Day, Good Friday, Memorial Day, the Fourth of July, Labor Day, Thanksgiving Day and Christmas Day. The fund determines net asset value as of the close of regular trading

on the NYSE, normally 4:00 p.m. Eastern Time. The net asset value per share of each class equals the total value of its assets, less its liabilities, divided by the number of its outstanding shares.

Assets of money market funds are valued at amortized cost pursuant to Rule 2a-7 under the 1940 Act. For other funds, securities and other assets (“Securities”) for which market quotations are readily available are valued at prices which, in the opinion of Putnam Management, most nearly represent the market values of such Securities. Currently, prices for these Securities are determined using the last reported sale price (or official closing price for Securities listed on certain markets) or, if no sales are reported (as in the case of some Securities traded over-the-counter), the last reported bid price, except that certain Securities are valued at the mean between the last reported bid and ask prices. All other Securities are valued by Putnam Management or other parties at their fair value following procedures approved by the Trustees.

Reliable market quotations are not considered to be readily available for, among other Securities, long-term corporate bonds and notes, certain preferred stocks, tax-exempt securities, and certain foreign securities. These investments are valued at fair value, generally on the basis of valuations furnished by approved pricing services, which determine valuations for normal, institutional-size trading units of such securities using methods based on market transactions for comparable securities and various relationships between securities that are generally recognized by institutional traders. Other Securities, such as various types of options, are valued at fair value on the basis of valuations furnished by broker-dealers or other market intermediaries.

Putnam Management values all other Securities at fair value using its internal resources. The valuation procedures applied in any specific instance are likely to vary from case to case. However, consideration is generally given to the financial position of the issuer and other fundamental analytical data relating to the investment and to the nature of the restrictions on disposition of the Securities (including any registration expenses that might be borne by the fund in connection with such disposition). In addition, specific factors are also generally considered, such as the cost of the investment, the market value of any unrestricted Securities of the same class, the size of the holding, the prices of any recent transactions or offers with respect to such Securities and any available analysts’ reports regarding the issuer. In the case of Securities that are restricted as to resale, Putnam Management determines fair value based on the inherent worth of the Security without regard to the restrictive feature, adjusted for any diminution in value resulting from the restrictive feature.

Generally, trading in certain Securities (such as foreign securities) is substantially completed each day at various times before the close of the NYSE. The closing prices for these Securities in markets or on exchanges outside the U.S. that close before the close of the NYSE may not fully reflect events that occur after such close but before the close of the NYSE. As a result, the fund has adopted fair value pricing procedures, which, among other things, require the fund to fair value foreign equity securities if there has been a movement in the U.S. market that exceeds a specified threshold. Although the threshold may be revised from time to time and the number of days on which fair value prices will be used will vary, it is possible that fair value prices will be used by the fund to a significant extent. In addition, Securities held by some of the funds may be traded in foreign markets that are open for business on days that the fund is not, and the trading of such Securities on those days may have an impact on the value of a shareholder’s investment at a time when the shareholder cannot buy and sell shares of the fund.

Currency exchange rates used in valuing Securities are normally determined as of 4:00 p.m. Eastern Time. Occasionally, events affecting such exchange rates may occur between the time of the determination of exchange rates and the close of the NYSE, which, in the absence of fair valuation, would not be reflected in the computation of the fund’s net asset value. If events materially affecting the currency exchange rates occur during such period, then the exchange rates used in valuing affected Securities will be valued by Putnam Management at their fair value following procedures approved by the Trustees.

In addition, because of the amount of time required to collect and process trading information as to large numbers of securities issues, the values of certain Securities (such as convertible bonds, U.S. government securities and tax-exempt securities) are determined based on market quotations collected before the close of

the NYSE. Occasionally, events affecting the value of such Securities may occur between the time of the determination of value and the close of the NYSE, which, in the absence of fair value prices, would not be reflected in the computation of the fund's net asset value. If events materially affecting the value of such Securities occur during such period, then these Securities will be valued by Putnam Management at their fair value following procedures approved by the Trustees. It is expected that any such instance would be very rare.

The fair value of Securities is generally determined as the amount that the fund could reasonably expect to realize from an orderly disposition of such Securities over a reasonable period of time. By its nature, a fair value price is a good faith estimate of the value of a Security at a given point in time and does not reflect an actual market price.

The fund may also value its Securities at fair value under other circumstances pursuant to procedures approved by the Trustees.

### **Money Market Funds**

"Retail money market funds" and "government money market funds" each as defined by Rule 2a-7 under the 1940 Act generally value their portfolio securities at amortized cost according to Rule 2a-7 under the 1940 Act.

Since the net income of a money market fund is declared as a dividend each time it is determined, the net asset value per share of a retail money market fund and government money market fund typically remains at \$1.00 per share immediately after such determination and dividend declaration. Any increase in the value of a shareholder's investment in a money market fund representing the reinvestment of dividend income is reflected by an increase in the number of shares of that fund in the shareholder's account on the last business day of each month. It is expected that a money market fund's net income will normally be positive each time it is determined. However, if because of realized losses on sales of portfolio investments, a sudden rise in interest rates, or for any other reason the net income of a fund determined at any time is a negative amount, a money market fund may offset such amount allocable to each then shareholder's account from dividends accrued during the month with respect to such account. If, at the time of payment of a dividend, such negative amount exceeds a shareholder's accrued dividends, a money market fund may reduce the number of outstanding shares by treating the shareholder as having contributed to the capital of the fund that number of full and fractional shares which represent the amount of the excess. Each shareholder is deemed to have agreed to such contribution in these circumstances by his or her investment in a money market fund.

## **INVESTOR SERVICES**

### **Shareholder Information**

Each time shareholders buy or sell shares, a statement confirming the transaction and listing their current share balance will be made available for viewing electronically or delivered via mail. (Under certain investment plans, a statement may only be sent quarterly.) The fund also sends annual and semiannual reports that keep shareholders informed about its portfolio and performance, and year-end tax information to simplify their recordkeeping. To help shareholders take full advantage of their Putnam investment, publications covering many topics of interest to investors are available on our website or from Putnam Investor Services. Shareholders may call Putnam Investor Services toll-free weekdays at 1-800-225-1581 between 8:00 a.m. and 8:00 p.m. Eastern Time for more information, including account balances. Shareholders can also visit the Putnam website at <http://www.putnam.com>.

### **Your Investing Account**

The following information provides more detail concerning the operation of a Putnam Investing Account. For further information or assistance, investors should consult Putnam Investor Services. Shareholders who

purchase shares through an employer-sponsored retirement plan should note that not all of the services or features described below may be available to them, and they should contact their employer for details. A shareholder may reinvest a cash distribution without a front-end sales charge or without the reinvested shares being subject to a CDSC, as the case may be, by delivering to Putnam Investor Services the uncashed distribution check. Putnam Investor Services must receive the properly endorsed check within 1 year after the date of the check.

The Investing Account also provides a way to accumulate shares of the fund. In most cases, after an initial investment, a shareholder may send checks to Putnam Investor Services, made payable to the fund, to purchase additional shares at the applicable public offering price next determined after Putnam Investor Services receives the check. Checks must be drawn on a U.S. bank and must be payable in U.S. dollars.

Putnam Investor Services acts as the shareholder's agent whenever it receives instructions to carry out a transaction on the shareholder's account. Upon receipt of instructions that shares are to be purchased for a shareholder's account, shares will be purchased through the investment dealer designated by the shareholder. Shareholders may change investment dealers at any time by written notice to Putnam Investor Services, provided the new dealer has a sales agreement with Putnam Retail Management.

Shares credited to an account are transferable upon written instructions in good order to Putnam Investor Services and may be sold to the fund as described under "How do I sell or exchange fund shares?" in the prospectus. Putnam funds no longer issue share certificates. A shareholder may send to Putnam Investor Services any certificates which have been previously issued to enable more convenient maintenance of the account as a book-entry account.

Putnam Retail Management, at its expense, may provide certain additional reports and administrative material to qualifying institutional investors with fiduciary responsibilities to assist these investors in discharging their responsibilities. Institutions seeking further information about this service should contact Putnam Retail Management, which may modify or terminate this service at any time.

The fund pays Putnam Investor Services' fees for maintaining Investing Accounts.

**Checkwriting Privilege.** For those funds that allow shareholders, as disclosed in the prospectus, to redeem shares by check, Putnam is currently waiving the minimum per-check amount stated in the prospectus.

### **Reinstatement Privilege**

An investor who has redeemed shares of the fund may reinvest within 90 days of such redemption the proceeds of such redemption in shares of the same class of the fund, or may reinvest within 90 days of such redemption the proceeds in shares of the same class of one of the other continuously offered Putnam funds (through the exchange privilege described in the prospectus), including, in the case of shares subject to a CDSC, the amount of CDSC charged on the redemption. Any such reinvestment would be at the net asset value of the shares of the fund(s) the investor selects, next determined after Putnam Retail Management receives a Reinstatement Authorization. The time that the previous investment was held will be included in determining any applicable CDSC due upon redemptions and, in the case of class B shares, the eight-year period for conversion to class A shares. Reinstatements into class B, class C or class M shares may be permitted even if the resulting purchase would otherwise be rejected for causing a shareholder's investments in such class to exceed the applicable investment maximum. Shareholders will receive from Putnam Retail Management the amount of any CDSC paid at the time of redemption as part of the reinstated investment, which may be treated as capital gains to the shareholder for tax purposes. Redemption orders for class B shares placed after March 31, 2017 are not eligible for the reinstatement privilege.

Exercise of the Reinstatement Privilege does not alter the federal income tax treatment of any capital gains realized on a sale of fund shares, but to the extent that any shares are sold at a loss and the proceeds are

reinvested in shares of the fund, some or all of the loss may be disallowed as a deduction. Consult your tax adviser. Investors who desire to exercise the Reinstatement Privilege should contact their investment dealer or Putnam Investor Services.

### **Exchange Privilege**

Except as otherwise set forth in this section, by calling Putnam Investor Services, investors may exchange shares valued in the aggregate up to \$500,000 between accounts with identical registrations, provided that no certificates are outstanding for such shares. During periods of unusual market changes and shareholder activity, shareholders may experience delays in contacting Putnam Investor Services by telephone to exercise the telephone exchange privilege.

Putnam Investor Services also makes exchanges promptly after receiving a properly completed Exchange Authorization Form and, if issued, share certificates. If the shareholder is a corporation, partnership, agent, or surviving joint owner, Putnam Investor Services will require additional documentation of a customary nature. Because an exchange of shares involves the redemption of fund shares and reinvestment of the proceeds in shares of another Putnam fund, completion of an exchange may be delayed under unusual circumstances if the fund were to suspend redemptions or postpone payment for the fund shares being exchanged, in accordance with federal securities laws. Exchange Authorization Forms and prospectuses of the other Putnam funds are available from Putnam Retail Management or investment dealers having sales contracts with Putnam Retail Management. The prospectus of each fund describes its goal(s) and policies, and shareholders should obtain a prospectus and consider these objectives and policies carefully before requesting an exchange. Shares of certain Putnam funds are not available to residents of all states. The fund reserves the right to change or suspend the exchange privilege at any time. Shareholders would be notified of any change or suspension. Additional information is available from Putnam Investor Services at 1-800-225-1581.

Shareholders of other Putnam funds may also exchange their shares at net asset value for shares of the fund, as set forth in the current prospectus of each fund. Exchanges from Putnam Government Money Market Fund, Putnam Money Market Fund or Putnam Short Duration Income Fund into another Putnam fund may be subject to an initial sales charge. Class A shares of a Putnam fund may be exchanged for class N shares of other Putnam funds, if available. Class N shares of a Putnam fund may be exchanged for class A shares of other Putnam funds, if available.

For federal income tax purposes, an exchange is a sale on which the investor generally will realize a capital gain or loss depending on whether the net asset value at the time of the exchange is more or less than the investor's basis.

**Same-Fund Exchange Privilege.** Class A shareholders who are eligible to purchase class N, class R5, class R6 or class Y shares may exchange their class A shares for class N, class R5, class R6 or class Y shares of the same fund, provided that such shares are offered to residents of the shareholder's state, that the class A shares are no longer subject to a CDSC, in the case of class R5 shares, the shares are available through the relevant retirement plan and, in the case of class R6 shares, the shares are available through the relevant retirement plan, advisory program or platform.

Class C shareholders who are eligible to purchase class A shares without a sales charge because the shareholders are (i) clients of broker-dealers, financial institutions, financial intermediaries or registered investment advisors that are approved by Putnam Retail Management and charge a fee for advisory or investment services or (ii) clients of broker-dealers, financial institutions, or financial intermediaries that have entered into an agreement with Putnam Retail Management to offer shares through a fund 'supermarket' or retail self-directed brokerage account (with or without the imposition of a transaction fee) may exchange their class C shares for class A shares of the same fund, provided that (i) the class C shares are no longer subject to a CDSC and (ii) class A shares of such fund are offered to residents of the shareholder's state.

Class C shareholders who are eligible to purchase class Y shares may exchange their class C shares for class Y shares of the same fund, provided that the class C shares are no longer subject to a CDSC, or class Y shares of such fund are offered to residents of the shareholder's state.

Class M shareholders who are eligible to purchase class Y shares may exchange their class M shares for class Y shares of the same fund, provided that class Y shares of such fund are offered to residents of the shareholder's state and, if applicable, the shares are available through the relevant retirement plan.

Class N shareholders who are eligible to purchase class A shares may exchange their class N shares for class A shares of the same fund, provided that class A shares of such fund are offered to residents of the shareholder's state, the class N shares are no longer subject to a CDSC, and, if applicable, the class A shares are available through the relevant retirement plan.

Class R shareholders who are eligible to purchase class R5 or class R6 shares may exchange their class R shares for class R5 or class R6 shares of the same fund, provided that such shares are offered to residents of the shareholder's state, in the case of class R5 shares, the shares are available through the relevant retirement plan and, in the case of class R6 shares, the shares are available through the relevant retirement plan, advisory program or platform.

Class R5 shareholders who are eligible to purchase class A, class R, class R6 or class Y shares may exchange their class R5 shares for class A, class R, class R6, or class Y shares of the same fund, provided that such shares are offered to residents of the shareholder's state and are available through the relevant retirement plan.

Class R6 shareholders who are eligible to purchase class A, class R, class R5 or class Y shares may exchange their class R6 shares for class A, class R, class R5 or class Y shares of the same fund, provided that such shares are offered to residents of the shareholder's state and are available through the relevant retirement plan, advisory program or platform.

Class Y shareholders who are eligible to purchase class A, class C, class N, class R5 or class R6 shares may exchange their class Y shares for class A, class C, class N, class R5 or class R6 shares of the same fund, provided that such shares are offered to residents of the shareholder's state, in the case of class R5 shares, the shares are available through the relevant retirement plan and, in the case of class R6 shares, the shares are available through the relevant retirement plan, advisory program or platform. Class Y shareholders should be aware that the financial institution or intermediary through which they hold class Y shares may have the authority under its account or similar agreement to exchange class Y shares for class A shares, class C shares or class N shares under certain circumstances, and none of the Putnam Funds, Putnam Retail Management or Putnam Investor Services are responsible for any actions taken by a shareholder's financial institution or intermediary in this regard.

No sales charges or other charges will apply to any such exchange. For federal income tax purposes, a same-fund exchange is not expected to result in the realization by the investor of a capital gain or loss. Shareholders should be aware that (i) the same-fund exchange privilege may be effected only if permitted by a shareholder's dealer of record, (ii) the same-fund exchange privilege may not be available for all accounts and may not be offered by all dealers, financial institutions and other intermediaries through which a shareholder may hold shares, and (iii) the dealer of record through whom a shareholder holds shares may be authorized (e.g., under its account or similar agreement with a shareholder) to reject any same-fund exchange. None of the Putnam funds, Putnam Retail Management or Putnam Investor Services are responsible for any determinations made, or any actions taken, by a shareholder's dealer of record in respect of same-fund exchanges. To exchange shares under the same-fund exchange privilege, please contact your investment dealer or Putnam Investor Services.

## **Dividends PLUS**

Shareholders may invest the fund's distributions of net investment income or distributions combining net investment income and short-term capital gains in shares of the same class of another continuously offered Putnam fund (the "receiving fund") using the net asset value per share of the receiving fund determined on the December 30, 2018

date the fund's distribution is payable. No sales charge or CDSC will apply to the purchased shares. The prospectus of each fund describes its goal(s) and policies, and shareholders should obtain a prospectus and consider these goal(s) and policies carefully before investing their distributions in the receiving fund. Shares of certain Putnam funds are not available to residents of all states.

Shareholders of other Putnam funds may also use their distributions to purchase shares of the fund at net asset value.

For federal tax purposes, distributions from the fund which are reinvested in another fund are treated as paid by the fund to the shareholder and invested by the shareholder in the receiving fund and thus, to the extent composed of taxable income and deemed paid to a taxable shareholder, are taxable.

The Dividends PLUS program may be revised or terminated at any time.

### **Plans Available to Shareholders**

The plans described below are fully voluntary and may be terminated at any time without the imposition by the fund or Putnam Investor Services of any penalty. All plans provide for automatic reinvestment of all distributions in additional shares of the fund at net asset value. The fund, Putnam Retail Management or Putnam Investor Services may modify or cease offering these plans at any time.

**Systematic Withdrawal Plan ("SWP").** An investor who owns or buys shares of the fund valued at \$5,000 or more at the current public offering price may open a SWP plan and have a designated sum of money (\$50 or more) paid monthly, quarterly, semi-annually or annually to the investor or another person. Shares are deposited in a plan account, and all distributions are reinvested in additional shares of the fund at net asset value (except where the plan is utilized in connection with a charitable remainder trust). Shares in a plan account are then redeemed at net asset value to make each withdrawal payment. Payment will be made to any person the investor designates; however, if shares are registered in the name of a trustee or other fiduciary, payment will be made only to the fiduciary, except in the case of a profit-sharing or pension plan where payment will be made to a designee. As withdrawal payments may include a return of principal, they cannot be considered a guaranteed annuity or actual yield of income to the investor. The redemption of shares in connection with a plan generally will result in a gain or loss for tax purposes. Some or all of the losses realized upon redemption may be disallowed pursuant to the so-called wash sale rules if shares of the same fund from which shares were redeemed are purchased (including through the reinvestment of fund distributions) within a period beginning 30 days before, and ending 30 days after, such redemption. In such a case, the basis of the replacement shares will be increased to reflect the disallowed loss. Continued withdrawals in excess of income will reduce and possibly exhaust invested principal, especially in the event of a market decline. The cost of administering these plans for the benefit of those shareholders participating in them is borne by the fund as an expense of all shareholders. The fund, Putnam Retail Management or Putnam Investor Services may terminate or change the terms of the plan at any time. A plan will be terminated if communications mailed to the shareholder are returned as undeliverable.

Investors should consider carefully with their own financial advisers whether the plan and the specified amounts to be withdrawn are appropriate in their circumstances. The fund and Putnam Investor Services make no recommendations or representations in this regard.

**Tax-favored plans. (Not offered by funds investing primarily in Tax-exempt Securities.)** Investors may purchase shares of the fund through the following Tax Qualified Retirement Plans, available to qualified individuals or organizations:

Standard and variable profit-sharing (including 401(k)) and money purchase pension plans; and Individual Retirement Account Plans (IRAs), including SIMPLE IRAs, Roth IRAs, SEP IRAs; and Coverdell Education savings plans.

Forms and further information on these Plans are available from investment dealers or from Putnam Retail Management. In addition, plan administration arrangements are available on an optional basis; contact Putnam Investor Services at 1-866-207-7261.

Consultation with a competent financial and tax adviser regarding these Plans and consideration of the suitability of fund shares as an investment under the Employee Retirement Income Security Act of 1974, or otherwise, is recommended.

**Automatic Rebalancing Arrangements.** Putnam Retail Management or Putnam Investor Services may enter into arrangements with certain dealers which provide for automatic periodic rebalancing of shareholders' accounts in Putnam funds. For more information about these arrangements, please contact Putnam Retail Management or Putnam Investor Services.

## **SIGNATURE GUARANTEES**

Requests to redeem shares having a net asset value of \$100,000 or more, or to transfer shares or make redemption proceeds payable to anyone other than the registered account owners, must be signed by all registered owners or their legal representatives and must be guaranteed by a bank, broker/dealer, municipal securities dealer or broker, credit union, national securities exchange, registered securities association, clearing agency, savings association or trust company, provided such institution is authorized and acceptable under and conforms with Putnam Investor Services' signature guarantee procedures. A copy of such procedures is available upon request. In certain situations, for example, if you want your redemption proceeds sent to an address other than your address as it appears on Putnam's records, you may also need to provide a signature guarantee. Putnam Investor Services usually requires additional documentation for the sale of shares by a corporation, partnership, agent or fiduciary, or a surviving joint owner. Contact Putnam Investor Services at 1-800-225-1581 for more information on Putnam's signature guarantee and documentation requirements.

## **REDEMPTIONS**

**Suspension of redemptions.** The fund may not suspend shareholders' right of redemption, or postpone payment for more than seven days, unless the Exchange is closed for other than customary weekends or holidays, or if permitted by the rules of the SEC during periods when trading on the Exchange is restricted or during any emergency which makes it impracticable for the fund to dispose of its securities or to determine fairly the value of its net assets, or during any other period permitted by order of the Commission for protection of investors.

**In-kind redemptions.** To the extent consistent with applicable laws and regulations, the fund will consider satisfying all or a portion of a redemption request by distributing securities or other property in lieu of cash ("in-kind" redemptions). Any transaction costs or other expenses involved in liquidating securities received in an in-kind redemption will be borne by the redeeming investor. For information regarding procedures for in-kind redemptions, please contact Putnam Retail Management.

## **POLICY ON EXCESSIVE SHORT-TERM TRADING**

As disclosed in the prospectus of each fund other than Putnam Money Market Fund, Putnam Government Money Market Fund and Putnam Short Duration Income Fund, Putnam Management and the fund's Trustees have adopted policies and procedures intended to discourage excessive short-term trading. Putnam Management's Compliance Department currently uses multiple reporting tools in an attempt to detect short-term trading activity occurring in shareholder accounts. Putnam Management measures excessive short-term trading in the fund by the number of "round trip" transactions, as defined in the prospectus, above a specified dollar amount within a specified period of time. Generally, if an investor has been identified as having completed two "round trip" transactions with values of at least \$25,000 within a rolling 90-day period, Putnam



Management will issue the investor and/or his or her financial intermediary, if any, a written warning. To the extent that short-term trading activity continues, additional measures may be taken. Putnam Management's practices for measuring excessive short-term trading activity and issuing warnings may change from time to time.

## **SHAREHOLDER LIABILITY**

Under Massachusetts law, shareholders could, under certain circumstances, be held personally liable for the obligations of the fund. However, the Agreement and Declaration of Trust disclaims shareholder liability for acts or obligations of the fund and requires that notice of such disclaimer be given in each agreement, obligation, or instrument entered into or executed by the fund or the Trustees. The Agreement and Declaration of Trust provides for indemnification out of fund property for all loss and expense of any shareholder held personally liable for the obligations of the fund. Thus, the risk of a shareholder incurring financial loss on account of shareholder liability is limited to circumstances in which the fund would be unable to meet its obligations. The likelihood of such circumstances appears to be remote.

## **DISCLOSURE OF PORTFOLIO INFORMATION**

The Trustees of the Putnam funds have adopted policies with respect to the disclosure of the fund's portfolio holdings by the fund, Putnam Management, or their affiliates. These policies provide that information about the fund's portfolio generally may not be released to any party prior to (i) the day after the posting of such information on the Putnam Investments website, (ii) the filing of the information with the SEC in a required filing, or (iii) the dissemination of such information to all shareholders simultaneously. Certain limited exceptions pursuant to the fund's policies are described below. In addition, these policies do not apply to the sharing of fund portfolio holdings information with Putnam Investment personnel involved in the management of other Putnam funds that invest in such fund. The Trustees will periodically receive reports from the fund's Chief Compliance Officer regarding the operation of these policies and procedures, including any arrangements to make non-public disclosures of the fund's portfolio information to third parties. Putnam Management and its affiliates are not permitted to receive compensation or other consideration in connection with disclosing information about the fund's portfolio holdings to third parties.

### **Public Disclosures**

The fund's portfolio holdings are currently disclosed to the public through filings with the SEC and postings on the Putnam Investments website. The fund files its portfolio holdings with the SEC for each fiscal quarter on Form N-CSR (with respect to each annual period and semi-annual period) and Form N-Q (with respect to the first and third quarters of the fund's fiscal year). In addition, money market funds file monthly reports of portfolio holdings on form N-MFP (with respect to the prior month). Shareholders may obtain the Form N-CSR, N-MFP and N-Q filings on the SEC's website at <http://www.sec.gov>. In addition, Form N-CSR and N-Q filings may be reviewed and copied at the SEC's Public Reference Room in Washington, D.C. Form N-CSR and N-Q filings are available upon filing and form N-MFP filings are available 60 days after each calendar month end. You may call the SEC at 1-800-SEC-0330 for information about the SEC's website or the operation of the Public Reference Room.

For Putnam Money Market Fund and Putnam Government Money Market Fund, the following information is publicly available on the Putnam Investments website, [www.putnam.com/individual](http://www.putnam.com/individual), as disclosed in the following table. This information will remain available on the website for six months thereafter, after which the information can be found on the SEC's website.

<b>Information</b>	<b>Frequency of Disclosure</b>	<b>Date of Web Posting</b>
Full Portfolio Holdings	Monthly	5 business days after the end of each month.

For Putnam Mortgage Opportunities Fund, Putnam Management makes the fund’s portfolio information publicly available on the Putnam Investments institutional website, [www.putnam.com/institutional](http://www.putnam.com/institutional), as disclosed in the following table.

<b>Information</b>	<b>Frequency of Disclosure</b>	<b>Date of Web Posting</b>
Full Portfolio Holdings	Monthly	Approximately 30 days after the end of each month.
Top 10 Portfolio Holdings and other portfolio statistics	Monthly	Approximately 15 days after the end of each month.

For Putnam Short Duration Income Fund, Putnam Management makes the fund’s portfolio information publicly available on the Putnam Investments website, [www.putnam.com/individual](http://www.putnam.com/individual), as disclosed in the following table.

<b>Information</b>	<b>Frequency of Disclosure</b>	<b>Date of Web Posting</b>
Full Portfolio Holdings	Monthly	On or after 5 business days after the end of each month.

For Putnam Short Duration Bond Fund, Putnam Management makes the fund’s portfolio information publicly available on the Putnam Investments website, [www.putnam.com/individual](http://www.putnam.com/individual), as disclosed in the following table:

<b>Information</b>	<b>Frequency of Disclosure</b>	<b>Date of Web Posting</b>
Full Portfolio Holdings	Monthly	Approximately 30 days after the end of each month
Top 10 Portfolio Holdings and other portfolio statistics	Monthly	Approximately 15 days after the end of each month

For all other funds, Putnam Management also currently makes the fund’s portfolio information publicly available on the Putnam Investments website, [www.putnam.com/individual](http://www.putnam.com/individual), as disclosed in the following table.

<b>Information(1)</b>	<b>Frequency of Disclosure</b>	<b>Date of Web Posting</b>
Full Portfolio Holdings	Quarterly	Last business day of the month following the end of each calendar quarter
Top 10 Portfolio Holdings and other portfolio statistics(2)	Monthly	Approximately 15 days after the end of each month

(1) Putnam mutual funds that are not currently offered to the general public (“incubated” funds) do not post portfolio holdings on the Web, except to the extent required by applicable regulations. Full portfolio holdings for the Putnam RetirementReady® Funds, Retirement Income Fund Lifestyle 1, and Putnam Global Sector Fund, which invest solely in other Putnam funds, are posted on [www.putnam.com/individual](http://www.putnam.com/individual) approximately 15 days after the end of each month. Please see these funds’ prospectuses for their target allocations.

(2) Not provided for Putnam PanAgora Managed Futures Strategy, Putnam PanAgora Market Neutral Fund, and Putnam PanAgora Risk Parity Fund.

The scope of the information relating to the fund's portfolio that is made available on the website may change from time to time without notice. In addition, the posting of fund holdings may be delayed in some instances for technical reasons.

Putnam Management or its affiliates may include fund portfolio information that has already been made public through a Web posting or SEC filing in marketing literature and other communications to shareholders, advisors or other parties, provided that, in the case of information made public through the Web, the information is disclosed no earlier than the day after the date of posting to the website.

### **Other Disclosures**

In order to address potential conflicts between the interest of fund shareholders, on the one hand, and those of Putnam Management, Putnam Retail Management or any affiliated person of those entities or of the fund, on the other hand, the fund's policies require that non-public disclosures of information regarding the fund's portfolio may be made only if there is a legitimate business purpose consistent with fiduciary duties to all shareholders of the fund. In addition, the party receiving the non-public information must sign a non-disclosure agreement unless otherwise approved by the Chief Compliance Officer of the fund. Arrangements to make non-public disclosures of the fund's portfolio information must be approved by the Chief Compliance Officer of the fund. The Chief Compliance Officer will report on an ongoing basis to a committee of the fund's Board of Trustees consisting only of Trustees who are not "interested persons" of the fund or Putnam Management regarding any such arrangement that the fund may enter into with third parties other than service providers to the fund.

The fund periodically discloses its portfolio information on a confidential basis to various service providers that require such information in order to assist the fund with its day-to-day business affairs. In addition to Putnam Management and its affiliates, including Putnam Investor Services and PRM, these service providers include the fund's custodian (State Street Bank and Trust Company) and any sub-custodians (including one or more sub-custodians for each non-U.S. market in which the fund purchases securities), accounting providers (State Street Bank and Trust Company, SS&C Advent and BNY Mellon), pricing services (including IDC, Reuters, Markit, Statpro, Standard & Poors, Bloomberg, ICE ClearCredit, LCH Swapclear, PriceServ and CME Group), independent registered public accounting firm (KPMG LLP or PricewaterhouseCoopers LLP), legal counsel (Ropes & Gray LLP and, for funds sold in Japan, Mori Hamada & Matsumoto), financial printer and filing agent (McMunn Associates, Inc., Newsfile Corp.), proxy voting service (Glass, Lewis & Co), compliance limit monitoring (Consensus Limited) and securities lending agent (Goldman Sachs Bank USA). These service providers are required to keep such information confidential, and are prohibited from trading based on the information or otherwise using the information except as necessary in providing services to the fund.

The fund may also periodically provide non-public information about its portfolio holdings to rating and ranking organizations and other providers of industry data, such as Lipper Inc., Morningstar Inc., Bloomberg and Thomson Reuters, in connection with those firms' research on and classification of the fund and in order to gather information about how the fund's attributes (such as volatility, turnover, and expenses) compare with those of peer funds. The fund may also periodically provide non-public information about its portfolio holdings to consultants that provide portfolio analysis services or other investment research or trading analytics. Such recipients of portfolio holdings include Barclays, Factset, ITG, Trade Infomatics, Consensus, ENSO Financial Analytics, Bloomberg and Credit Suisse. Any such rating, ranking, or consulting or other firm would be required to keep the fund's portfolio information confidential and would be prohibited from trading based on the information or otherwise using the information except as necessary in providing services to the fund. Such firms may receive portfolio holdings information only from certain funds (such as equity funds or fixed income funds) and such information may be provided in greater or lesser detail depending on the nature of the services provided by the relevant firm.

## **INFORMATION SECURITY RISKS**

*Cyber security risk.* With the increased use of interconnected technologies such as the Internet and the dependence on computer systems to perform necessary business functions, investment companies such as the fund and its service providers may be prone to operational, information security and related risks resulting from third-party cyber-attacks and/or other technological malfunctions. Cyber-attacks may include stealing or corrupting data maintained online or digitally, preventing legitimate users from accessing information or services on a website, releasing confidential information without authorization, and causing operational disruption. Successful cyber-attacks against, or security or technology breakdowns of, the fund or its adviser, custodian, transfer agent, or other affiliated or third-party service providers may adversely affect the fund and its shareholders. For example, cyber-attacks may interfere with the processing of shareholder transactions, impact the fund's ability to calculate its net asset value, cause the release of private shareholder information or confidential fund information, impede trading, cause reputational damage, and subject the fund or others to regulatory fines, penalties or financial losses, reimbursement or other compensation costs, and additional compliance costs. Similar types of cyber security risks also are present for issuers of securities in which the fund invests, which could result in material adverse consequences for such issuers, and may cause the fund's investment in such securities to lose value. The fund and Putnam Investments may have limited ability to prevent or mitigate cyber-attacks or security or technology breakdowns affecting the fund's third-party service providers. While Putnam has established business continuity plans and systems designed to prevent or reduce the impact of cyber-attacks, such plans and systems are subject to inherent limitations.

## **PROXY VOTING GUIDELINES AND PROCEDURES**

The Trustees of the Putnam funds have established proxy voting guidelines and procedures that govern the voting of proxies for the securities held in the funds' portfolios. The proxy voting guidelines summarize the funds' positions on various issues of concern to investors, and provide direction to the proxy voting service used by the funds as to how fund portfolio securities should be voted on proposals dealing with particular issues. The proxy voting procedures explain the role of the Trustees, Putnam Management, the proxy voting service and the funds' proxy manager in the proxy voting process, describe the procedures for referring matters involving investment considerations to the investment personnel of Putnam Management and describe the procedures for handling potential conflicts of interest. The Putnam funds' proxy voting guidelines and procedures are included in this SAI as Appendix A. Information regarding how the funds voted proxies relating to portfolio securities during the 12-month period ended June 30, 2017 is available on the Putnam Individual Investor website, [www.putnam.com/individual](http://www.putnam.com/individual), and on the SEC's website at [www.sec.gov](http://www.sec.gov). If you have questions about finding forms on the SEC's website, you may call the SEC at 1-800-SEC-0330. You may also obtain the Putnam funds' proxy voting guidelines and procedures by calling Putnam's Shareholder Services at 1-800-225-1581.

## **SECURITIES RATINGS**

The ratings of securities in which the fund may invest will be measured at the time of purchase and, to the extent a security is assigned a different rating by one or more of the various rating agencies, Putnam Management may use the highest rating assigned by any agency. Putnam Management will not necessarily sell an investment if its rating is reduced. Below are descriptions of ratings, as provided by the rating agencies, which represent opinions as to the quality of various debt instruments.

## **Moody's Investors Service, Inc.**

### **Global Long-Term Rating Scale** (original maturity of 1 year or more)

**Aaa** – Obligations rated Aaa are judged to be of the highest quality, subject to the lowest level of credit risk.

**Aa** – Obligations rated Aa are judged to be of high quality and are subject to very low credit risk.

**A** – Obligations rated A are judged to be upper-medium grade and are subject to low credit risk.

**Baa** – Obligations rated Baa are judged to be medium-grade and subject to moderate credit risk and as such may possess certain speculative characteristics.

**Ba** – Obligations rated Ba are judged to be speculative and are subject to substantial credit risk.

**B** – Obligations rated B are considered speculative and are subject to high credit risk.

**Caa** – Obligations rated Caa are judged to be speculative of poor standing and are subject to very high credit risk.

**Ca** – Obligations rated Ca are highly speculative and are likely in, or very near, default, with some prospect of recovery of principal and interest.

**C** – Obligations rated C are the lowest rated and are typically in default, with little prospect for recovery of principal or interest.

Note: Moody's appends numerical modifiers 1, 2, and 3 to each generic rating classification from Aa through Caa. The modifier 1 indicates that the obligation ranks in the higher end of its generic rating category; the modifier 2 indicates a mid-range ranking; and the modifier 3 indicates a ranking in the lower end of that generic rating category. Additionally, a "(hyb)" indicator is appended to all ratings of hybrid securities issued by banks, insurers, finance companies, and securities firms.

By their terms, hybrid securities allow for the omission of scheduled dividends, interest, or principal payments, which can potentially result in impairment if such an omission occurs. Hybrid securities may also be subject to contractually allowable write-downs of principal that could result in impairment. Together with the hybrid indicator, the long-term obligation rating assigned to a hybrid security is an expression of the relative credit risk associated with that security.

### **Global Short-Term Rating Scale** (original maturity of 13 months or less)

**P-1** – Issuers (or supporting institutions) rated Prime-1 have a superior ability to repay short-term debt obligations.

**P-2** – Issuers (or supporting institutions) rated Prime-2 have a strong ability to repay short-term debt obligations.

**P-3** – Issuers (or supporting institutions) rated Prime-3 have an acceptable ability to repay short-term obligations.

**NP** – Issuers (or supporting institutions) rated Not Prime do not fall within any of the Prime rating categories.

## **US Municipal Short-Term Obligation Ratings**

**MIG 1** – This designation denotes superior credit quality. Excellent protection is afforded by established cash flows, highly reliable liquidity support, or demonstrated broad-based access to the market for refinancing.

**MIG 2** – This designation denotes strong credit quality. Margins of protection are ample, although not as large as in the preceding group.

**MIG 3** – This designation denotes acceptable credit quality. Liquidity and cash-flow protection may be narrow, and market access for refinancing is likely to be less well-established.

**SG** – This designation denotes speculative grade credit quality. Debt instruments in this category may lack sufficient margins of protection.

### **US Municipal Demand Obligation Ratings**

**VMIG 1** – This designation denotes superior credit quality. Excellent protection is afforded by the superior short-term credit strength of the liquidity provider and structural and legal protections that ensure the timely payment of purchase price upon demand.

**VMIG 2** – This designation denotes strong credit quality. Good protection is afforded by the strong short-term credit strength of the liquidity provider and structural and legal protections that ensure the timely payment of purchase price upon demand.

**VMIG 3** – This designation denotes acceptable credit quality. Adequate protection is afforded by the satisfactory short-term credit strength of the liquidity provider and structural and legal protections that ensure the timely payment of purchase price upon demand.

**SG** – This designation denotes speculative-grade credit quality. Demand features rated in this category may be supported by a liquidity provider that does not have an investment grade short-term rating or may lack the structural and/or legal protections necessary to ensure the timely payment of purchase price upon demand.

### **Standard & Poor's**

#### **Long-Term Issue Credit Ratings** (original maturity of one year or more)

**AAA** – An obligation rated 'AAA' has the highest rating assigned by Standard & Poor's. The obligor's capacity to meet its financial commitment on the obligation is extremely strong.

**AA** – An obligation rated 'AA' differs from the highest-rated obligations only to a small degree. The obligor's capacity to meet its financial commitment on the obligation is very strong.

**A** – An obligation rated 'A' is somewhat more susceptible to the adverse effects of changes in circumstances and economic conditions than obligations in higher-rated categories. However, the obligor's capacity to meet its financial commitment on the obligation is still strong.

**BBB** – An obligation rated 'BBB' exhibits adequate protection parameters. However, adverse economic conditions or changing circumstances are more likely to lead to a weakened capacity of the obligor to meet its financial commitment on the obligation.

**BB; B; CCC; CC and C** – Obligations rated 'BB', 'B', 'CCC', 'CC', and 'C' are regarded as having significant speculative characteristics. 'BB' indicates the lowest degree of speculation and 'C' the highest. While such obligations will likely have some quality and protective characteristics, these may be outweighed by large uncertainties or major exposures to adverse conditions.

**BB** – An obligation rated ‘BB’ is less vulnerable to nonpayment than other speculative issues. However, it faces major ongoing uncertainties or exposure to adverse business, financial, or economic conditions which could lead to the obligor’s inadequate capacity to meet its financial commitment on the obligation.

**B** – An obligation rated ‘B’ is more vulnerable to nonpayment than obligations rated ‘BB’, but the obligor currently has the capacity to meet its financial commitment on the obligation. Adverse business, financial, or economic conditions will likely impair the obligor’s capacity or willingness to meet its financial commitment on the obligation.

**CCC** – An obligation rated ‘CCC’ is currently vulnerable to nonpayment, and is dependent upon favorable business, financial, and economic conditions for the obligor to meet its financial commitment on the obligation. In the event of adverse business, financial, or economic conditions, the obligor is not likely to have the capacity to meet its financial commitment on the obligation.

**CC** – An obligation rated ‘CC’ is currently highly vulnerable to nonpayment. The ‘CC’ rating is used when a default has not yet occurred, but Standard & Poor’s expects default to be a virtual certainty, regardless of the anticipated time to default.

**C** – An obligation rated ‘C’ is currently highly vulnerable to nonpayment, and the obligation is expected to have lower relative seniority or lower ultimate recovery compared to obligations that are rated higher.

**D** – An obligation rated ‘D’ is in default or in breach of an imputed promise. For non-hybrid capital instruments, the ‘D’ rating category is used when payments on an obligation are not made on the date due, unless Standard & Poor’s believes that such payments will be made within five business days in the absence of a stated grace period or within the earlier of the stated grace period or 30 calendar days. The ‘D’ rating also will be used upon the filing of a bankruptcy petition or the taking of similar action and where default on an obligation is a virtual certainty, for example due to automatic stay provisions. An obligation’s rating is lowered to ‘D’ if it is subject to a distressed exchange offer.

**NR** – This indicates that no rating has been requested, or that there is insufficient information on which to base a rating, or that Standard & Poor’s does not rate a particular obligation as a matter of policy.

Note: The ratings from ‘AA’ to ‘CCC’ may be modified by the addition of a plus (+) or minus (-) sign to show relative standing within the major rating categories.

#### **Short-Term Issue Credit Ratings** (original maturity of 365 days or less)

**A-1** – A short-term obligation rated ‘A-1’ is rated in the highest category by Standard & Poor’s. The obligor’s capacity to meet its financial commitment on the obligation is strong. Within this category, certain obligations are designated with a plus sign (+). This indicates that the obligor’s capacity to meet its financial commitment on these obligations is extremely strong.

**A-2** – A short-term obligation rated ‘A-2’ is somewhat more susceptible to the adverse effects of changes in circumstances and economic conditions than obligations in higher rating categories. However, the obligor’s capacity to meet its financial commitment on the obligation is satisfactory.

**A-3** – A short-term obligation rated ‘A-3’ exhibits adequate protection parameters. However, adverse economic conditions or changing circumstances are more likely to lead to a weakened capacity of the obligor to meet its financial commitment on the obligation.

**B** – A short-term obligation rated ‘B’ is regarded as vulnerable and has significant speculative characteristics. The obligor currently has the capacity to meet its financial commitments; however, it faces major ongoing uncertainties which could lead to the obligor’s inadequate capacity to meet its financial commitments.

**C** – A short-term obligation rated ‘C’ is currently vulnerable to nonpayment and is dependent upon favorable business, financial, and economic conditions for the obligor to meet its financial commitment on the obligation.

**D** – A short-term obligation rated ‘D’ is in default or in breach of an imputed promise. For non-hybrid capital instruments, the ‘D’ rating category is used when payments on an obligation are not made on the due date, unless Standard & Poor’s believes that such payments will be made within any stated grace period. However, any stated grace period longer than five business days will be treated as five business days. The ‘D’ rating also will be used upon the filing of a bankruptcy petition or the taking of a similar action and where default on an obligation is a virtual certainty, for example due to automatic stay provisions. An obligation’s rating is lowered to ‘D’ if it is subject to a distressed exchange offer.

#### **Municipal Short-Term Note Ratings** (original maturity of 3 years or less)

**SP-1** – Strong capacity to pay principal and interest. An issue determined to possess a very strong capacity to pay debt service is given a plus (+) designation.

**SP-2** – Satisfactory capacity to pay principal and interest, with some vulnerability to adverse financial and economic changes over the term of the notes.

**SP-3** – Speculative capacity to pay principal and interest.

#### **Fitch Ratings**

##### **Long-Term Rating Scales**

**AAA** – Highest credit quality. ‘AAA’ ratings denote the lowest expectation of default risk. They are assigned only in cases of exceptionally strong capacity for payment of financial commitments. This capacity is highly unlikely to be adversely affected by foreseeable events.

**AA** – Very high credit quality. ‘AA’ ratings denote expectations of very low default risk. They indicate very strong capacity for payment of financial commitments. This capacity is not significantly vulnerable to foreseeable events.

**A** – High credit quality. ‘A’ ratings denote expectations of low default risk. The capacity for payment of financial commitments is considered strong. This capacity may, nevertheless, be more vulnerable to adverse business or economic conditions than is the case for higher ratings.

**BBB** – Good credit quality. ‘BBB’ ratings indicate that expectations of default risk are currently low. The capacity for payment of financial commitments is considered adequate but adverse business or economic conditions are more likely to impair this capacity.

**BB** – Speculative. ‘BB’ ratings indicate an elevated vulnerability to default risk, particularly in the event of adverse changes in business or economic conditions over time; however, business or financial flexibility exists which supports the servicing of financial commitments.

**B** – Highly speculative. ‘B’ ratings indicate that material default risk is present, but a limited margin of safety remains. Financial commitments are currently being met; however, capacity for continued payment is vulnerable to deterioration in the business and economic environment.

**CCC** – Substantial credit risk. Default is a real possibility.

**CC** – Very high levels of credit risk. Default of some kind appears probable.



**C** – Exceptionally high levels of credit risk. Default is imminent or inevitable, or the issuer is in standstill. Conditions that are indicative of a ‘C’ category rating for an issuer include:

- a. the issuer has entered into a grace or cure period following non-payment of a material financial obligation;
- b. the issuer has entered into a temporary negotiated waiver or standstill agreement following a payment default on a material financial obligation; or
- c. Fitch Ratings otherwise believes a condition of ‘RD’ or ‘D’ to be imminent or inevitable, including through the formal announcement of a distressed debt exchange.

**RD** – Restricted default. ‘RD’ ratings indicate an issuer that in Fitch Ratings’ opinion has experienced an uncured payment default on a bond, loan or other material financial obligation but which has not entered into bankruptcy filings, administration, receivership, liquidation or other formal winding-up procedure, and which has not otherwise ceased operating. This would include:

- a. the selective payment default on a specific class or currency of debt;
- b. the uncured expiry of any applicable grace period, cure period or default forbearance period following a payment default on a bank loan, capital markets security or other material financial obligation;
- c. the extension of multiple waivers or forbearance periods upon a payment default on one or more material financial obligations, either in series or in parallel; or
- d. execution of a distressed debt exchange on one or more material financial obligations.

**D** – Default. ‘D’ ratings indicate an issuer that in Fitch Ratings’ opinion has entered into bankruptcy filings, administration, receivership, liquidation or other formal winding-up procedure, or which has otherwise ceased business.

Default ratings are not assigned prospectively to entities or their obligations; within this context, non-payment on an instrument that contains a deferral feature or grace period will generally not be considered a default until after the expiration of the deferral or grace period, unless a default is otherwise driven by bankruptcy or other similar circumstance, or by a distressed debt exchange.

“Imminent” default typically refers to the occasion where a payment default has been intimated by the issuer, and is all but inevitable. This may, for example, be where an issuer has missed a scheduled payment, but (as is typical) has a grace period during which it may cure the payment default. Another alternative would be where an issuer has formally announced a distressed debt exchange, but the date of the exchange still lies several days or weeks in the immediate future.

In all cases, the assignment of a default rating reflects the agency’s opinion as to the most appropriate rating category consistent with the rest of its universe of ratings, and may differ from the definition of default under the terms of an issuer’s financial obligations or local commercial practice.

Note: The modifiers “+” or “-” may be appended to a rating to denote relative status within major rating categories. Such suffixes are not added to the ‘AAA’ Long-Term Issuer Default Rating (IDR) category, or to Long-Term IDR categories below ‘B’.

### **Short-Term Ratings**

**F1** – Highest short-term credit quality. Indicates the strongest intrinsic capacity for timely payment of financial commitments; may have an added “+” to denote any exceptionally strong credit feature.

**F2** – Good short-term credit quality. Good intrinsic capacity for timely payment of financial commitments.

**F3** – Fair short-term credit quality. The intrinsic capacity for timely payment of financial commitments is adequate.

**B** – Speculative short-term credit quality. Minimal capacity for timely payment of financial commitments, plus heightened vulnerability to near term adverse changes in financial and economic conditions.

**C** – High short-term default risk. Default is a real possibility.

**RD** – Restricted default. Indicates an entity that has defaulted on one or more of its financial commitments, although it continues to meet other financial obligations. Typically applicable to entity ratings only.

**D** – Default. Indicates a broad-based default event for an entity, or the default of a short-term obligation.

## Appendix A

### **Proxy voting guidelines of the Putnam funds**

The proxy voting guidelines below summarize the funds' positions on various issues of concern to investors, and give a general indication of how fund portfolio securities will be voted on proposals dealing with particular issues. The funds' proxy voting service is instructed to vote all proxies relating to fund portfolio securities in accordance with these guidelines, except as otherwise instructed by the Director of Proxy Voting and Corporate Governance ("Proxy Voting Director"), a member of the Office of the Trustees who is appointed to assist in the coordination and voting of the funds' proxies.

The proxy voting guidelines are just that – guidelines. The guidelines are not exhaustive and do not address all potential voting issues. Because the circumstances of individual companies are so varied, there may be instances when the funds do not vote in strict adherence to these guidelines. For example, the proxy voting service is expected to bring to the Proxy Voting Director's attention proxy questions that are company-specific and of a non-routine nature and that, even if covered by the guidelines, may be more appropriately handled on a case-by-case basis. In addition, in interpreting the funds' proxy voting guidelines, the Trustees of The Putnam Funds are mindful of emerging best practices in the areas of corporate governance, environmental stewardship and sustainability, and social responsibility. Recognizing that these matters may, in some instances, bear on investment performance, they may from time to time be considerations in the funds' voting decisions.

Similarly, Putnam Management's investment professionals, as part of their ongoing review and analysis of all fund portfolio holdings, are responsible for monitoring significant corporate developments, including proxy proposals submitted to shareholders, and notifying the Proxy Voting Director of circumstances where the interests of fund shareholders may warrant a vote contrary to these guidelines. In such instances, the investment professionals submit a written recommendation to the Proxy Voting Director and the person or persons designated by Putnam Management's Legal and Compliance Department to assist in processing referral items under the funds' "Proxy Voting Procedures." The Proxy Voting Director, in consultation with a senior member of the Office of the Trustees and/or the Chair of the Board Policy and Nominating Committee, as appropriate, will determine how the funds' proxies will be voted. When indicated, the Chair of the Board Policy and Nominating Committee may consult with other members of the Committee or the full Board of Trustees.

The following guidelines are grouped according to the types of proposals generally presented to shareholders. Part I deals with proposals submitted by management and approved and recommended by a company's board of directors. Part II deals with proposals submitted by shareholders. Part III addresses unique considerations pertaining to non-U.S. issuers.

The Trustees of The Putnam Funds are committed to promoting strong corporate governance practices and encouraging corporate actions that enhance shareholder value through the judicious voting of the funds' proxies. It is the funds' policy to vote their proxies at all shareholder meetings where it is practicable to do so. In furtherance of this, the funds' have requested that their securities lending agent recall each domestic issuer's voting securities that are on loan, in

advance of the record date for the issuer’s shareholder meetings, so that the funds may vote at the meetings.

The Putnam funds will disclose their proxy votes not later than August 31 of each year for the most recent 12-month period ended June 30, in accordance with the timetable established by SEC rules.

## **I. BOARD-APPROVED PROPOSALS<sup>1</sup>**

The vast majority of matters presented to shareholders for a vote involve proposals made by a company itself (sometimes referred to as “management proposals”), which have been approved and recommended by its board of directors. In view of the enhanced corporate governance practices currently being implemented in public companies and of the funds’ intent to hold corporate boards accountable for their actions in promoting shareholder interests, the funds’ proxies generally will be voted **for** the decisions reached by majority independent boards of directors, except as otherwise indicated in these guidelines. Accordingly, the funds’ proxies will be voted **for** board-approved proposals, except as follows:

### **Matters relating to the Board of Directors**

#### ***Uncontested Election of Directors***

The funds’ proxies will be voted **for** the election of a company’s nominees for the board of directors, except as follows:

- The funds will **withhold votes** from the entire board of directors if
  - the board does not have a majority of independent directors,
  - the board has not established independent nominating, audit, and compensation committees,
  - the board has more than 19 members or fewer than five members, absent special circumstances,
  - 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 company cast at its previous two annual meetings, or
  - the board has adopted or renewed a shareholder rights plan (commonly referred to as a “poison pill”) without shareholder approval during the current or prior calendar year.

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<sup>1</sup> The guidelines in this section apply to proposals at U.S. companies. Please refer to Section III, Voting Shares of Non-U.S. Issuers, for additional guidelines applicable to proposals at non-U.S. companies.  
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- The funds will on a **case-by-case basis withhold votes** from the entire board of directors, or from particular directors as may be appropriate, if the board has approved compensation arrangements for one or more company executives that the funds determine are unreasonably excessive relative to the company’s performance or has otherwise failed to observe good corporate governance practices.
  
- The funds will **withhold votes** from any nominee for director:
  - who is considered an independent director by the company and who has received compensation within the last three years from the company other than for service as a director (*e.g.*, investment banking, consulting, legal, or financial advisory fees),
  - who attends less than 75% of board and committee meetings without valid reasons for the absences (*e.g.*, illness, personal emergency, etc.),
  - of a public company (Company A) who is employed as a senior executive of another company (Company B), if a director of Company B serves as a senior executive of Company A (commonly referred to as an “interlocking directorate”),
  - who serves on more than five unaffiliated public company boards (for the purpose of this guideline, boards of affiliated registered investment companies will count as one board),
  - who serves as an executive officer of any company (“home company”) while serving on more than two other public company boards (votes for the nominee withheld at each company where the funds are shareholders; in addition, if the funds are shareholders of the executive’s home company, the funds will withhold votes from members of the home company’s governance committee), or
  - who is a member of the governance or other responsible committee, if the company has adopted without shareholder approval a bylaw provision shifting legal fees and costs to unsuccessful plaintiffs in intra-corporate litigation.

Commentary:

**Board independence:** Unless otherwise indicated, for the purposes of determining whether a board has a majority of independent directors and independent nominating, audit, and compensation committees, an “independent director” is a director who (1) meets all requirements to serve as an independent director of a company under the NYSE Corporate Governance Rules (*e.g.*, no material business relationships with the company and no present or recent employment relationship with the company including employment of an immediate family member as an executive officer), and (2) has not within the last three years accepted directly or indirectly any consulting, advisory, or other compensatory fee from the company other than in his or her capacity as a member of the board of directors or any board committee. The funds’ Trustees believe that the recent (*i.e.*, within the last three years) receipt of any amount of compensation for services other than service as a director raises significant independence issues.

**Board size:** The funds' Trustees believe that the size of the board of directors can have a direct impact on the ability of the board to govern effectively. Boards that have too many members can be unwieldy and ultimately inhibit their ability to oversee management performance. Boards that have too few members can stifle innovation and lead to excessive influence by management.

**Time commitment:** Being a director of a company requires a significant time commitment to adequately prepare for and attend the company's board and committee meetings. Directors must be able to commit the time and attention necessary to perform their fiduciary duties in proper fashion, particularly in times of crisis. The funds' Trustees are concerned about over-committed directors. In some cases, directors may serve on too many boards to make a meaningful contribution. This may be particularly true for senior executives of public companies (or other directors with substantially full-time employment) who serve on more than a few outside boards. Generally, the funds withhold support from directors serving on more than five unaffiliated public company boards, although an exception may be made in the case of a director who represents an investing firm with the sole purpose of managing a portfolio of investments that includes the company. The funds also withhold support from directors who serve as executive officers at a company and on the boards of more than two unaffiliated public companies (votes withheld at outside boards only). The funds may also withhold votes from such directors on a case-by-case basis where it appears that they may be unable to discharge their duties properly because of excessive commitments.

**Interlocking directorships:** The funds' Trustees believe that interlocking directorships are inconsistent with the degree of independence required for outside directors of public companies.

**Corporate governance practices:** Board independence depends not only on its members' individual relationships, but also on the board's overall attitude toward management and shareholders. Independent boards are committed to good corporate governance practices and, by providing objective independent judgment, enhancing shareholder value. The funds may withhold votes on a case-by-case basis from some or all directors who, through their lack of independence or otherwise, have failed to observe good corporate governance practices or, through specific corporate action, have demonstrated a disregard for the interests of shareholders. Such instances may include cases where a board of directors has approved compensation arrangements for one or more members of management that, in the judgment of the funds' Trustees, are excessive by reasonable corporate standards relative to the company's record of performance. It may also represent a disregard for the interests of shareholders if a board of directors fails to register an appropriate response when a director who fails to win the support of a majority of shareholders in an election (sometimes referred to as a "rejected director") continues to serve on the board, or if a board of directors permits an executive to serve on an excessive number of public company boards. While the Trustees recognize that it may in some circumstances be appropriate for a rejected director to continue his or her service on the board, steps should be taken to address the concerns reflected by the shareholders' lack of support for the rejected director. Adopting a fee-shifting bylaw provision without shareholder approval, which may discourage legitimate shareholders lawsuits as well as frivolous ones, is another example of disregard for shareholder interests.

### *Contested Elections of Directors*

- The funds will vote on a **case-by-case basis** in contested elections of directors.

### *Classified Boards*

- The funds will vote **against** proposals to classify a board, absent special circumstances indicating that shareholder interests would be better served by this structure.

Commentary: Under a typical classified board structure, the directors are divided into three classes, with each class serving a three-year term. The classified board structure results in directors serving staggered terms, with usually only a third of the directors up for re-election at any given annual meeting. The funds' Trustees generally believe that it is appropriate for directors to stand for election each year, but recognize that, in special circumstances, shareholder interests may be better served under a classified board structure.

### *Other Board-Related Proposals*

The funds will generally vote **for** proposals that have been approved by a majority independent board, and on a **case-by-case basis** on proposals that have been approved by a board that fails to meet the guidelines' basic independence standards (*i.e.*, majority of independent directors and independent nominating, audit, and compensation committees).

### **Executive Compensation**

The funds generally favor compensation programs that relate executive compensation to a company's long-term performance. The funds will vote on a **case-by-case basis** on board-approved proposals relating to executive compensation, except as follows:

- Except where the funds are otherwise withholding votes for the entire board of directors, the funds 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).
- The funds 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-based plans).
- The funds 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%.
- The funds will vote **against** stock option plans that permit the replacing or repricing of underwater options (and against any proposal to authorize a replacement or repricing of underwater options).

- The funds will vote **against** stock option plans that permit issuance of options with an exercise price below the stock's current market price.
- Except where the funds are otherwise withholding votes for the entire board of directors, the funds will vote **for** an employee stock purchase plan that has the following features: (1) the shares purchased under the plan are acquired for no less than 85% of their market value; (2) the offering period under the plan is 27 months or less; and (3) dilution is 10% or less.
- The funds will vote **for** proposals to approve a company's executive compensation program (*i.e.*, "say on pay" proposals in which the company's board proposes that shareholders indicate their support for the company's compensation philosophy, policies, and practices), except that the funds will vote **against** the proposal if the company is assigned to the lowest category, through independent third party benchmarking performed by the funds' proxy voting service, for the correlation of the company's executive compensation program with its performance.
- The funds will vote **for** bonus plans under which payments are treated as performance-based compensation that is deductible under Section 162(m) of the Internal Revenue Code of 1986, as amended, except that the funds will vote on a **case-by-case basis** if any of the following circumstances exist:
  - the amount per employee under the plan is unlimited, or
  - the plan's performance criteria is undisclosed, or
  - the company is assigned to the lowest category, through independent third party benchmarking performed by the funds' proxy voting service, for the correlation of the company's executive compensation program with its performance.

Commentary: Companies should have compensation programs that are reasonable and that align shareholder and management interests over the longer term. Further, disclosure of compensation programs should provide absolute transparency to shareholders regarding the sources and amounts of, and the factors influencing, executive compensation. Appropriately designed equity-based compensation plans can be an effective way to align the interests of long-term shareholders with the interests of management. However, the funds may vote against these or other 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, in some instances, where independent third-party benchmarking indicates that compensation is inadequately correlated with performance, relative to peer companies. (Examples of excessive executive compensation may include, but are not limited to, equity incentive plans that exceed the dilution criteria noted above, excessive perquisites, performance-based compensation programs that do not properly correlate reward and performance, "golden parachutes" or other severance arrangements that present conflicts between management's interests and the interests of shareholders, and "golden coffins" or unearned death benefits.) In voting on a proposal relating to executive compensation, the funds will consider whether the proposal has been approved by an independent compensation committee of the board.



## Capitalization

Many proxy proposals involve changes in a company's capitalization, including the authorization of additional stock, the issuance of stock, the repurchase of outstanding stock, or the approval of a stock split. The management of a company's capital structure involves a number of important issues, including cash flow, financing needs, and market conditions that are unique to the circumstances of the company. As a result, the funds will vote on a **case-by-case basis** on board-approved proposals involving changes to a company's capitalization, except that where the funds are not otherwise withholding votes from the entire board of directors:

- The funds will vote **for** proposals relating to the authorization and issuance of additional common stock (except where such proposals relate to a specific transaction).
- The funds will vote **for** proposals to effect stock splits (excluding reverse stock splits).
- The funds will vote **for** proposals authorizing share repurchase programs.

Commentary: A company may decide to authorize additional shares of common stock for reasons relating to executive compensation or for routine business purposes. For the most part, these decisions are best left to the board of directors and senior management. The funds will vote on a case-by-case basis, however, on other proposals to change a company's capitalization, including the authorization of common stock with special voting rights, the authorization or issuance of common stock in connection with a specific transaction (*e.g.*, an acquisition, merger or reorganization), or the authorization or issuance of preferred stock. Actions such as these involve a number of considerations that may affect a shareholder's investment and that warrant a case-by-case determination.

## Acquisitions, Mergers, Reincorporations, Reorganizations and Other Transactions

Shareholders may be confronted with a number of different types of transactions, including acquisitions, mergers, reorganizations involving business combinations, liquidations, and the sale of all or substantially all of a company's assets, which may require their consent. Voting on such proposals involves considerations unique to each transaction. As a result, the funds will vote on a **case-by-case basis** on board-approved proposals to effect these types of transactions, except as follows:

- The funds will vote **for** mergers and reorganizations involving business combinations designed solely to reincorporate a company in Delaware.

Commentary: A company may reincorporate into another state through a merger or reorganization by setting up a "shell" company in a different state and then merging the company into the new company. While reincorporation into states with extensive and established corporate laws – notably Delaware – provides companies and shareholders with a more well-defined legal framework, shareholders must carefully consider the reasons for a reincorporation into another jurisdiction, including especially an offshore jurisdiction.

## Anti-Takeover Measures

Some proxy proposals involve efforts by management to make it more difficult for an outside party to take control of the company without the approval of the company's board of directors. These include the adoption of a shareholder rights plan, requiring supermajority voting on particular issues, the adoption of fair price provisions, the issuance of blank check preferred stock, and the creation of a separate class of stock with disparate voting rights. Such proposals may adversely affect shareholder rights, lead to management entrenchment, or create conflicts of interest. As a result, the funds will vote **against** board-approved proposals to adopt such anti-takeover measures, except as follows:

- The funds will vote on a **case-by-case basis** on proposals to ratify or approve shareholder rights plans; and
- The funds will vote on a **case-by-case basis** on proposals to adopt fair price provisions.

Commentary: The funds' Trustees recognize that poison pills and fair price provisions may enhance or protect shareholder value under certain circumstances. For instance, where a company has incurred significant operating losses, a shareholder rights plan may be appropriately tailored to protect shareholder value by preserving a company's net operating losses. Thus, the funds will consider proposals to approve such matters on a case-by-case basis.

## Other Business Matters

Many proxies involve approval of routine business matters, such as changing a company's name, ratifying the appointment of auditors, and procedural matters relating to the shareholder meeting. For the most part, these routine matters do not materially affect shareholder interests and are best left to the board of directors and senior management of the company. The funds will vote **for** board-approved proposals approving such matters, except as follows:

- The funds will vote on a **case-by-case basis** on proposals to amend a company's charter or bylaws (except for charter amendments necessary to effect stock splits, to change a company's name or to authorize additional shares of common stock).
- The funds will vote **against** authorization to transact other unidentified, substantive business at the meeting.
- The funds will vote on a **case-by-case basis** on proposals to ratify the selection of independent auditors if there is evidence that the audit firm's independence or the integrity of an audit is compromised.
- The funds will vote on a **case-by-case basis** on other business matters where the funds are otherwise withholding votes for the entire board of directors.

Commentary: Charter and bylaw amendments (for example, amendments implementing proxy access proposals) and the transaction of other unidentified, substantive business at a shareholder meeting may directly affect shareholder rights and have a significant impact on shareholder value. As a result, the funds do not view these items as routine business matters. Putnam

Management's investment professionals and the funds' proxy voting service may also bring to the Proxy Voting Director's attention company-specific items that they believe to be non-routine and warranting special consideration. Under these circumstances, the funds will vote on a case-by-case basis.

The fund's proxy voting service may identify circumstances that call into question an audit firm's independence or the integrity of an audit. These circumstances may include recent material restatements of financials, unusual audit fees, egregious contractual relationships, and aggressive accounting policies. The funds will consider proposals to ratify the selection of auditors in these circumstances on a case-by-case basis. In all other cases, given the existence of rules that enhance the independence of audit committees and auditors by, for example, prohibiting auditors from performing a range of non-audit services for audit clients, the funds will vote for the ratification of independent auditors.

## II. SHAREHOLDER PROPOSALS

SEC regulations permit shareholders to submit proposals for inclusion in a company's proxy statement. These proposals generally seek to change some aspect of the company's corporate governance structure or to change some aspect of its business operations. The funds generally will vote **in accordance with the recommendation of the company's board of directors** on all shareholder proposals, except as follows:

- The funds will vote on a **case-by-case basis** on shareholder proposals requiring that the chairman's position be filled by someone other than the chief executive officer.
- The funds will vote **for** shareholder proposals asking that director nominees receive support from holders of a majority of votes cast or a majority of shares outstanding in order to be (re)elected.
- The funds will vote **for** shareholder proposals to declassify a board, absent special circumstances which would indicate that shareholder interests are better served by a classified board structure.
- The funds will vote **for** shareholder proposals to eliminate supermajority vote requirements in the company's charter documents.
- The funds will vote **for** shareholder proposals to require shareholder approval of shareholder rights plans.
- The funds will vote **for** shareholder proposals to amend a company's charter documents to permit shareholders to call special meetings, but only if both of the following conditions are met:
  - the proposed amendment limits the right to call special meetings to shareholders holding at least 15% of the company's outstanding shares, and

- applicable state law does not otherwise provide shareholders with the right to call special meetings.
- The funds will vote on a **case-by-case basis** on shareholder proposals relating to proxy access.
  - The funds will vote **for** shareholder proposals requiring companies to make cash payments under management severance agreements only if both of the following conditions are met:
    - the company undergoes a change in control, and
    - the change in control results in the termination of employment for the person receiving the severance payment.
  - The funds will vote **for** shareholder proposals requiring companies to accelerate vesting of equity awards under management severance agreements only if both of the following conditions are met:
    - the company undergoes a change in control, and
    - the change in control results in the termination of employment for the person receiving the severance payment.
  - The funds will vote **on a case-by-case basis** on shareholder proposals to limit a company's ability to make excise tax gross-up payments under management severance agreements.
  - The funds will vote **on a case-by-case basis** on shareholder proposals requesting that the board adopt a policy to recoup, in the event of a significant restatement of financial results or significant extraordinary write-off, to the fullest extent practicable, for the benefit of the company, all performance-based bonuses or awards that were paid to senior executives based on the company having met or exceeded specific performance targets to the extent that the specific performance targets were not, in fact, met.
  - The funds will vote **for** shareholder proposals calling for the company to obtain shareholder approval for any future golden coffins or unearned death benefits (payments or awards of unearned salary or bonus, accelerated vesting or the continuation of unvested equity awards, perquisites or other payments or awards in respect of an executive following his or her death), and **for** shareholder proposals calling for the company to cease providing golden coffins or unearned death benefits.
  - The funds will vote **for** shareholder proposals requiring a company to report on its executive retirement benefits (*e.g.*, deferred compensation, split-dollar life insurance, SERPs and pension benefits).
  - The funds will vote **for** shareholder proposals requiring a company to disclose its relationships with executive compensation consultants (*e.g.*, whether the company, the board or the compensation committee retained the consultant, the types of services provided by the

consultant over the past five years, and a list of the consultant's clients on which any of the company's executives serve as a director).

- The funds will vote **for** shareholder proposals that are consistent with the funds' proxy voting guidelines for board-approved proposals.
- The funds will vote on a **case-by-case basis** on other shareholder proposals where the funds are otherwise withholding votes for the entire board of directors.

Commentary: The funds' Trustees believe that effective corporate reforms should be promoted by holding boards of directors – and in particular their independent directors – accountable for their actions, rather than by imposing additional legal restrictions on board governance through piecemeal proposals. As stated above, the funds' Trustees believe that boards of directors and management are responsible for ensuring that their businesses are operating in accordance with high legal and ethical standards and should be held accountable for resulting corporate behavior. Accordingly, the funds will generally support the recommendations of boards that meet the basic independence and governance standards established in these guidelines. Where boards fail to meet these standards, the funds will generally evaluate shareholder proposals on a case-by-case basis. The funds will also consider proposals requiring that the chairman's position be filled by someone other than the company's chief executive officer on a case-by-case basis, recognizing that in some cases this separation may advance the company's corporate governance while in other cases it may be less necessary to the sound governance of the company. The funds will take into account the level of independent leadership on a company's board in evaluating these proposals.

However, the funds generally support shareholder proposals to implement majority voting for directors, observing that majority voting is an emerging standard intended to encourage directors to be attentive to shareholders' interests. The funds also generally support shareholder proposals to declassify a board, to eliminate supermajority vote requirements, or to require shareholder approval of shareholder rights plans. The funds' Trustees believe that these shareholder proposals further the goals of reducing management entrenchment and conflicts of interest, and aligning management's interests with shareholders' interests in evaluating proposed acquisitions of the company. The Trustees also believe that shareholder proposals to limit severance payments may further these goals in some instances. In general, the funds favor arrangements in which severance payments are made to an executive only when there is a change in control and the executive loses his or her job as a result. Arrangements in which an executive receives a payment upon a change of control even if the executive retains employment introduce potential conflicts of interest and may distract management focus from the long term success of the company.

In evaluating shareholder proposals that address severance payments, the funds distinguish between cash and equity payments. The funds generally do not favor cash payments to executives upon a change in control transaction if the executive retains employment. However, the funds recognize that accelerated vesting of equity incentives, even without termination of employment, may help to align management and shareholder interests in some instances, and will evaluate shareholder proposals addressing accelerated vesting of equity incentive payments on a case-by-case basis.

When severance payments exceed a certain amount based on the executive's previous compensation, the payments may be subject to an excise tax. Some compensation arrangements provide for full excise tax gross-ups, which means that the company pays the executive sufficient additional amounts to cover the cost of the excise tax. The funds are concerned that the benefits of providing full excise tax gross-ups to executives may be outweighed by the cost to the company of the gross-up payments. Accordingly, the funds will vote on a case-by-case basis on shareholder proposals to curtail excise tax gross-up payments. The funds generally favor arrangements in which severance payments do not trigger an excise tax or in which the company's obligations with respect to gross-up payments are limited in a reasonable manner.

The funds' Trustees believe that performance-based compensation can be an effective tool for aligning management and shareholder interests. However, to fulfill its purpose, performance compensation should only be paid to executives if the performance targets are actually met. A significant restatement of financial results or a significant extraordinary write-off may reveal that executives who were previously paid performance compensation did not actually deliver the required business performance to earn that compensation. In these circumstances, it may be appropriate for the company to recoup this performance compensation. The funds will consider on a case-by-case basis shareholder proposals requesting that the board adopt a policy to recoup, in the event of a significant restatement of financial results or significant extraordinary write-off, performance-based bonuses or awards paid to senior executives based on the company having met or exceeded specific performance targets to the extent that the specific performance targets were not, in fact, met. The funds do not believe that such a policy should necessarily disadvantage a company in recruiting executives, as executives should understand that they are only entitled to performance compensation based on the actual performance they deliver.

The funds' Trustees disfavor golden coffins or unearned death benefits, and the funds will generally support shareholder proposals to restrict or terminate these practices. The Trustees will also consider whether a company's overall compensation arrangements, taking all of the pertinent circumstances into account, constitute excessive compensation or otherwise reflect poorly on the corporate governance practices of the company. As the Trustees evaluate these matters, they will be mindful of evolving practices and legislation relevant to executive compensation and corporate governance.

The funds' Trustees also believe that shareholder proposals that are intended to increase transparency, particularly with respect to executive compensation, without establishing rigid restrictions upon a company's ability to attract and motivate talented executives, are generally beneficial to sound corporate governance without imposing undue burdens. The funds will generally support shareholder proposals calling for reasonable disclosure.

### **III. VOTING SHARES OF NON-U.S. ISSUERS**

Many of the Putnam funds invest on a global basis, and, as a result, they may hold, and have an opportunity to vote, shares in non-U.S. issuers – i.e., issuers that are incorporated under the laws of foreign jurisdictions and whose shares are not listed on a U.S. securities exchange or the NASDAQ stock market.

In many non-U.S. markets, shareholders who vote proxies of a non-U.S. issuer are not able to trade in that company's stock on or around the shareholder meeting date. This practice is known as "share blocking." In countries where share blocking is practiced, the funds will vote proxies only with direction from Putnam Management's investment professionals.

In addition, some non-U.S. markets require that a company's shares be re-registered out of the name of the local custodian or nominee into the name of the shareholder for the shareholder to be able to vote at the meeting. This practice is known as "share re-registration." As a result, shareholders, including the funds, are not able to trade in that company's stock until the shares are re-registered back in the name of the local custodian or nominee following the meeting. In countries where share re-registration is practiced, the funds will generally not vote proxies.

Protection for shareholders of non-U.S. issuers may vary significantly from jurisdiction to jurisdiction. Laws governing non-U.S. issuers may, in some cases, provide substantially less protection for shareholders than do U.S. laws. As a result, the guidelines applicable to U.S. issuers, which are premised on the existence of a sound corporate governance and disclosure framework, may not be appropriate under some circumstances for non-U.S. issuers. However, the funds will vote proxies of non-U.S. issuers **in accordance with the guidelines applicable to U.S. issuers** except as follows:

### **Uncontested Board Elections**

#### ***China, India, Indonesia, Philippines, Taiwan and Thailand***

- The funds will **withhold votes** from the entire board of directors if
- fewer than one-third of the directors are independent directors, or
- the board has not established audit, compensation and nominating committees each composed of a majority of independent directors.

Commentary: Whether a director is considered "independent" or not will be determined by reference to local corporate law or listing standards.

#### ***Europe ex-United Kingdom***

- The funds will **withhold votes** from the entire board of directors if
- the board has not established audit and compensation committees each composed of a majority of independent, non-executive directors, or
- the board has not established a nominating committee composed of a majority of independent directors.

Commentary: An "independent director" under the European Commission's guidelines is one who is free of any business, family or other relationship, with the company, its controlling shareholder or the management of either, that creates a conflict of interest such as to impair his

judgment. A “non-executive director” is one who is not engaged in the daily management of the company.

### *Germany*

- For companies subject to “co-determination,” the funds will vote **for** the election of nominees to the supervisory board, except that the funds will vote on a **case-by-case basis** for any nominee who is either an employee of the company or who is otherwise affiliated with the company (as determined by the funds’ proxy voting service).
- The funds will **withhold votes** for the election of a former member of the company’s managerial board to chair of the supervisory board.

Commentary: German corporate governance is characterized by a two-tier board system—a managerial board composed of the company’s executive officers, and a supervisory board. The supervisory board appoints the members of the managerial board. Shareholders elect members of the supervisory board, except that in the case of companies with a large number of employees, company employees are allowed to elect some of the supervisory board members (one-half of supervisory board members are elected by company employees at companies with more than 2,000 employees; one-third of the supervisory board members are elected by company employees at companies with more than 500 employees but fewer than 2,000). This “co-determination” practice may increase the chances that the supervisory board of a large German company does not contain a majority of independent members. In this situation, under the Fund’s proxy voting guidelines applicable to U.S. issuers, the funds would vote against all nominees. However, in the case of companies subject to “co-determination” and with the goal of supporting independent nominees, the Funds will vote for supervisory board members who are neither employees of the company nor otherwise affiliated with the company.

Consistent with the funds’ belief that the interests of shareholders are best protected by boards with strong, independent leadership, the funds will withhold votes for the election of former chairs of the managerial board to chair of the supervisory board.

### *Hong Kong*

- The funds will **withhold votes** from the entire board of directors if
  - fewer than one-third of the directors are independent directors, or
  - the board has not established audit, compensation and nominating committees each with at least a majority of its members being independent directors, or
  - the chair of the audit, compensation or nominating committee is not an independent director.

Commentary. For purposes of these guidelines, an “independent director” is a director that has no material, financial or other current relationships with the company. In determining whether a director is independent, the funds will apply the standards included in the Rules Governing the Listing of Securities on the Stock Exchange of Hong Kong Limited Section 3.13.



## *Italy*

- The funds will **withhold votes** from any director not identified in the proxy materials.

Commentary: In Italy, companies have the right to nominate co-opted directors<sup>2</sup> for election to the board at the next annual general meeting, but do not have to indicate, until the day of the annual meeting, whether or not they are nominating a co-opted director for election. When a company does not explicitly state in its proxy materials that co-opted directors are standing for election, shareholders will not know for sure who the board nominees are until the actual meeting occurs. The funds will withhold support from any such co-opted director on the grounds that there was insufficient information for evaluation before the meeting.

## *Japan*

- For companies that have established a U.S.-style corporate governance structure, the funds will **withhold votes** from the entire board of directors if
  - the board does not have a majority of outside directors,
  - the board has not established nominating and compensation committees composed of a majority of outside directors, or
  - the board has not established an audit committee composed of a majority of independent directors.
- The funds will **withhold votes** for the appointment of members of a company's board of statutory auditors if a majority of the members of the board of statutory auditors is not independent.

### Commentary:

**Board structure:** Recent amendments to the Japanese Commercial Code give companies the option to adopt a U.S.-style corporate governance structure (*i.e.*, a board of directors and audit, nominating, and compensation committees). The funds will vote **for** proposals to amend a company's articles of incorporation to adopt the U.S.-style corporate structure.

**Definition of outside director and independent director:** Corporate governance principles in Japan focus on the distinction between outside directors and independent directors. Under these principles, an outside director is a director who is not and has never been a director, executive, or employee of the company or its parent company, subsidiaries or affiliates. An outside director is "independent" if that person can make decisions completely independent from the managers of the company, its parent, subsidiaries, or affiliates and does not have a material relationship with the company (*i.e.*, major client, trading partner, or other business relationship; familial relationship with current director or executive; etc.). The guidelines have incorporated these definitions in applying the board independence standards above.

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<sup>2</sup> A co-opted director is an individual appointed to the board by incumbent directors to replace a director who was elected by directors but who leaves the board (through resignation or death) before the end of his or her term.  
December 30, 2018

## ***Korea***

- The funds will **withhold votes** from the entire board of directors if
  - fewer than half of the directors are outside directors,
  - the board has not established a nominating committee with at least half of the members being outside directors, or
  - the board has not established an audit committee composed of at least three members and in which at least two-thirds of its members are outside directors.
- The funds will vote **withhold votes** from nominees to the audit committee if the board has not established an audit committee composed of (or proposed to be composed of) at least three members, and of which at least two-thirds of its members are (or will be) outside directors.

Commentary: For purposes of these guidelines, an “outside director” is a director that is independent from the management or controlling shareholders of the company, and holds no interests that might impair the performance his or her duties impartially with respect to the company, management or controlling shareholder. In determining whether a director is an outside director, the funds will also apply the standards included in Article 415-2(2) of the Korean Commercial Code (*i.e.*, no employment relationship with the company for a period of two years before serving on the committee, no director or employment relationship with the company’s largest shareholder, etc.) and may consider other business relationships that would affect the independence of an outside director.

## ***Malaysia***

- The funds will **withhold votes** from the entire board of directors if
  - in the case of a board with an independent director serving as chair, fewer than one-third of the directors are independent directors; or, in the case of a board not chaired by an independent director, less than a majority of the directors are independent directors,
  - the board has not established audit and nominating committees with at least a majority of the members being independent directors and all of the members being non-executive directors, or
  - the board has not established a compensation committee with at least a majority of the members being non-executive directors.

Commentary. For purposes of these guidelines, an “independent director” is a director who has no material, financial or other current relationships with the company. In determining whether a director is independent, the funds will apply the standards included in the Malaysia Code of Corporate Governance, Commentary to Recommendation 3.1. A “non-executive director” is a director who does not take on primary responsibility for leadership of the company.

### ***Russia***

- The funds will vote on a **case-by-case basis** for the election of nominees to the board of directors.

Commentary: In Russia, director elections are typically handled through a cumulative voting process. Cumulative voting allows shareholders to cast all of their votes for a single nominee for the board of directors, or to allocate their votes among nominees in any other way. In contrast, in “regular” voting, shareholders may not give more than one vote per share to any single nominee. Cumulative voting can help to strengthen the ability of minority shareholders to elect a director.

In Russia, as in some other emerging markets, standards of corporate governance are usually behind those in developed markets. Rather than vote against the entire board of directors, as the funds generally would in the case of a company whose board fails to meet the funds’ standards for independence, the funds may, on a case by case basis, cast all of their votes for one or more independent director nominees. The funds believe that it is important to increase the number of independent directors on the boards of Russian companies to mitigate the risks associated with dominant shareholders.

### ***Singapore***

- The funds will **withhold votes** from the entire board of directors if
  - in the case of a board with an independent director serving as chair, fewer than one-third of the directors are independent directors; or, in the case of a board not chaired by an independent director, fewer than half of the directors are independent directors,
  - the board has not established audit and compensation committees, each with an independent director serving as chair, with at least a majority of the members being independent directors, and with all of the directors being non-executive directors, or
  - the board has not established a nominating committee, with an independent director serving as chair, and with at least a majority of the members being independent directors.

Commentary: For purposes of these guidelines, an “independent director” is a director that has no material, financial or other current relationships with the company. In determining whether a director is independent, the funds will apply the standards included in the Singapore Code of

Corporate Governance, Guideline 2.3. A “non-executive director” is a director who is not employed with the company.

### ***United Kingdom***

- The funds will **withhold votes** from the entire board of directors if
  - fewer than half of the directors are independent non-executive directors,
  - the board has not established a nomination committee composed of a majority of independent non-executive directors, or
  - the board has not established compensation and audit committees composed of (1) at least three directors (in the case of smaller companies, two directors) and (2) solely independent non-executive directors, provided that, to the extent permitted under the United Kingdom’s Combined Code on Corporate Governance, the company chairman may serve on (but not serve as chairman of) the compensation and audit committees if the chairman was considered independent upon his or her appointment as chairman.
- The funds will **withhold votes** from any nominee for director who is considered an independent director by the company and who has received compensation within the last three years from the company other than for service as a director, such as investment banking, consulting, legal, or financial advisory fees.
- The funds will vote **for** proposals to amend a company’s articles of association to authorize boards to approve situations that might be interpreted to present potential conflicts of interest affecting a director.

### **Commentary:**

**Application of guidelines:** Although the United Kingdom’s Combined Code on Corporate Governance (“Combined Code”) has adopted the “comply and explain” approach to corporate governance, the funds’ Trustees believe that the guidelines discussed above with respect to board independence standards are integral to the protection of investors in U.K. companies. As a result, these guidelines will generally be applied in a prescriptive manner.

**Definition of independence:** For the purposes of these guidelines, a non-executive director shall be considered independent if the director meets the independence standards in section A.3.1 of the Combined Code (*i.e.*, no material business or employment relationships with the company, no remuneration from the company for non-board services, no close family ties with senior employees or directors of the company, etc.), except that the funds do not view service on the board for more than nine years as affecting a director’s independence. Company chairmen in the U.K. are generally considered affiliated upon appointment as chairman due to the nature of the position of chairman. Consistent with the Combined Code, a company chairman who was considered independent upon appointment as chairman: may serve as a member of, but not as

the chairman of, the compensation (remuneration) committee; and, in the case of smaller companies, may serve as a member of, but not as the chairman of, the audit committee.

**Smaller companies:** A smaller company is one that is below the FTSE 350 throughout the year immediately prior to the reporting year.

**Conflicts of interest:** The Companies Act 2006 requires a director to avoid a situation in which he or she has, or can have, a direct or indirect interest that conflicts, or possibly may conflict, with the interests of the company. This broadly written requirement could be construed to prevent a director from becoming a trustee or director of another organization. Provided there are reasonable safeguards, such as the exclusion of the relevant director from deliberations, the funds believe that the board may approve this type of potential conflict of interest in its discretion.

### *All other jurisdictions*

- The funds will vote **for** supervisory board nominees when the supervisory board meets the funds' independence standards, otherwise the funds will vote **against** supervisory board nominees.

Commentary: Companies in many jurisdictions operate under the oversight of supervisory boards. In the absence of jurisdiction-specific guidelines, the funds will generally hold supervisory boards to the same standards of independence as it applies to boards of directors in the United States.

## **Contested Board Elections**

### *Italy*

- The funds will vote **for** the management- or board-sponsored slate of nominees if the board meets the funds' independence standards, and **against** the management- or board-sponsored slate of nominees if the board does not meet the funds' independence standards; the funds will not vote on shareholder-proposed slates of nominees.

Commentary: Contested elections in Italy may involve a variety of competing slates of nominees. In these circumstances, the funds will focus their analysis on the board- or management-sponsored slate.

## **Corporate Governance**

- The funds will vote **for** proposals to change the size of a board if the board meets the funds' independence standards, and **against** proposals to change the size of a board if the board does not meet the funds' independence standards.
- The funds will vote **for** shareholder proposals calling for a majority of a company's directors to be independent of management.

- The funds will vote **for** shareholder proposals seeking to increase the independence of board nominating, audit, and compensation committees.
- The funds will vote **for** shareholder proposals that implement corporate governance standards similar to those established under U.S. federal law and the listing requirements of U.S. stock exchanges, and that do not otherwise violate the laws of the jurisdiction under which the company is incorporated.

### *Australia*

- The funds will vote on a **case-by-case basis** on board spill resolutions.

*Commentary:* The *Corporations Amendment (Improving Accountability on Director and Executive Compensation) Bill 2011* provides that, if a company's remuneration report receives a "no" vote of 25% or more of all votes cast at two consecutive annual general meetings, at the second annual general meeting, a spill resolution must be proposed. If the spill resolution is approved (by simple majority), then a further meeting to elect a new board (excluding the managing director) must be held within 90 days. The funds will consider board spill resolutions on a case-by-case basis.

### *Europe*

- The funds will vote **for** proposals to ratify board acts, except that the funds will consider these proposals on a **case-by-case basis** if the funds' proxy voting service has recommended a vote against the proposal.

### *Taiwan*

- The funds will vote **against** proposals to release directors from their non-competition obligations (their obligations not to engage in any business that is competitive with the company), unless the proposal is narrowly drafted to permit directors to engage in a business that is competitive with the company only on behalf of a wholly-owned subsidiary of the company.

### **Compensation**

- The funds will vote **for** proposals to approve annual directors' fees, except that the funds will consider these proposals on a **case-by-case basis** in each case in which the funds' proxy voting service has recommended a vote against such a proposal.
- The funds will vote **for** non-binding proposals to approve remuneration reports, except that the funds will vote **against** proposals to approve remuneration reports that indicate that awards under a long-term incentive plan are not linked to performance targets.

*Commentary:* Since proposals relating to directors' fees for non-U.S. issuers generally address relatively modest fees paid to non-executive directors, the funds generally support these proposals, provided that the fees are consistent with directors' fees paid by the company's peers and do not otherwise appear unwarranted. Consistent with the approach taken for U.S. issuers,

the funds generally favor compensation programs that relate executive compensation to a company's long-term performance and will support non-binding remuneration reports unless such a correlation is not made.

### ***Europe and Asia ex-Japan***

- In the case of proposals that do not include sufficient information for determining average annual dilution, the funds will vote **for** stock option and restricted stock plans that will result in an average gross potential dilution of 5% or less.

Commentary: Asia ex-Japan means China, Hong Kong, India, Indonesia, Korea, Malaysia, Philippines, Singapore, Taiwan and Thailand. In these markets, companies may not disclose the life of the plan and there may not be a specific number of shares requested; therefore, it may not be possible to determine the average annual dilution related to the plan and apply the funds' standard dilution test.

### ***France***

- The funds will vote **for** an employee stock purchase plan or share save scheme that has the following features: (1) the shares purchased under the plan are acquired for no less than 70% of their market value; (2) the vesting period is greater than or equal to 10 years; (3) the offering period under the plan is 27 months or less; and (4) dilution is 10% or less.

Commentary: To conform to local market practice, the funds support plans or schemes at French issuers that permit the purchase of shares at up to a 30% discount (*i.e.*, shares may be purchased for no less than 70% of their market value). By comparison, for U.S. issuers, the funds do not support employee stock purchase plans that permit shares to be acquired at more than a 15% discount (*i.e.*, for less than 85% of their market value); in the United Kingdom, up to a 20% discount is permitted.

### ***United Kingdom***

- The funds will vote **for** an employee stock purchase plan or share save scheme that has the following features: (1) the shares purchased under the plan are acquired for no less than 80% of their market value; (2) the offering period under the plan is 27 months or less; and (3) dilution is 10% or less.

Commentary: These are the same features that the funds require of employee stock purchase plans proposed by U.S. issuers, except that, to conform to local market practice, the funds support plans or schemes at United Kingdom issuers that permit the purchase of shares at up to a 20% discount (*i.e.*, shares may be purchased for no less than 80% of their market value). By comparison, for U.S. issuers, the funds do not support employee stock purchase plans that permit shares to be acquired at more than a 15% discount (*i.e.*, for less than 85% of their market value).

## **Capitalization**

Unless a proposal is directly addressed by a country-specific guideline:

- The funds will vote **for** proposals
  - to issue additional common stock representing up to 20% of the company's outstanding common stock, where shareholders *do not* have preemptive rights, or
  - to issue additional common stock representing up to 100% of the company's outstanding common stock, where shareholders *do have* preemptive rights.
- The funds will vote **for** proposals to authorize share repurchase programs that are recommended for approval by the funds' proxy voting service; otherwise, the funds will vote **against** such proposals.

### ***Australia***

- The funds will vote **for** proposals to carve out, from the general cap on non-*pro rata* share issues of 15% of total equity in a rolling 12-month period, a particular proposed issue of shares or a particular issue of shares made previously within the 12-month period, if the company's board meets the funds' independence standards; if the company's board does not meet the funds' independence standards, then the funds will vote **against** these proposals.
- The funds will vote **for** proposals to approve the grant of equity awards to directors, except that the funds will consider these proposals on a **case-by-case basis** if the funds' proxy voting service has recommended a vote against the proposal.

### ***China***

- The funds will vote **for** proposals to issue and/or to trade in non-convertible, convertible and/or exchangeable debt obligations, except that the funds will consider these proposals on a **case-by-case basis** if the funds' proxy voting service has recommended a vote against the proposal.

### ***Hong Kong***

- The funds will vote **for** proposals to approve a general mandate permitting the company to engage in non-*pro rata* share issues of up to 20% of total equity in a year if the company's board meets the funds' independence standards; if the company's board does not meet the funds' independence standards, then the funds will vote **against** these proposals.
- The funds will **for** proposals to approve the reissuance of shares acquired by the company under a share repurchase program, provided that: (1) the funds supported (or would have supported, in accordance with these guidelines) the share repurchase program, (2) the reissued shares represent no more than 10% of the company's outstanding shares (measured immediately before the reissuance), and (3) the reissued shares are sold for no less than 85% of current market value.



## ***France***

- The funds will vote **for** proposals to increase authorized shares, except that the funds will consider these proposals on a **case-by-case basis** if the funds' proxy voting service has recommended a vote against the proposal.
- The funds will vote **against** proposals to authorize the issuance of common stock or convertible debt instruments and against proposals to authorize the repurchase and/or reissuance of shares where those authorizations may be used, without further shareholder approval, as anti-takeover measures.

## ***New Zealand***

- The funds will vote **for** proposals to approve the grant of equity awards to directors, except that the funds will consider these proposals on a **case-by-case basis** if the funds' proxy voting service has recommended a vote against the proposal.

Commentary: In light of the prevalence of certain types of capitalization proposals in Australia, China, Hong Kong, France and New Zealand, the funds have adopted guidelines specific to those jurisdictions.

## **Other Business Matters**

- The funds will vote **for** proposals permitting companies to deliver reports and other materials electronically (*e.g.*, via website posting).
- The funds will vote **for** proposals permitting companies to issue regulatory reports in English.
- The funds will vote **against** proposals to shorten shareholder meeting notice periods to fourteen days.

Commentary: Under Directive 2007/36/EC of the European Parliament and the Council of the European Union, companies have the option to request shareholder approval to set the notice period for special meetings at 14 days provided that certain electronic voting and communication requirements are met. The funds believe that the 14 day notice period is too short to provide overseas shareholders with sufficient time to analyze proposals and to participate meaningfully at special meetings and, as a result, have determined to vote against such proposals.

- The funds will vote **for** proposals to amend a company's charter or bylaws, except that the funds will consider these proposals on a **case-by-case basis** if the funds' proxy voting service has recommended a vote against the proposal.

Commentary: If the substance of any proposed amendment is covered by a specific guideline included herein, then that guideline will govern.

## *France*

- The funds will vote **for** proposals to approve a company's related party transactions, except that the funds will consider these proposals on a **case-by-case basis** if the funds' proxy voting service has recommended a vote against the proposal.
- If a company has not proposed an opt-out clause in its articles of association and the implementation of double-voting rights has not been approved by shareholders, the funds will vote **against** the ratification of board acts for the previous fiscal year, will **withhold votes** from the re-election of members of the board's governance committee (or in the absence of a governance committee, against the chair of the board or the next session board member up for re-election) and, if there is no opportunity to vote against ratification of board acts or to withhold votes from directors, will vote **against** the approval of the company's accounts and reports.

Commentary: In France, shareholders are generally requested to approve any agreement between the company and: (i) its directors, chair of the board, CEO and deputy CEOs; (ii) the members of the supervisory board and management board, for companies with a dual structure; and (iii) a shareholder who directly or indirectly owns at least 10% of the company's voting rights. This includes agreements under which compensation may be paid to executive officers after the end of their employment, such as severance payments, supplementary retirement plans and non-competition agreements. The funds will generally support these proposals unless the funds' proxy voting service recommends a vote against, in which case the funds will consider the proposal on a case-by-case basis.

Under French law, shareholders of French companies with shares held in registered form under the same name for at least two years will automatically be granted double-voting rights, unless a company has amended its articles of association to opt out of the double-voting rights regime. Awarding double-voting rights in this manner is likely to disadvantage non-French institutional shareholders. Accordingly, the funds will take actions to signal disapproval of double-voting rights at companies that have not opted-out from the double-voting rights regime and that have not obtained shareholder approval of the double-voting rights regime.

## *Germany*

- The funds will vote **in accordance with the recommendation of the company's board of directors** on shareholder counter motions added to a company's meeting agenda, unless the counter motion is directly addressed by one of the funds' other guidelines.

Commentary: In Germany, shareholders are able to add both proposals and counter motions to a meeting agenda. Counter motions, which must correspond to a proposal on the agenda, generally call for shareholders to oppose the existing proposal, although they may also propose separate voting decisions. Counter motions may be proposed by any shareholder and they are typically added throughout the period between the publication of the meeting agenda and the meeting date. This guideline reflects the funds' intention to focus on the original proposal, which is expected to be presented a reasonable period of time before the shareholder meeting so that the funds will have an appropriate opportunity to evaluate it.

- The funds will vote **for** proposals to approve profit-and-loss transfer agreements between a controlling company and its subsidiaries.

Commentary: These agreements are customary in Germany and are typically entered into for tax purposes. In light of this and the prevalence of these proposals, the funds have adopted a guideline to vote for this type of proposal.

### *Taiwan*

- The funds will vote **for** proposals to amend a Taiwanese company's procedural rules.

Commentary: Since procedural rules, which address such matters as a company's policies with respect to capital loans, endorsements and guarantees, and acquisitions and disposal of assets, are generally adopted or amended to conform to changes in local regulations governing these transactions, the funds have adopted a guideline to vote for these transactions.

As adopted January 26, 2018

## **Proxy voting procedures of The Putnam Funds**

The proxy voting procedures below explain the role of the funds' Trustees, proxy voting service and Director of Proxy Voting and Corporate Governance ("Proxy Voting Director"), as well as how the process works when a proxy question needs to be handled on a case-by-case basis, or when there may be a conflict of interest.

### *The role of the funds' Trustees*

The Trustees of The Putnam Funds exercise control of voting proxies through their Board Policy and Nominating Committee, which is composed entirely of independent Trustees. The Board Policy and Nominating Committee oversees the proxy voting process and participates, as needed, in the resolution of issues that need to be handled on a case-by-case basis. The Committee annually reviews and recommends, for Trustee approval, guidelines governing the funds' proxy votes, including how the funds vote on specific proposals and which matters are to be considered on a case-by-case basis. The Trustees are assisted in this process by their independent administrative staff ("Office of the Trustees"), independent legal counsel, and an independent proxy voting service. The Trustees also receive assistance from Putnam Investment Management, LLC ("Putnam Management"), the funds' investment adviser, on matters involving investment judgments. In all cases, the ultimate decision on voting proxies rests with the Trustees, acting as fiduciaries on behalf of the shareholders of the funds.

### *The role of the proxy voting service*

The funds have engaged an independent proxy voting service to assist in the voting of proxies. The proxy voting service is responsible for coordinating with the funds' custodian(s) to ensure that all proxy materials received by the custodians relating to the funds' portfolio securities are

processed in a timely fashion. To the extent applicable, the proxy voting service votes all proxies in accordance with the proxy voting guidelines established by the Trustees. The proxy voting service will refer proxy questions to the Proxy Voting Director for instructions under circumstances where: (1) the application of the proxy voting guidelines is unclear; (2) a particular proxy question is not covered by the guidelines; or (3) the guidelines call for specific instructions on a case-by-case basis. The proxy voting service is also requested to call to the attention of the Proxy Voting Director specific proxy questions that, while governed by a guideline, appear to involve unusual or controversial issues. The funds also utilize research services relating to proxy questions provided by the proxy voting service and by other firms.

#### *The role of the Proxy Voting Director*

The Proxy Voting Director, a member of the Office of the Trustees, assists in the coordination and voting of the funds' proxies. The Proxy Voting Director deals directly with the proxy voting service and, in the case of proxy questions referred by the proxy voting service, solicits voting recommendations and instructions from the Office of the Trustees, the Chair of the Board Policy and Nominating Committee, and Putnam Management's investment professionals, as appropriate. The Proxy Voting Director is responsible for ensuring that these questions and referrals are responded to in a timely fashion and for transmitting appropriate voting instructions to the proxy voting service. In addition, the Proxy Voting Director is the contact person for receiving recommendations from Putnam Management's investment professionals with respect to any proxy question in circumstances where the investment professional believes that the interests of fund shareholders warrant a vote contrary to the fund's proxy voting guidelines.

On occasion, representatives of a company in which the funds have an investment may wish to meet with the company's shareholders in advance of the company's shareholder meeting, typically to explain and to provide the company's perspective on the proposals up for consideration at the meeting. As a general matter, the Proxy Voting Director will participate in meetings with these company representatives.

The Proxy Voting Director is also responsible for ensuring that the funds file the required annual reports of their proxy voting records with the Securities and Exchange Commission. The Proxy Voting Director coordinates with the funds' proxy voting service to prepare and file on Form N-PX, by August 31 of each year, the funds' proxy voting record for the most recent twelve-month period ended June 30. In addition, the Proxy Voting Director is responsible for coordinating with Putnam Management to arrange for the funds' proxy voting record for the most recent twelve-month period ended June 30 to be available on the funds' website.

#### *Voting procedures for referral items*

As discussed above, the proxy voting service will refer proxy questions to the Proxy Voting Director under certain circumstances. Unless the referred proxy question involves investment considerations (*i.e.*, the proxy question might be seen as having a bearing on the economic interests of a shareholder in the company) and is referred to Putnam Management's investment professionals for a voting recommendation as described below, the Proxy Voting Director will assist in interpreting the guidelines and, if necessary, consult with a senior staff member of the

Office of the Trustees and/or the Chair of the Board Policy and Nominating Committee on how the funds' shares will be voted.

The Proxy Voting Director will refer proxy questions that involve investment considerations, through an electronic request form, to Putnam Management's investment professionals for a voting recommendation. These referrals will be made in cooperation with the person or persons designated by Putnam Management's Legal and Compliance Department to assist in processing referral items. In connection with each item referred to Putnam Management's investment professionals, the Legal and Compliance Department will conduct a conflicts of interest review, as described below under "Conflicts of interest," and provide electronically a conflicts of interest report (the "Conflicts Report") to the Proxy Voting Director describing the results of the review. After receiving a referral item from the Proxy Voting Director, Putnam Management's investment professionals will provide a recommendation electronically to the Proxy Voting Director and the person or persons designated by the Legal and Compliance Department to assist in processing referral items. The recommendation will set forth (1) how the proxies should be voted; and (2) any contacts the investment professionals have had with respect to the referral item with non-investment personnel of Putnam Management or with outside parties (except for routine communications from proxy solicitors). The Proxy Voting Director will review the recommendation of Putnam Management's investment professionals (and the related Conflicts Report) in determining how to vote the funds' proxies. The Proxy Voting Director will maintain a record of all proxy questions that have been referred to Putnam Management's investment professionals, the voting recommendation, and the Conflicts Report. An exception to this referral process is that the Proxy Voting Director will not refer proxy questions in respect of portfolio securities that are held only in funds sub-advised by PanAgora Asset Management, Inc.

In some situations, the Proxy Voting Director may determine that a particular proxy question raises policy issues requiring consultation with the Chair of the Board Policy and Nominating Committee, who, in turn, may decide to bring the particular proxy question to the Committee or the full Board of Trustees for consideration.

### *Conflicts of interest*

Occasions may arise where a person or organization involved in the proxy voting process may have a conflict of interest. A conflict of interest may exist, for example, if Putnam Management has a business relationship with (or is actively soliciting business from) either the company soliciting the proxy or a third party that has a material interest in the outcome of a proxy vote or that is actively lobbying for a particular outcome of a proxy vote. Any individual with knowledge of a personal conflict of interest (e.g., familial relationship with company management or a significant personal investment in the company) relating to a particular referral item shall disclose that conflict to the Proxy Voting Director and the Legal and Compliance Department and may be asked to remove himself or herself from the proxy voting process. The Legal and Compliance Department will review each item referred to Putnam Management's investment professionals to determine if a conflict of interest exists and will provide the Proxy Voting Director with a Conflicts Report for each referral item that: (1) describes any conflict of interest; (2) discusses the procedures used to address such conflict of interest; and (3) discloses any contacts from parties outside Putnam Management (other than routine communications from proxy solicitors) with respect to the referral item not otherwise reported in an investment

professional's recommendation. The Conflicts Report will also include written confirmation that any recommendation from an investment professional provided under circumstances where a conflict of interest exists was made solely on the investment merits and without regard to any other consideration.

*As adopted March 11, 2005 and revised June 12, 2009, January 24, 2014 and June 23, 2017.*

Appendix B