

Putnam Variable Trust

Putnam VT Research Fund

Annual report

12 | 31 | 23

Message from the Trustees

February 6, 2024

Dear Shareholder:

With the new year comes new beginnings. We are pleased to report that on January 1, 2024, Franklin Resources, Inc., a leading global asset management firm operating as Franklin Templeton, acquired Putnam Investments.

With complementary capabilities and an established infrastructure serving over 150 countries, Franklin Templeton enhances Putnam's investment, risk management, operations, and technology platforms. Together, our firms are committed to delivering strong fund performance and more choices for our investors.

As we enter this new chapter, you can rest assured that your fund continues to be actively managed by the same experienced professionals. Your investment team is exploring new and attractive opportunities for your fund, while monitoring changing market conditions. The following pages provide an update on your fund.

Thank you for investing with Putnam.

Respectfully yours,



Robert L. Reynolds
President, The Putnam Funds



Kenneth R. Leibler
Chair, Board of Trustees

Performance summary (as of 12/31/23)

Investment objective

Capital appreciation

Net asset value December 31, 2023

Class IA: \$34.91

Class IB: \$34.69

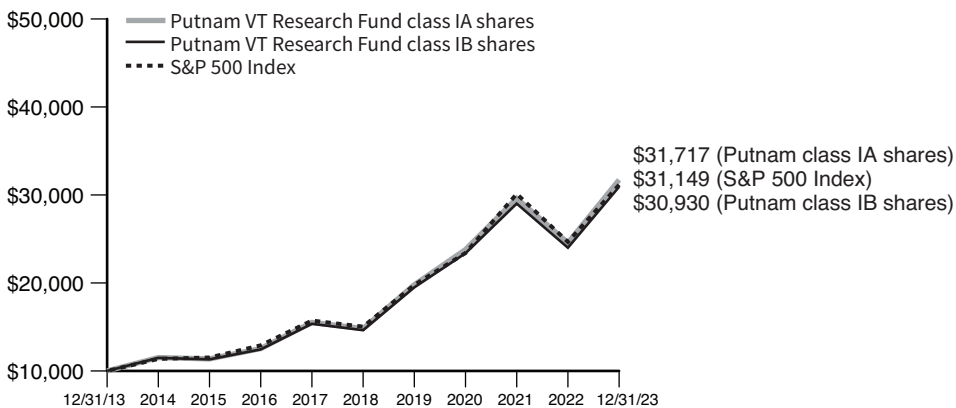
Annualized total return at net asset value (as of 12/31/23)

	Class IA shares (9/30/98)	Class IB shares (9/30/98)	S&P 500 Index
1 year	29.16%	28.86%	26.29%
5 years	16.45	16.15	15.69
10 years	12.24	11.95	12.03
Life of fund	8.14	7.88	8.31

For a portion of the periods, the fund had expense limitations, without which returns would have been lower.

Recent performance may have benefited from one or more legal settlements.

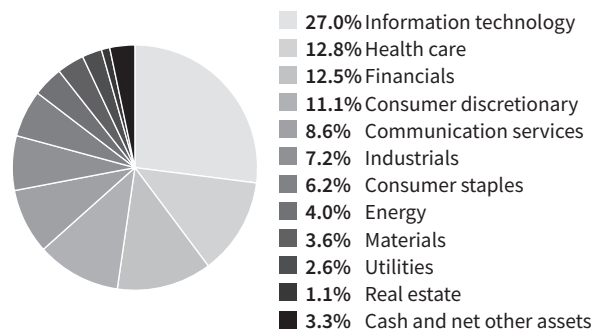
Cumulative total returns of a \$10,000 investment in class IA and class IB shares at net asset value — since 12/31/13



The S&P 500® Index is an unmanaged index of common stock performance.

Data represent past performance. Past performance does not guarantee future results. More recent returns may be less or more than those shown. Investment return and principal value will fluctuate, and you may have a gain or a loss when you sell your shares. Performance information does not reflect any deduction for taxes a shareholder may owe on fund distributions or on the redemption of fund shares. All total return figures are at net asset value and exclude contract charges and expenses, which are added to the variable annuity contracts to determine total return at unit value. Had these charges and expenses been reflected, performance would have been lower. For more recent performance, contact your variable annuity provider who can provide you with performance that reflects the charges and expenses at your contract level.

Portfolio composition



Allocations are shown as a percentage of the fund's net assets. Cash and net other assets, if any, represent the market value weights of cash, derivatives, short-term securities, and other unclassified assets in the portfolio. Summary information may differ from the portfolio schedule included in the financial statements due to the inclusion of derivative securities, any interest accruals, the exclusion of as-of trades, if any, the use of different classifications of securities for presentation purposes, and rounding. Holdings and allocations may vary over time. Due to rounding, percentages may not equal 100%.

Report from your fund's managers

Please describe the investing environment for the 12-month reporting period ended December 31, 2023.

Stocks began 2023 on solid ground. In January, China shed the last of its Covid-19 restrictions. U.S. inflation declined for the sixth consecutive month, and the U.S. Federal Reserve continued to reduce the size and pace of its interest-rate hikes. A strong labor market kept the U.S. economy in expansion. Better-than-expected corporate earnings also improved investor sentiment.

In February, a real-estate crisis in China stalled its economic recovery. In March, several regional U.S. bank failures also cautioned investors. Inflation continued to ease but remained above the Fed's 2% target rate. The Fed indicated it would likely keep interest rates higher for longer, which added to stock market volatility.

After pausing its tightening in June, the Fed raised rates in July, bringing its cost of borrowing to a 22-year high of 5.25%–5.50%. Stocks slumped from late summer to early fall given an uncertain economic outlook and higher interest rates. At its meetings in September through December, the Fed held interest rates steady, and investor optimism improved. Stocks approached record highs in the final quarter of calendar 2023, after the Fed suggested it would make three rate cuts in calendar 2024.

How did Putnam VT Research Fund perform for the reporting period?

The fund's class IA shares returned 29.16%, outperforming the S&P 500 Index, which returned 26.29% for the period.

What were some top contributors to fund performance relative to the benchmark for the reporting period?

A relative overweight position in PulteGroup, a leading U.S. home construction group, was a top contributor to fund returns. Many homeowners who locked in ultra-low mortgage rates during the pandemic saw their home prices appreciate in recent years. In calendar 2023, higher interest rates and affordability constraints prevented many people from selling their homes. This created a deficit of inventory in the U.S. residential housing market. Limited supply drove up demand for new home builders like PulteGroup, and its stock appreciated.

Salesforce, a cloud-based enterprise software provider, also was a top performer for the fund. Historically, Salesforce's annual growth rate topped 20%, but had declined during a difficult calendar 2022. Rising interest rates and economic uncertainty curbed business expenditures on software products in general. In calendar 2023, Salesforce focused on reducing its spending to improve its bottom line. These efforts began to pay off when management raised its fourth-quarter fiscal 2024 guidance upwards, which exceeded analysts' expectations. Salesforce's stock gained 70% in calendar 2023, which benefited our relative overweight position in the stock.

What were some top detractors from fund performance relative to the benchmark for the reporting period?

An overweight position in Exxon Mobil was a top detractor from fund performance. A broad decline in the energy sector, caused by weakening oil and gas prices, was a drag on Exxon's performance. In October 2023, Exxon announced its plans to acquire Pioneer Natural Resources in an all-stock transaction. Some investors viewed the deal unfavorably, and Exxon's stock declined. We believe the merger presents several benefits, including the potential to double Exxon's footprint in the Permian Basin as well as create synergistic revenue streams and meaningful upstream growth. We also like Exxon's commitment to returning capital to shareholders through dividends and buybacks. We believe Exxon has long-term growth prospects, and it remains in our portfolio.

An underweight position relative to the benchmark in Apple Inc. was another detractor. The technology giant's stock outperformed the S&P 500 Index for the full calendar year 2023. With a \$1 trillion valuation, Apple remains overvalued, in our view. We continue to focus on investing in companies that we believe have more attractive valuations and potential for upside.

As the fund begins a new fiscal year, what is your outlook?

As we move into 2024, lingering concerns about inflation, the labor market, and a potential recession could impact earnings growth, in our view. In terms of valuation, rising interest rates put a lid on price/earnings multiples in calendar 2023 as bonds became more competitive with stocks. However, we believe a recent retreat in the 10-year U.S. Treasury yield could support growth multiples going forward.

As active managers, we are focused on delivering consistent benchmark outperformance under varying market conditions. For the portfolio, we continue to use deep fundamental research to identify companies and their stock-specific risks. Our goal is to create a diversified portfolio that can achieve consistent capital appreciation.

The foregoing information reflects our views, which are subject to change. They are not meant as investment advice. Please note that the holdings discussed in this report may not have been held by the fund for the entire period. Portfolio composition is subject to review in accordance with the fund's investment strategy and may vary in the future.

Your fund's managers



Portfolio Manager **Kathryn B. Lakin** is Director of Equity Research. She joined Putnam in 2012 and has been in the investment industry since 2008.

Jacquelyne J. Cavanaugh; William C. Rives, CFA; Andrew N. O'Brien, CFA; and Walter D. Scully, CPA, are also Portfolio Managers of the fund.

Your fund's managers also manage other accounts advised by Putnam Investments or an affiliate, including retail mutual fund counterparts to the funds in Putnam Variable Trust.

Understanding your fund's expenses

As an investor in a variable annuity product that invests in a registered investment company, you pay ongoing expenses, such as management fees, distribution fees (12b-1 fees), and other expenses. Using the following information, you can estimate how these expenses affect your investment and compare them with the expenses of other funds. You may also pay one-time transaction expenses, which are not shown in this section and would result in higher total expenses. Charges and expenses at the insurance company separate account level are not reflected. For more information, see your fund's prospectus or talk to your financial representative.

Review your fund's expenses

The two left-hand columns of the Expenses per \$1,000 table show the expenses you would have paid on a \$1,000 investment in your fund from 7/1/23 to 12/31/23. They also show how much a \$1,000 investment would be worth at the close of the period, assuming *actual returns* and expenses. To estimate the ongoing expenses you paid over the period, divide your account value by \$1,000, then multiply the result by the number in the first line for the class of shares you own.

Compare your fund's expenses with those of other funds

The two right-hand columns of the Expenses per \$1,000 table show your fund's expenses based on a \$1,000 investment, assuming a *hypothetical 5% annualized return*. You can use this information to compare the ongoing expenses (but not transaction expenses or total costs) of investing in the fund with those of other funds. All shareholder reports of mutual funds and funds serving as variable annuity vehicles will provide this information to help you make this comparison. Please note that you cannot use this information to estimate your actual ending account balance and expenses paid during the period.

Expense ratios

	Class IA	Class IB
Total annual operating expenses for the fiscal year ended 12/31/22*	0.75%	1.00%
Annualized expense ratio for the six-month period ended 12/31/23†	0.73%	0.98%

Fiscal year expense information in this table is taken from the most recent prospectus, is subject to change, and may differ from that shown for the annualized expense ratio and in the financial highlights of this report.

Expenses are shown as a percentage of average net assets.

*Restated to reflect current fees.

†Expense ratios for each class are for the fund's most recent fiscal half year. As a result of this, ratios may differ from expense ratios based on one-year data in the financial highlights.

Expenses per \$1,000

	Expenses and value for a \$1,000 investment, assuming actual returns for the 6 months ended 12/31/23		Expenses and value for a \$1,000 investment, assuming a hypothetical 5% annualized return for the 6 months ended 12/31/23	
	Class IA	Class IB	Class IA	Class IB
Expenses paid per \$1,000*†	\$3.86	\$5.17	\$3.72	\$4.99
Ending value (after expenses)	\$1,095.40	\$1,094.00	\$1,021.53	\$1,020.27

*Expenses for each share class are calculated using the fund's annualized expense ratio for each class, which represents the ongoing expenses as a percentage of average net assets for the six months ended 12/31/23. The expense ratio may differ for each share class.

†Expenses based on actual returns are calculated by multiplying the expense ratio by the average account value for the period; then multiplying the result by the number of days in the period (184); and then dividing that result by the number of days in the year (365). Expenses based on a hypothetical 5% return are calculated by multiplying the expense ratio by the average account value for the six-month period; then multiplying the result by the number of days in the six-month period (184); and then dividing that result by the number of days in the year (365).

Report of Independent Registered Public Accounting Firm

To the Board of Trustees of Putnam Variable Trust and Shareholders of
Putnam VT Research Fund:

Opinion on the Financial Statements

We have audited the accompanying statement of assets and liabilities, including the fund's portfolio, of Putnam VT Research Fund (one of the funds constituting Putnam Variable Trust, referred to hereafter as the "Fund") as of December 31, 2023, the related statement of operations for the year ended December 31, 2023, the statement of changes in net assets for each of the two years in the period ended December 31, 2023, including the related notes, and the financial highlights for each of the five years in the period ended December 31, 2023 (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Fund as of December 31, 2023, the results of its operations for the year then ended, the changes in its net assets for each of the two years in the period ended December 31, 2023 and the financial highlights for each of the five years in the period ended December 31, 2023 in conformity with accounting principles generally accepted in the United States of America.

Basis for Opinion

These financial statements are the responsibility of the Fund's management. Our responsibility is to express an opinion on the Fund's financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) ("PCAOB") and are required to be independent with respect to the Fund in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits of these financial statements in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. Our procedures included confirmation of securities owned as of December 31, 2023 by correspondence with the custodian, transfer agent and brokers; when replies were not received from brokers, we performed other auditing procedures. We believe that our audits provide a reasonable basis for our opinion.

PricewaterhouseCoopers LLP
Boston, Massachusetts
February 6, 2024

We have served as the auditor of one or more investment companies in the Putnam Funds family of funds since at least 1957. We have not been able to determine the specific year we began serving as auditor.

The fund's portfolio 12/31/23

COMMON STOCKS (96.7%)*	Shares	Value
Aerospace and defense (1.2%)		
Boeing Co. (The) †	473	\$123,292
Howmet Aerospace, Inc.	3,784	204,790
Northrop Grumman Corp.	940	440,052
RTX Corp.	2,686	226,000
		994,134
Air freight and logistics (0.8%)		
FedEx Corp.	2,528	639,508
		639,508
Automobiles (1.5%)		
General Motors Co.	2,704	97,128
Tesla, Inc. †	4,480	1,113,190
		1,210,318
Banks (2.1%)		
Bank of America Corp.	18,539	624,208
Citigroup, Inc.	20,625	1,060,950
		1,685,158
Beverages (2.2%)		
Coca-Cola Co. (The)	12,095	712,758
PepsiCo, Inc.	6,039	1,025,664
		1,738,422
Biotechnology (2.2%)		
AbbVie, Inc.	6,659	1,031,945
Ascendis Pharma A/S ADR (Denmark) †	2,270	285,907
Biogen, Inc. †	762	197,183
Regeneron Pharmaceuticals, Inc. †	263	230,990
		1,746,025
Broadline retail (3.9%)		
Amazon.com, Inc. †	20,462	3,108,996
		3,108,996
Building products (0.6%)		
Johnson Controls International PLC	8,424	485,559
		485,559
Capital markets (3.7%)		
Charles Schwab Corp. (The)	12,216	840,461
Goldman Sachs Group, Inc. (The)	2,563	988,729
KKR & Co., Inc.	5,868	486,164
Quilter PLC (United Kingdom)	139,811	183,239
S&P Global, Inc.	1,061	467,392
		2,965,985
Chemicals (1.9%)		
Corteva, Inc.	5,131	245,878
DuPont de Nemours, Inc.	3,695	284,256
Eastman Chemical Co.	2,219	199,311
Linde PLC	370	151,963
PPG Industries, Inc.	1,637	244,813
Sherwin-Williams Co. (The)	1,317	410,772
		1,536,993
Construction materials (0.4%)		
CRH PLC (Ireland)	4,211	291,233
		291,233
Consumer finance (0.3%)		
Capital One Financial Corp.	2,101	275,483
		275,483
Consumer staples distribution and retail (2.0%)		
BJ's Wholesale Club Holdings, Inc. †	1,156	77,059
Costco Wholesale Corp.	785	518,163
Target Corp.	2,124	302,500
Walmart, Inc.	4,725	744,896
		1,642,618

COMMON STOCKS (96.7%)* cont.	Shares	Value
Containers and packaging (0.7%)		
Avery Dennison Corp.	927	\$187,402
Ball Corp.	3,946	226,974
Berry Global Group, Inc.	2,155	145,225
		559,601
Electric utilities (2.2%)		
Exelon Corp.	8,306	298,185
NextEra Energy, Inc.	6,255	379,929
NRG Energy, Inc.	15,919	823,012
PG&E Corp. †	14,441	260,371
		1,761,497
Electronic equipment, instruments, and components (0.4%)		
Vontier Corp.	10,605	366,403
		366,403
Energy equipment and services (0.2%)		
Diamond Offshore Drilling, Inc. †	12,771	166,023
		166,023
Entertainment (0.8%)		
Netflix, Inc. †	801	389,991
Walt Disney Co. (The) †	3,169	286,129
		676,120
Financial services (3.5%)		
Apollo Global Management, Inc. \$	7,492	698,179
Mastercard, Inc. Class A	3,200	1,364,832
Visa, Inc. Class A	2,756	717,525
		2,780,536
Food products (0.2%)		
General Mills, Inc.	3,076	200,371
		200,371
Ground transportation (1.3%)		
Canadian Pacific Kansas City, Ltd. (Canada) \$	3,820	302,009
Hertz Global Holdings, Inc. † \$	17,888	185,856
Union Pacific Corp.	2,117	519,978
		1,007,843
Health care equipment and supplies (2.2%)		
Abbott Laboratories	2,293	252,391
Boston Scientific Corp. †	7,753	448,201
Dexcom, Inc. †	2,312	286,896
IDEXX Laboratories, Inc. †	81	44,959
Intuitive Surgical, Inc. †	1,203	405,844
Medtronic PLC	1,327	109,318
Stryker Corp.	795	238,071
		1,785,680
Health care providers and services (3.6%)		
Cigna Group (The)	537	160,805
Elevance Health, Inc.	232	109,402
Humana, Inc.	1,184	542,047
McKesson Corp.	1,382	639,838
UnitedHealth Group, Inc.	2,743	1,444,107
		2,896,199
Hotels, restaurants, and leisure (1.8%)		
Booking Holdings, Inc. †	185	656,236
Chipotle Mexican Grill, Inc. †	166	379,635
Hilton Worldwide Holdings, Inc.	2,171	395,317
		1,431,188
Household durables (1.1%)		
PulteGroup, Inc.	8,315	858,274
		858,274
Household products (1.5%)		
Procter & Gamble Co. (The)	8,007	1,173,346
		1,173,346

COMMON STOCKS (96.7%)* cont.	Shares	Value
Industrial conglomerates (0.7%)		
General Electric Co.	1,246	\$159,027
Honeywell International, Inc.	2,108	442,069
		601,096
Insurance (2.9%)		
AIA Group, Ltd. (Hong Kong)	58,400	507,228
Assured Guaranty, Ltd.	12,066	902,899
AXA SA (France)	15,972	521,372
Prudential PLC (United Kingdom)	37,106	417,707
		2,349,206
Interactive media and services (6.2%)		
Alphabet, Inc. Class A †	23,096	3,226,280
Meta Platforms, Inc. Class A †	5,065	1,792,807
		5,019,087
Life sciences tools and services (1.5%)		
Bio-Rad Laboratories, Inc. Class A †	500	161,445
Danaher Corp.	1,732	400,681
ICON PLC (Ireland) †	176	49,820
Mettler-Toledo International, Inc. †	82	99,463
Thermo Fisher Scientific, Inc.	987	523,890
		1,235,299
Machinery (1.7%)		
Fortive Corp.	4,865	358,210
Ingersoll Rand, Inc.	4,507	348,571
Otis Worldwide Corp.	7,236	647,405
		1,354,186
Media (0.7%)		
Charter Communications, Inc. Class A †	1,526	593,126
		593,126
Metals and mining (0.7%)		
Agnico-Eagle Mines, Ltd. (Canada)	4,884	267,781
Anglo American PLC (United Kingdom)	3,157	79,219
Glencore PLC (United Kingdom)	30,974	185,820
		532,820
Multi-utilities (0.4%)		
Ameren Corp.	2,445	176,871
Dominion Energy, Inc.	2,531	118,957
		295,828
Office REITs (0.3%)		
Vornado Realty Trust ^{RS}	8,061	227,723
		227,723
Oil, gas, and consumable fuels (3.8%)		
BP PLC (United Kingdom)	39,924	235,932
Cenovus Energy, Inc. (Canada)	27,160	452,581
ConocoPhillips	4,352	505,137
Exxon Mobil Corp.	14,220	1,421,716
Shell PLC (United Kingdom)	12,540	407,414
		3,022,780
Passenger airlines (0.2%)		
Southwest Airlines Co.	7,145	206,348
		206,348
Personal care products (0.3%)		
Kenvue, Inc.	10,276	221,242
		221,242
Pharmaceuticals (3.2%)		
4Front Ventures Corp. †	252,907	25,114
Eli Lilly and Co.	1,463	852,812
Innoviva, Inc. †	23,790	381,592
Johnson & Johnson	3,247	508,935
Merck & Co., Inc.	6,337	690,860
Zoetis, Inc.	734	144,870
		2,604,183

COMMON STOCKS (96.7%)* cont.	Shares	Value		
Semiconductors and semiconductor equipment (8.3%)				
Advanced Micro Devices, Inc. †	11,009	\$1,622,837		
Broadcom, Inc.	1,573	1,755,861		
NVIDIA Corp.	4,747	2,350,809		
Qualcomm, Inc.	6,752	976,542		
		6,706,049		
Software (12.6%)				
Adobe, Inc. †	1,300	775,580		
Microsoft Corp.	16,739	6,294,534		
Oracle Corp.	17,079	1,800,636		
Salesforce, Inc. †	4,771	1,255,441		
		10,126,191		
Specialized REITs (0.8%)				
American Tower Corp. ^R	444	95,851		
Gaming and Leisure Properties, Inc. ^R	10,743	530,167		
		626,018		
Specialty retail (2.3%)				
CarMax, Inc. † ^S	2,461	188,857		
Home Depot, Inc. (The)	3,795	1,315,157		
O'Reilly Automotive, Inc. †	167	158,663		
TJX Cos., Inc. (The)	1,704	159,852		
Warby Parker, Inc. Class A †	1,956	27,580		
		1,850,109		
Technology hardware, storage, and peripherals (5.7%)				
Apple, Inc.	19,097	3,676,745		
Seagate Technology Holdings PLC	10,307	879,909		
		4,556,654		
Textiles, apparel, and luxury goods (0.6%)				
Levi Strauss & Co. Class A ^S	4,360	72,114		
Lululemon Athletica, Inc. (Canada) †	309	157,989		
Nike, Inc. Class B	2,424	263,174		
		493,277		
Trading companies and distributors (0.7%)				
United Rentals, Inc.	935	536,148		
		536,148		
Wireless telecommunication services (0.8%)				
T-Mobile US, Inc.	4,196	672,745		
		672,745		
Total common stocks (cost \$51,217,286)		\$77,813,628		
PURCHASED OPTIONS	Expiration			
OUTSTANDING (—%)*	date/strike			
Counterparty	price	Notional	Contract	
		amount	amount	
			Value	
UBS AG				
BP PLC (Call)	Jun-24/\$45.00	\$134,555	\$3,801	\$666
Hertz Global Holdings, Inc. (Call)	Jun-24/25.00	71,691	6,900	429
Total purchased options outstanding (cost \$9,178)				\$1,095
			Principal	
			amount/	
			shares	Value
SHORT-TERM INVESTMENTS (5.3%)*				
Putnam Cash Collateral Pool, LLC 5.59% ^d Shares		1,558,400		\$1,558,400
Putnam Short Term Investment Fund Class P 5.53% ^L	Shares	2,594,949		2,594,949
U.S. Treasury Bills 5.394%, 2/22/24 [#]		\$100,000		99,257
Total short-term investments (cost \$4,252,592)				\$4,252,606
Total investments (cost \$55,479,056)				\$82,067,329

Key to holding's abbreviations

ADR American Depository Receipts: Represents ownership of foreign securities on deposit with a custodian bank.

Notes to the fund's portfolio

Unless noted otherwise, the notes to the fund's portfolio are for the close of the fund's reporting period, which ran from January 1, 2023 through December 31, 2023 (the reporting period). Within the following notes to the portfolio, references to "Putnam Management" represent Putnam Investment Management, LLC, the fund's manager, an indirect wholly-owned subsidiary of Franklin Resources, Inc., and references to "ASC 820" represent Accounting Standards Codification 820 *Fair Value Measurements and Disclosures*.

* Percentages indicated are based on net assets of \$80,509,840.

† This security is non-income-producing.

This security, in part or in entirety, was pledged and segregated with the broker to cover margin requirements for futures contracts at the close of the reporting period. Collateral at period end totaled \$86,295 and is included in Investments in securities on the Statement of assets and liabilities (Notes 1 and 8).

d Affiliated company. See Notes 1 and 5 to the financial statements regarding securities lending. The rate quoted in the security description is the annualized 7-day yield of the fund at the close of the reporting period.

L Affiliated company (Note 5). The rate quoted in the security description is the annualized 7-day yield of the fund at the close of the reporting period.

R Real Estate Investment Trust.

S Security on loan, in part or in entirety, at the close of the reporting period (Note 1).

Unless otherwise noted, the rates quoted in Short-term investments security descriptions represent the weighted average yield to maturity.

The dates shown on debt obligations are the original maturity dates.

FORWARD CURRENCY CONTRACTS at 12/31/23 (aggregate face value \$4,122,080)

Counterparty	Currency	Contract type*	Delivery date	Value	Aggregate face value	Unrealized appreciation/(depreciation)
Bank of America N.A.						
	British Pound	Sell	3/20/24	\$256,047	\$253,162	\$(2,885)
	Canadian Dollar	Buy	1/17/24	47,028	44,405	2,623
	Danish Krone	Sell	3/20/24	173,797	169,876	(3,921)
	Euro	Sell	3/20/24	105,862	103,688	(2,174)
Barclays Bank PLC						
	British Pound	Sell	3/20/24	158,626	156,868	(1,758)
	Euro	Sell	3/20/24	155,249	152,073	(3,176)
Citibank, N.A.						
	Canadian Dollar	Sell	1/17/24	214,832	207,228	(7,604)
	Danish Krone	Sell	3/20/24	176,056	172,100	(3,956)
	Hong Kong Dollar	Sell	2/21/24	212,787	212,650	(137)
Goldman Sachs International						
	British Pound	Sell	3/20/24	603,775	596,896	(6,879)
	Euro	Sell	3/20/24	120,479	118,003	(2,476)
JPMorgan Chase Bank N.A.						
	Canadian Dollar	Sell	1/17/24	329,721	318,192	(11,529)
	Euro	Sell	3/20/24	94,678	92,731	(1,947)
Morgan Stanley & Co. International PLC						
	British Pound	Sell	3/20/24	187,317	185,242	(2,075)
	Hong Kong Dollar	Sell	2/21/24	166,658	166,432	(226)
NatWest Markets PLC						
	Canadian Dollar	Sell	1/17/24	145,159	140,104	(5,055)
State Street Bank and Trust Co.						
	British Pound	Sell	3/20/24	184,257	182,150	(2,107)
	Canadian Dollar	Sell	1/17/24	211,209	203,837	(7,372)
	Hong Kong Dollar	Sell	2/21/24	119,336	119,186	(150)
Toronto-Dominion Bank						
	Euro	Sell	3/20/24	236,639	238,134	1,495
UBSAG						
	Canadian Dollar	Sell	1/17/24	169,088	163,190	(5,898)
	Euro	Sell	3/20/24	128,563	125,933	(2,630)
Unrealized appreciation						4,118
Unrealized (depreciation)						(73,955)
Total						\$(69,837)

* The exchange currency for all contracts listed is the United States Dollar.

FUTURES CONTRACTS OUTSTANDING at 12/31/23	Number of contracts	Notional amount	Value	Expiration date	Unrealized appreciation
S&P 500 Index E-Mini (Long)	7	\$1,669,441	\$1,687,000	Mar-24	\$25,653
Unrealized appreciation					25,653
Unrealized (depreciation)					—
Total					\$25,653

WRITTEN OPTIONS OUTSTANDING at 12/31/23 (premiums \$3,596)	Expiration date/strike price	Notional Amount	Contract amount	Value
Counterparty				
UBSAG				
BP PLC (Call)	Jun-24/\$50.00	\$134,555	\$3,801	\$174
Hertz Global Holdings, Inc. (Call)	Jun-24/30.00	71,691	6,900	185
Total				\$359

ASC 820 establishes a three-level hierarchy for disclosure of fair value measurements. The valuation hierarchy is based upon the transparency of inputs to the valuation of the fund's investments. The three levels are defined as follows:

Level 1: Valuations based on quoted prices for identical securities in active markets.

Level 2: Valuations based on quoted prices in markets that are not active or for which all significant inputs are observable, either directly or indirectly.

Level 3: Valuations based on inputs that are unobservable and significant to the fair value measurement.

The following is a summary of the inputs used to value the fund's net assets as of the close of the reporting period:

Investments in securities:	Valuation inputs		
	Level 1	Level 2	Level 3
Common stocks*:			
Communication services	\$6,961,078	\$—	\$—
Consumer discretionary	8,952,162	—	—
Consumer staples	4,975,999	—	—
Energy	2,545,457	643,346	—
Financials	8,426,822	1,629,546	—
Health care	10,267,386	—	—
Industrials	5,824,822	—	—
Information technology	21,755,297	—	—
Materials	2,655,608	265,039	—
Real estate	853,741	—	—
Utilities	2,057,325	—	—
Total common stocks	75,275,697	2,537,931	—
Purchased options outstanding	—	1,095	—
Short-term investments	—	4,252,606	—
Totals by level	\$75,275,697	\$6,791,632	\$—

Other financial instruments:	Valuation inputs		
	Level 1	Level 2	Level 3
Forward currency contracts	\$—	\$(69,837)	\$—
Futures contracts	25,653	—	—
Written options outstanding	—	(359)	—
Totals by level	\$25,653	\$(70,196)	\$—

* Common stock classifications are presented at the sector level, which may differ from the fund's portfolio presentation.

The accompanying notes are an integral part of these financial statements.

Statement of assets and liabilities

12/31/23

Assets	
Investment in securities, at value, including \$1,502,649 of securities on loan (Note 1):	
Unaffiliated issuers (identified cost \$51,325,707)	\$77,913,980
Affiliated issuers (identified cost \$4,153,349) (Note 5)	4,153,349
Foreign currency (cost \$3) (Note 1)	3
Dividends, interest and other receivables	91,843
Receivable for shares of the fund sold	176,170
Unrealized appreciation on forward currency contracts (Note 1)	4,118
Total assets	82,339,463
Liabilities	
Payable for shares of the fund repurchased	42,300
Payable for compensation of Manager (Note 2)	36,556
Payable for custodian fees (Note 2)	6,747
Payable for investor servicing fees (Note 2)	8,964
Payable for Trustee compensation and expenses (Note 2)	38,059
Payable for administrative services (Note 2)	1,121
Payable for distribution fees (Note 2)	11,787
Payable for variation margin on futures contracts (Note 1)	4,255
Unrealized depreciation on forward currency contracts (Note 1)	73,955
Written options outstanding, at value (premiums \$3,596) (Note 1)	359
Collateral on securities loaned, at value (Note 1)	1,558,400
Other accrued expenses	47,120
Total liabilities	1,829,623
Net assets	\$80,509,840
Represented by	
Paid-in capital (Unlimited shares authorized) (Notes 1 and 4)	\$53,844,600
Total distributable earnings (Note 1)	26,665,240
Total — Representing net assets applicable to capital shares outstanding	\$80,509,840
Computation of net asset value Class IA	
Net assets	\$23,854,860
Number of shares outstanding	683,317
Net asset value, offering price and redemption price per share (net assets divided by number of shares outstanding)	\$34.91
Computation of net asset value Class IB	
Net assets	\$56,654,980
Number of shares outstanding	1,633,240
Net asset value, offering price and redemption price per share (net assets divided by number of shares outstanding)	\$34.69

The accompanying notes are an integral part of these financial statements.

Statement of operations

Year ended 12/31/23

Investment income

Dividends (net of foreign tax of \$6,776)	\$1,030,680
Interest (including interest income of \$89,309 from investments in affiliated issuers) (Note 5)	96,845
Securities lending (net of expenses) (Notes 1 and 5)	3,677
Total investment income	1,131,202

Expenses

Compensation of Manager (Note 2)	392,447
Investor servicing fees (Note 2)	49,941
Custodian fees (Note 2)	21,848
Trustee compensation and expenses (Note 2)	3,099
Distribution fees (Note 2)	123,012
Administrative services (Note 2)	2,380
Auditing and tax fees	34,566
Other	23,268
Total expenses	650,561
Expense reduction (Note 2)	(103)
Net expenses	650,458
Net investment income	480,744

Realized and unrealized gain (loss)

Net realized gain (loss) on:

Securities from unaffiliated issuers (Notes 1 and 3)	846,182
Foreign currency transactions (Note 1)	158
Forward currency contracts (Note 1)	(13,118)
Futures contracts (Note 1)	40,165
Written options (Note 1)	2,109
Total net realized gain	875,496

Change in net unrealized appreciation (depreciation) on:

Securities from unaffiliated issuers	16,743,327
Assets and liabilities in foreign currencies	67
Forward currency contracts	(46,601)
Futures contracts	83,497
Written options	3,237
Total change in net unrealized appreciation	16,783,527
Net gain on investments	17,659,023
Net increase in net assets resulting from operations	\$18,139,767

The accompanying notes are an integral part of these financial statements.

Statement of changes in net assets

	Year ended 12/31/23	Year ended 12/31/22
Increase (decrease) in net assets		
Operations:		
Net investment income	\$480,744	\$370,042
Net realized gain (loss) on investments and foreign currency transactions	875,496	(745,994)
Change in net unrealized appreciation (depreciation) of investments and assets and liabilities in foreign currencies	16,783,527	(12,162,300)
Net increase (decrease) in net assets resulting from operations	18,139,767	(12,538,252)
Distributions to shareholders (Note 1):		
From ordinary income		
Net investment income		
Class IA	(223,851)	(197,093)
Class IB	(384,912)	(264,785)
Net realized short-term gain on investments		
Class IA	—	(508,926)
Class IB	—	(926,901)
From capital gain on investments		
Net realized long-term gain on investments		
Class IA	—	(1,043,245)
Class IB	—	(1,900,050)
Increase (decrease) from capital share transactions (Note 4)	(123,252)	7,817,293
Total increase (decrease) in net assets	17,407,752	(9,561,959)
Net assets:		
Beginning of year	63,102,088	72,664,047
End of year	\$80,509,840	\$63,102,088

The accompanying notes are an integral part of these financial statements.

Financial highlights

(For a common share outstanding throughout the period)

Period ended	INVESTMENT OPERATIONS:				LESS DISTRIBUTIONS:			RATIOS AND SUPPLEMENTAL DATA:					
	Net asset value, beginning of period	Net investment income (loss) ^a	Net realized and unrealized gain (loss) on investments	Total from investment operations	From net investment income	From net realized gain on investments	Total distributions	Net asset value, end of period	Total return at net asset value (%) ^{b,c}	Net assets, end of period (in thousands)	Ratio of expenses to average net assets (%) ^{b,d}	Ratio of net investment income (loss) to average net assets (%)	Portfolio turnover (%)
Class IA													
12/31/23	\$27.32	.26	7.64	7.90	(.31)	—	(.31)	\$34.91	29.16	\$23,855	.74	.85	34
12/31/22	35.41	.21	(5.93)	(5.72)	(.27)	(2.10)	(2.37)	27.32	(17.07)	20,807	.76 ^e	.74	40
12/31/21	30.80	.18	6.90	7.08	(.10)	(2.37)	(2.47)	35.41	24.44	26,877	.73	.55	45
12/31/20	29.95	.19	4.21	4.40	(.25)	(3.30)	(3.55)	30.80	20.23	23,098	.82 ^f	.72 ^f	74
12/31/19	25.60	.28	7.65	7.93	(.41)	(3.17)	(3.58)	29.95	33.59	21,027	.78	1.03	77
Class IB													
12/31/23	\$27.15	.18	7.60	7.78	(.24)	—	(.24)	\$34.69	28.86	\$56,655	.99	.60	34
12/31/22	35.22	.14	(5.91)	(5.77)	(.20)	(2.10)	(2.30)	27.15	(17.28)	42,295	1.01 ^e	.49	40
12/31/21	30.66	.10	6.86	6.96	(.03)	(2.37)	(2.40)	35.22	24.13	45,787	.98	.29	45
12/31/20	29.81	.13	4.19	4.32	(.17)	(3.30)	(3.47)	30.66	19.92	29,115	1.07 ^f	.47 ^f	74
12/31/19	25.49	.21	7.61	7.82	(.33)	(3.17)	(3.50)	29.81	33.24	26,622	1.03	.78	77

^a Per share net investment income (loss) has been determined on the basis of the weighted average number of shares outstanding during the period.

^b The charges and expenses at the insurance company separate account level are not reflected.

^c Total return assumes dividend reinvestment.

^d Includes amounts paid through expense offset and/or brokerage/service arrangements, if any (Note 2). Also excludes acquired fund fees and expenses, if any.

^e Includes one-time proxy cost which amounted to 0.01%.

^f Reflects a voluntary waiver of certain fund expenses in effect during the period. As a result of such waiver, the expenses of each class reflect a reduction of 0.01% as a percentage of average net assets.

The accompanying notes are an integral part of these financial statements.

Notes to financial statements 12/31/23

Unless otherwise noted, the “reporting period” represents the period from January 1, 2023 through December 31, 2023. The following table defines commonly used references within the Notes to financial statements:

References to	Represent
Franklin Templeton	Franklin Resources, Inc.
JPMorgan	JPMorgan Chase Bank, N.A.
OTC	over-the-counter
PAC	The Putnam Advisory Company, LLC, an affiliate of Putnam Management
PIL	Putnam Investments Limited, an affiliate of Putnam Management
Putnam Management	Putnam Investment Management, LLC, the fund’s manager, an indirect wholly-owned subsidiary of Franklin Templeton
SEC	Securities and Exchange Commission
State Street	State Street Bank and Trust Company

Putnam VT Research Fund (the fund) is a diversified series of Putnam Variable Trust (the Trust), a Massachusetts business trust registered under the Investment Company Act of 1940, as amended, as an open-end management investment company. The goal of the fund is to seek capital appreciation. The fund invests mainly in common stocks (growth or value stocks or both) of large U.S. companies that Putnam Management believes have favorable investment potential. For example, the fund may purchase stocks of companies with stock prices that reflect a value lower than that which Putnam Management places on the company. Putnam Management may also consider other factors that Putnam Management believes will cause the stock price to rise and may consider, among other factors, a company’s valuation, financial strength, growth potential, competitive position in its industry, projected future earnings, cash flows and dividends when deciding whether to buy or sell investments.

The fund offers class IA and class IB shares of beneficial interest. Class IA shares are offered at net asset value and are not subject to a distribution fee. Class IB shares are offered at net asset value and pay an ongoing distribution fee, which is identified in Note 2.

In the normal course of business, the fund enters into contracts that may include agreements to indemnify another party under given circumstances. The fund’s maximum exposure under these arrangements is unknown as this would involve future claims that may be, but have not yet been, made against the fund. However, the fund’s management team expects the risk of material loss to be remote.

The 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 Amended and Restated Agreement and Declaration of Trust, any claims asserted by a shareholder against or on behalf of the Trust (or its series), including claims against Trustees and Officers, must be brought in state and federal courts located within the Commonwealth of Massachusetts.

Note 1 — Significant accounting policies

The fund follows the accounting and reporting guidance in Financial Accounting Standards Board (FASB) Accounting Standards Codification Topic 946, *Financial Services – Investment Companies* (ASC 946) and applies the specialized accounting and reporting guidance in U.S. Generally Accepted Accounting Principles (U.S. GAAP), including, but not limited to, ASC 946. The following is a summary of significant accounting policies consistently followed by the fund in the preparation of its financial statements. The preparation of financial statements is in conformity with accounting principles generally accepted in the United States of America and requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities in the financial statements and the reported amounts of increases and decreases in net assets from operations. Actual results could differ from those estimates. Subsequent events after the Statement of assets and liabilities date through the date that the financial statements were issued have been evaluated in the preparation of the financial statements.

Investment income, realized and unrealized gains and losses and expenses of the fund are borne pro-rata based on the relative net assets of each class to the total net assets of the fund, except that each class bears expenses unique to that class (including the distribution fees applicable to such classes). Each class votes as a class only with respect to its own distribution plan or other matters on which a class vote is required by law or determined by the Trustees. If the fund were liquidated, shares of each class would receive their pro-rata share of the net assets of the fund. In addition, the Trustees declare separate dividends on each class of shares.

Security valuation Portfolio securities and other investments are valued using policies and procedures adopted by the Board of Trustees. The Trustees have formed a Pricing Committee to oversee the implementation of these procedures and have delegated responsibility for valuing the fund’s assets in accordance with these procedures to Putnam Management. Putnam Management has established an internal Valuation Committee that is responsible for making fair value determinations, evaluating the effectiveness of the pricing policies of the fund and reporting to the Pricing Committee.

Investments for which market quotations are readily available are valued at the last reported sales price on their principal exchange, or official closing price for certain markets, and are classified as Level 1 securities under Accounting Standards Codification 820 *Fair Value Measurements and Disclosures* (ASC 820). If no sales are reported, as in the case of some securities that are traded OTC, a security is valued at its last reported bid price and is generally categorized as a Level 2 security.

Investments in open-end investment companies (excluding exchange-traded funds), if any, which can be classified as Level 1 or Level 2 securities, are valued based on their net asset value. The net asset value of such investment companies equals the total value of their assets less their liabilities and divided by the number of their outstanding shares.

Market quotations are not considered to be readily available for certain debt obligations (including short-term investments with remaining maturities of 60 days or less) and other investments; such investments are valued on the basis of valuations furnished by an independent pricing service approved by the Trustees or dealers selected by Putnam Management. Such services or dealers determine valuations for normal institutional-size trading units of such securities using methods based on market transactions for comparable securities and various relationships, generally recognized by institutional traders, between securities (which consider such factors as security prices, yields, maturities and ratings). These securities will generally be categorized as Level 2.

Many securities markets and exchanges outside the U.S. close prior to the scheduled close of the New York Stock Exchange and therefore the closing prices for securities in such markets or on such exchanges may not fully reflect events that occur after such close but before the scheduled close of the New York Stock Exchange. Accordingly, on certain days, the fund will fair value certain foreign equity securities taking into account multiple factors including movements in the U.S. securities markets, currency valuations and comparisons to the valuation of American Depositary Receipts, exchange-traded funds and futures contracts. The foreign equity securities, which would generally be classified as Level 1 securities, will be transferred to Level 2 of the fair value hierarchy when they are valued at fair value. The number of days on which fair value prices will be used will depend on market activity and it is possible that fair value prices will be used by the fund to a significant extent. At the close of the reporting period, fair value pricing was used for certain foreign securities in the portfolio. Securities quoted in foreign currencies, if any, are translated into U.S. dollars at the current exchange rate.

To the extent a pricing service or dealer is unable to value a security or provides a valuation that Putnam Management does not believe accurately reflects the security’s fair value, the security will be valued at fair value by Putnam Management, which has been designated as valuation designee pursuant to Rule 2a–5 under the Investment Company Act of 1940, in accordance with policies and procedures approved by the Trustees. Certain investments, including certain restricted and illiquid securities and derivatives, are also valued at fair value following procedures approved by the Trustees. These valuations consider such factors as significant market or specific security events such as interest rate or credit quality changes, various relationships with other securities, discount rates, U.S. Treasury, U.S. swap and credit yields, index levels, convexity exposures, recovery rates, sales and other multiples and resale restrictions. These securities are classified as Level 2 or as Level 3 depending on the priority of the significant inputs.

To assess the continuing appropriateness of fair valuations, the Valuation Committee reviews and affirms the reasonableness of such valuations on a regular

basis after considering all relevant information that is reasonably available. Such valuations and procedures are reviewed periodically by the Trustees. 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 in a current sale and does not reflect an actual market price, which may be different by a material amount.

Security transactions and related investment income Security transactions are recorded on the trade date (the date the order to buy or sell is executed). Gains or losses on securities sold are determined on the identified cost basis.

Interest income, net of any applicable withholding taxes, if any, is recorded on the accrual basis. Amortization and accretion of premiums and discounts on debt securities, if any, is recorded on the accrual basis.

Dividend income, net of any applicable withholding taxes, is recognized on the ex-dividend date except that certain dividends from foreign securities, if any, are recognized as soon as the fund is informed of the ex-dividend date. Non-cash dividends, if any, are recorded at the fair value of the securities received. Dividends representing a return of capital or capital gains, if any, are reflected as a reduction of cost and/or as a realized gain.

Foreign currency translation The accounting records of the fund are maintained in U.S. dollars. The fair value of foreign securities, currency holdings, and other assets and liabilities is recorded in the books and records of the fund after translation to U.S. dollars based on the exchange rates on that day. The cost of each security is determined using historical exchange rates. Income and withholding taxes are translated at prevailing exchange rates when earned or incurred. The fund does not isolate that portion of realized or unrealized gains or losses resulting from changes in the foreign exchange rate on investments from fluctuations arising from changes in the market prices of the securities. Such gains and losses are included with the net realized and unrealized gain or loss on investments. Net realized gains and losses on foreign currency transactions represent net realized exchange gains or losses on disposition of foreign currencies, currency gains and losses realized between the trade and settlement dates on securities transactions and the difference between the amount of investment income and foreign withholding taxes recorded on the fund's books and the U.S. dollar equivalent amounts actually received or paid. Net unrealized appreciation and depreciation of assets and liabilities in foreign currencies arise from changes in the value of assets and liabilities other than investments at the period end, resulting from changes in the exchange rate.

Options contracts The fund uses options contracts for gaining exposure to securities.

The potential risk to the fund is that the change in value of options contracts may not correspond to the change in value of the hedged instruments. In addition, losses may arise from changes in the value of the underlying instruments if there is an illiquid secondary market for the contracts, if interest or exchange rates move unexpectedly or if the counterparty to the contract is unable to perform. Realized gains and losses on purchased options are included in realized gains and losses on investment securities. If a written call option is exercised, the premium originally received is recorded as an addition to sales proceeds. If a written put option is exercised, the premium originally received is recorded as a reduction to the cost of investments.

Exchange-traded options are valued at the last sale price or, if no sales are reported, the last bid price for purchased options and the last ask price for written options. OTC traded options are valued using prices supplied by dealers.

Options on swaps are similar to options on securities except that the premium paid or received is to buy or grant the right to enter into a previously agreed upon interest rate or credit default contract. Forward premium swap option contracts include premiums that have extended settlement dates. The delayed settlement of the premiums is factored into the daily valuation of the option contracts. In the case of interest rate cap and floor contracts, in return for a premium, ongoing payments between two parties are based on interest rates exceeding a specified rate, in the case of a cap contract, or falling below a specified rate in the case of a floor contract. Written option contracts outstanding at period end, if any, are listed after the fund's portfolio.

Futures contracts The fund uses futures for equitizing cash.

The potential risk to the fund is that the change in value of futures contracts may not correspond to the change in value of the hedged instruments. In addition, losses may arise from changes in the value of the underlying instruments, if there is an illiquid secondary market for the contracts, if interest or exchange rates move unexpectedly or if the counterparty to the contract is unable to perform.

With futures, there is minimal counterparty credit risk to the fund since futures are exchange traded and the exchange's clearinghouse, as counterparty to all exchange traded futures, guarantees the futures against default. Risks may exceed amounts recognized on the Statement of assets and liabilities. When the contract is closed, the fund records a realized gain or loss equal to the difference between the value of the contract at the time it was opened and the value at the time it was closed.

Futures contracts are valued at the quoted daily settlement prices established by the exchange on which they trade. The fund and the broker agree to exchange an amount of cash equal to the daily fluctuation in the value of the futures contract. Such receipts or payments are known as "variation margin."

Futures contracts outstanding at period end, if any, are listed after the fund's portfolio.

Forward currency contracts The fund buys and sells forward currency contracts, which are agreements between two parties to buy and sell currencies at a set price on a future date. These contracts are used for hedging foreign exchange risk.

The U.S. dollar value of forward currency contracts is determined using current forward currency exchange rates supplied by a quotation service. The fair value of the contract will fluctuate with changes in currency exchange rates. The contract is marked to market daily and the change in fair value is recorded as an unrealized gain or loss. The fund records a realized gain or loss equal to the difference between the value of the contract at the time it was opened and the value at the time it was closed when the contract matures or by delivery of the currency. The fund could be exposed to risk if the value of the currency changes unfavorably, if the counterparties to the contracts are unable to meet the terms of their contracts or if the fund is unable to enter into a closing position. Risks may exceed amounts recognized on the Statement of assets and liabilities.

Forward currency contracts outstanding at period end, if any, are listed after the fund's portfolio.

Master agreements The fund is a party to ISDA (International Swaps and Derivatives Association, Inc.) Master Agreements (Master Agreements) with certain counterparties that govern OTC derivative and foreign exchange contracts entered into from time to time. The Master Agreements may contain provisions regarding, among other things, the parties' general obligations, representations, agreements, collateral requirements, events of default and early termination. With respect to certain counterparties, in accordance with the terms of the Master Agreements, collateral pledged to the fund is held in a segregated account by the fund's custodian and, with respect to those amounts which can be sold or repledged, is presented in the fund's portfolio.

Collateral pledged by the fund is segregated by the fund's custodian and identified in the fund's portfolio. Collateral can be in the form of cash or debt securities issued by the U.S. Government or related agencies or other securities as agreed to by the fund and the applicable counterparty. Collateral requirements are determined based on the fund's net position with each counterparty.

Termination events applicable to the fund may occur upon a decline in the fund's net assets below a specified threshold over a certain period of time. Termination events applicable to counterparties may occur upon a decline in the counterparty's long-term and short-term credit ratings below a specified level. In each case, upon occurrence, the other party may elect to terminate early and cause settlement of all derivative and foreign exchange contracts outstanding, including the payment of any losses and costs resulting from such early termination, as reasonably determined by the terminating party. Any decision by one or more of the fund's counterparties to elect early termination could impact the fund's future derivative activity.

At the close of the reporting period, the fund had a net liability position of \$70,596 on open derivative contracts subject to the Master Agreements. There was no collateral pledged by the fund at period end for these agreements.

Securities lending The fund may lend securities, through its agent, to qualified borrowers in order to earn additional income. The loans are collateralized by cash in an amount at least equal to the fair value of the securities loaned. The fair value of securities loaned is determined daily and any additional required collateral is allocated to the fund on the next business day. The remaining maturities of the securities lending transactions are considered overnight and continuous. The risk of borrower default will be borne by the fund's agent; the fund will bear the risk of loss with respect to the investment of the cash collateral. Income from securities lending, if any, is net of expenses and is included in investment income on the Statement of operations. Cash collateral is invested in Putnam Cash Collateral Pool, LLC, a limited liability company managed by an affiliate of Putnam Management. Investments in Putnam Cash Collateral Pool, LLC are valued at its closing net asset value each business day. There are no management fees charged to Putnam Cash Collateral Pool, LLC. At the close of the reporting period, the fund received cash collateral of \$1,558,400 and the value of securities loaned amounted to \$1,502,649.

Interfund lending The fund, along with other Putnam funds, may participate in an interfund lending program pursuant to an exemptive order issued by the SEC. This program allows the fund to borrow from or lend to other Putnam funds that permit such transactions. Interfund lending transactions are subject to each fund's investment policies and borrowing and lending limits. Interest earned or paid on the interfund lending transaction will be based on the average of certain current market rates. During the reporting period, the fund did not utilize the program.

Lines of credit The fund participates, along with other Putnam funds, in a \$320 million syndicated unsecured committed line of credit, provided by State Street (\$160 million) and JPMorgan (\$160 million), and a \$235.5 million unsecured uncommitted line of credit, provided by State Street. Borrowings may be made for temporary or emergency purposes, including the funding of shareholder redemption requests and trade settlements. Interest is charged to the fund based on the fund's borrowing at a rate equal to 1.25% plus the higher of (1) the Federal Funds rate and (2) the Overnight Bank Funding Rate for the committed line of credit and 1.30% plus the higher of (1) the Federal Funds rate and (2) the Overnight Bank Funding Rate for the uncommitted line of credit. A closing fee equal to 0.04% of the committed line of credit and 0.04% of the uncommitted line of credit has been paid by the participating funds and a \$75,000 fee has been paid by the participating funds to State Street as agent of the syndicated committed line of credit. In addition, a commitment fee of 0.21% per annum on any unutilized portion of the committed line of credit is allocated to the participating funds based on their relative net assets and paid quarterly. During the reporting period, the fund had no borrowings against these arrangements.

Federal taxes It is the policy of the fund to distribute all of its taxable income within the prescribed time period and otherwise comply with the provisions of the Internal Revenue Code of 1986, as amended (the Code), applicable to regulated investment companies.

The fund is subject to the provisions of Accounting Standards Codification 740 *Income Taxes* (ASC 740). ASC 740 sets forth a minimum threshold for financial statement recognition of the benefit of a tax position taken or expected to be taken in a tax return. The fund did not have a liability to record for any unrecognized tax benefits in the accompanying financial statements. No provision has been made for federal taxes on income, capital gains or unrealized appreciation on securities held nor for excise tax on income and capital gains. Each of the fund's federal tax returns for the prior three fiscal years remains subject to examination by the Internal Revenue Service.

The fund may also be subject to taxes imposed by governments of countries in which it invests. Such taxes are generally based on either income or gains earned or repatriated. The fund accrues and applies such taxes to net investment income, net realized gains and net unrealized gains as income and/or capital gains are earned. In some cases, the fund may be entitled to reclaim all or a portion of such taxes, and such reclaim amounts, if any, are reflected as an asset on the fund's books. In many cases, however, the fund may not receive such amounts for an extended period of time, depending on the country of investment.

Distributions to shareholders Distributions to shareholders from net investment income, if any, are recorded by the fund on the ex-dividend date. Distributions from capital gains, if any, are recorded on the ex-dividend date and paid at least annually. The amount and character of income and gains to be distributed are determined in accordance with income tax regulations, which may differ from generally accepted accounting principles. These differences include temporary and/or permanent differences from losses on wash sale transactions, from foreign currency gains and losses and from unrealized gains and losses on certain futures contracts. Reclassifications are made to the fund's capital accounts to reflect income and gains available for distribution (or available capital loss carryovers) under income tax regulations. At the close of the reporting period, the fund reclassified \$9,822 to decrease undistributed net investment and \$9,822 to decrease accumulated net realized loss.

Tax cost of investments includes adjustments to net unrealized appreciation (depreciation) which may not necessarily be final tax cost basis adjustments, but closely approximate the tax basis unrealized gains and losses that may be realized and distributed to shareholders. The tax basis components of distributable earnings and the federal tax cost as of the close of the reporting period were as follows:

Unrealized appreciation	\$27,670,090
Unrealized depreciation	(1,943,893)
Net unrealized appreciation	25,726,197
Undistributed ordinary income	378,057
Undistributed short-term gain	137,307
Undistributed long-term gain	423,649
Cost for federal income tax	\$56,296,589

Expenses of the Trust Expenses directly charged or attributable to any fund will be paid from the assets of that fund. Generally, expenses of the Trust will be allocated among and charged to the assets of each fund on a basis that the Trustees deem fair and equitable, which may be based on the relative assets of each fund or the nature of the services performed and relative applicability to each fund.

Beneficial interest At the close of the reporting period, insurance companies or their separate accounts were record owners of all but a de minimis number of the shares of the fund. Approximately 29.4% of the fund is owned by accounts of one insurance company.

Note 2 — Management fee, administrative services and other transactions

The fund pays Putnam Management a management fee (based on the fund's average net assets and computed and paid monthly) at annual rates that may vary based on the average of the aggregate net assets of all open-end mutual 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). Such annual rates may vary as follows:

0.710%	of the first \$5 billion,
0.660%	of the next \$5 billion,
0.610%	of the next \$10 billion,
0.560%	of the next \$10 billion,
0.510%	of the next \$50 billion,
0.490%	of the next \$50 billion,
0.480%	of the next \$100 billion and
0.475%	of any excess thereafter.

For the reporting period, the management fee represented an effective rate (excluding the impact from any expense waivers in effect) of 0.550% of the fund's average net assets.

Putnam Management has contractually agreed, through April 30, 2025, to waive fees and/or reimburse the fund's expenses to the extent necessary to limit the cumulative expenses of the fund, exclusive of brokerage, interest, taxes, investment-related expenses, extraordinary expenses, acquired fund fees and expenses and payments under the fund's investor servicing contract, investment management contract and distribution plan, on a fiscal year-to-date basis to an annual rate of 0.20% of the fund's average net assets over such fiscal year-to-date period. During the reporting period, the fund's expenses were not reduced as a result of this limit.

PIL is authorized by the Trustees to manage a separate portion of the assets of the fund as determined by Putnam Management from time to time. PIL did not manage any portion of the assets of the fund during the reporting period. If Putnam Management were to engage the services of PIL, Putnam Management would pay a quarterly sub-management fee to PIL for its services at an annual rate of 0.25% of the average net assets of the portion of the fund managed by PIL.

PAC is authorized by the Trustees to manage a separate portion of the assets of the fund, as designated from time to time by Putnam Management or PIL. PAC did not manage any portion of the assets of the fund during the reporting period. If Putnam Management or PIL were to engage the services of PAC, Putnam Management or PIL, as applicable, would pay a quarterly sub-advisory fee to PAC for its services at the annual rate of 0.25% of the average net assets of the portion of the fund's assets for which PAC is engaged as sub-adviser.

On January 1, 2024, a subsidiary of Franklin Templeton acquired Putnam U.S. Holdings I, LLC ("Putnam Holdings"), the parent company of Putnam Management, PIL, and PAC, in a stock and cash transaction (the "Transaction"). As a result of the Transaction, Putnam Management (the investment manager to the fund and a wholly-owned subsidiary of Putnam Holdings), PIL (a sub-adviser to the fund and an indirect, wholly-owned subsidiary of Putnam Holdings), and PAC (a sub-adviser to the fund and an indirect, wholly-owned subsidiary of Putnam Holdings) became indirect, wholly-owned subsidiaries of Franklin Templeton. The Transaction also resulted in the automatic termination of the investment management contract between the fund and Putnam Management, the sub-management contract for the fund between Putnam Management and PIL, and the sub-advisory contract for the fund among Putnam Management, PIL, and PAC that were in place for the fund before the Transaction. However, Putnam Management, PIL, and PAC continue to provide uninterrupted services with respect to the fund pursuant to new investment management, sub-management, and sub-advisory contracts that were approved by fund shareholders at a shareholder meeting held in connection with the Transaction and that took effect on January 1, 2024. The terms of the new investment management, sub-management, and sub-advisory contracts are substantially similar to those of the previous investment management,

sub-management, and sub-advisory contracts, and the fee rates payable under the new investment management, sub-management, and sub-advisory contracts are the same as the fee rates under the previous investment management, sub-management, and sub-advisory contracts.

The fund reimburses Putnam Management an allocated amount for the compensation and related expenses of certain officers of the fund and their staff who provide administrative services to the fund. The aggregate amount of all such reimbursements is determined annually by the Trustees.

Custodial functions for the fund's assets are provided by State Street. Custody fees are based on the fund's asset level, the number of its security holdings and transaction volumes.

Putnam Investor Services, Inc., an affiliate of Putnam Management, provides investor servicing agent functions to the fund. Putnam Investor Services, Inc. was paid a monthly fee for investor servicing at an annual rate of 0.07% of the fund's average daily net assets. During the reporting period, the expenses for each class of shares related to investor servicing fees were as follows:

Class IA	\$15,511
Class IB	34,430
Total	\$49,941

The fund has entered into expense offset arrangements with Putnam Investor Services, Inc. and State Street whereby Putnam Investor Services, Inc.'s and State Street's fees are reduced by credits allowed on cash balances. For the reporting period, the fund's expenses were reduced by \$103 under the expense offset arrangements.

Each Independent Trustee of the fund receives an annual Trustee fee, of which \$62, as a quarterly retainer, has been allocated to the fund, and an additional fee for each Trustees meeting attended. Trustees also are reimbursed for expenses they incur relating to their services as Trustees.

The fund has adopted a Trustee Fee Deferral Plan (the Deferral Plan) which allows the Trustees to defer the receipt of all or a portion of Trustees fees payable from July 1, 1995 through December 31, 2023. The deferred fees remain invested in certain Putnam funds until distribution in accordance with the Deferral Plan.

The fund has adopted an unfunded noncontributory defined benefit pension plan (the Pension Plan) covering all Trustees of the fund who have served as a Trustee for at least five years and were first elected prior to 2004. Benefits under

Note 4 — Capital shares

At the close of the reporting period, there were an unlimited number of shares of beneficial interest authorized. Subscriptions and redemptions are presented at the omnibus level. Transactions in capital shares were as follows:

	Class IA shares				Class IB shares			
	Year ended 12/31/23		Year ended 12/31/22		Year ended 12/31/23		Year ended 12/31/22	
	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount
Shares sold	47,450	\$1,481,604	68,335	\$1,943,227	227,139	\$6,897,875	303,269	\$8,753,956
Shares issued in connection with reinvestment of distributions	7,830	223,851	55,356	1,749,264	13,525	384,912	98,275	3,091,736
	55,280	1,705,455	123,691	3,692,491	240,664	7,282,787	401,544	11,845,692
Shares repurchased	(133,650)	(4,081,172)	(120,957)	(3,533,794)	(165,285)	(5,030,322)	(143,584)	(4,187,096)
Net increase (decrease)	(78,370)	\$(2,375,717)	2,734	\$158,697	75,379	\$2,252,465	257,960	\$7,658,596

Note 5 — Affiliated transactions

Transactions during the reporting period with any company which is under common ownership or control were as follows:

Name of affiliate	Fair value as of 12/31/22	Purchase cost	Sale proceeds	Investment income	Shares outstanding and fair value as of 12/31/23
Short-term investments					
Putnam Cash Collateral Pool, LLC*	\$724,203	\$12,190,972	\$11,356,775	\$27,789	\$1,558,400
Putnam Short Term Investment Fund Class P**	2,332,410	12,525,699	12,263,160	89,309	2,594,949
Total Short-term investments	\$3,056,613	\$24,716,671	\$23,619,935	\$117,098	\$4,153,349

*No management fees are charged to Putnam Cash Collateral Pool, LLC (Note 1). Investment income shown is included in securities lending income on the Statement of operations. There were no realized or unrealized gains or losses during the period.

**Management fees charged to Putnam Short Term Investment Fund have been waived by Putnam Management. There were no realized or unrealized gains or losses during the period.

the Pension Plan are equal to 50% of the Trustee's average annual attendance and retainer fees for the three years ended December 31, 2005. The 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. Pension expense for the fund is included in Trustee compensation and expenses in the Statement of operations. Accrued pension liability is included in Payable for Trustee compensation and expenses in the Statement of assets and liabilities. The Trustees have terminated the Pension Plan with respect to any Trustee first elected after 2003.

The fund has adopted a distribution plan (the Plan) with respect to its class IB shares pursuant to Rule 12b-1 under the Investment Company Act of 1940. The purpose of the Plan is to compensate Putnam Retail Management Limited Partnership, an indirect wholly-owned subsidiary of Franklin Templeton, for services provided and expenses incurred in distributing shares of the fund. The Plan provides for payment by the fund to Putnam Retail Management Limited Partnership at an annual rate of up to 0.35% of the average net assets attributable to the fund's class IB shares. The Trustees have approved payment by the fund at an annual rate of 0.25% of the average net assets attributable to the fund's class IB shares. The expenses related to distribution fees during the reporting period are included in Distribution fees in the Statement of operations.

Note 3 — Purchases and sales of securities

During the reporting period, the cost of purchases and the proceeds from sales, excluding short-term investments, were as follows:

	Cost of purchases	Proceeds from sales
Investments in securities (Long-term)	\$23,795,291	\$23,381,467
U.S. government securities (Long-term)	—	—
Total	\$23,795,291	\$23,381,467

The fund may purchase or sell investments from or to other Putnam funds in the ordinary course of business, which can reduce the fund's transaction costs, at prices determined in accordance with SEC requirements and policies approved by the Trustees. During the reporting period, purchases or sales of long-term securities from or to other Putnam funds, if any, did not represent more than 5% of the fund's total cost of purchases and/or total proceeds from sales.

Note 6 — Market, credit and other risks

In the normal course of business, the fund trades financial instruments and enters into financial transactions where risk of potential loss exists due to changes in the market (market risk) or failure of the contracting party to the transaction to perform (credit risk). The fund may be exposed to additional credit risk that an institution or other entity with which the fund has unsettled or open transactions will default. Investments in foreign securities involve certain risks, including those related to economic instability, unfavorable political developments, and currency fluctuations.

Note 7 — Summary of derivative activity

The volume of activity for the reporting period for any derivative type that was held during the period is listed below and was based on an average of the holdings at the end of each fiscal quarter:

Purchased equity option contracts (contract amount)	\$7,000
Written equity option contracts (contract amount)	\$7,000
Futures contracts (number of contracts)	5
Forward currency contracts (contract amount)	\$4,900,000

The following is a summary of the fair value of derivative instruments as of the close of the reporting period:

Fair value of derivative instruments as of the close of the reporting period

Derivatives not accounted for as hedging instruments under ASC 815	Asset derivatives		Liability derivatives	
	Statement of assets and liabilities location	Fair value	Statement of assets and liabilities location	Fair value
Foreign exchange contracts	Receivables	\$4,118	Payables	\$73,955
Equity contracts	Investments, Receivables, Net assets — Unrealized appreciation	26,748*	Payables	359
Total		\$30,866		\$74,314

*Includes cumulative appreciation/depreciation of futures contracts as reported in the fund's portfolio. Only current day's variation margin is reported within the Statement of assets and liabilities.

The following is a summary of realized and change in unrealized gains or losses of derivative instruments in the Statement of operations for the reporting period (Note 1):

Amount of realized gain or (loss) on derivatives recognized in net gain or (loss) on investments

Derivatives not accounted for as hedging instruments under ASC 815	Options	Futures	Forward currency contracts	Total
Foreign exchange contracts	\$—	\$—	\$(13,118)	\$(13,118)
Equity contracts	6,705	40,165	—	\$46,870
Total	\$6,705	\$40,165	\$(13,118)	\$33,752

Change in unrealized appreciation or (depreciation) on derivatives recognized in net gain or (loss) on investments

Derivatives not accounted for as hedging instruments under ASC 815	Options	Futures	Forward currency contracts	Total
Foreign exchange contracts	\$—	\$—	\$(46,601)	\$(46,601)
Equity contracts	(4,846)	83,497	—	\$78,651
Total	\$(4,846)	\$83,497	\$(46,601)	\$32,050

Note 8 — Offsetting of financial and derivative assets and liabilities

The following table summarizes any derivatives, repurchase agreements and reverse repurchase agreements, at the end of the reporting period, that are subject to an enforceable master netting agreement or similar agreement. For securities lending transactions or borrowing transactions associated with securities sold short, if any, see Note 1. For financial reporting purposes, the fund does not offset financial assets and financial liabilities that are subject to the master netting agreements in the Statement of assets and liabilities.

	Bank of America N.A.	Barclays Bank PLC	BofA Securities, Inc.	Citibank, N.A.	Goldman Sachs International	JPMorgan Chase Bank N.A.	Morgan Stanley & Co. International PLC	NatWest Markets PLC	State Street Bank and Trust Co.	Toronto-Dominion Bank	UBS AG	Total
Assets:												
Futures contracts [§]	\$—	\$—	\$—	\$—	\$—	\$—	\$—	\$—	\$—	\$—	\$—	\$—
Forward currency contracts [#]	2,623	—	—	—	—	—	—	—	—	1,495	—	4,118
Purchased options ^{**}	—	—	—	—	—	—	—	—	—	—	1,095	1,095
Total Assets	\$2,623	\$—	\$—	\$—	\$—	\$—	\$—	\$—	\$—	\$1,495	\$1,095	\$5,213
Liabilities:												
Futures contracts [§]	—	—	4,255	—	—	—	—	—	—	—	—	4,255
Forward currency contracts [#]	8,980	4,934	—	11,697	9,355	13,476	2,301	5,055	9,629	—	8,528	73,955
Written options [#]	—	—	—	—	—	—	—	—	—	—	359	359
Total Liabilities	\$8,980	\$4,934	\$4,255	\$11,697	\$9,355	\$13,476	\$2,301	\$5,055	\$9,629	\$—	\$8,887	\$78,569
Total Financial and Derivative Net Assets	\$(6,357)	\$(4,934)	\$(4,255)	\$(11,697)	\$(9,355)	\$(13,476)	\$(2,301)	\$(5,055)	\$(9,629)	\$1,495	\$(7,792)	\$(73,356)
Total collateral received (pledged) ^{†##}	\$—	\$—	\$—	\$—	\$—	\$—	\$—	\$—	\$—	\$—	\$—	
Net amount	\$(6,357)	\$(4,934)	\$(4,255)	\$(11,697)	\$(9,355)	\$(13,476)	\$(2,301)	\$(5,055)	\$(9,629)	\$1,495	\$(7,792)	
<i>Controlled collateral received (including TBA commitments)**</i>	\$—	\$—	\$—	\$—	\$—	\$—	\$—	\$—	\$—	\$—	\$—	\$—
<i>Uncontrolled collateral received</i>	\$—	\$—	\$—	\$—	\$—	\$—	\$—	\$—	\$—	\$—	\$—	\$—
<i>Collateral (pledged) (including TBA commitments)**</i>	\$—	\$—	\$—	\$—	\$—	\$—	\$—	\$—	\$—	\$—	\$—	\$—

**Included with Investments in securities on the Statement of assets and liabilities.

†Additional collateral may be required from certain brokers based on individual agreements.

#Covered by master netting agreement (Note 1).

##Any over-collateralization of total financial and derivative net assets is not shown. Collateral may include amounts related to unsettled agreements.

§Includes current day's variation margin only as reported on the Statement of assets and liabilities, which is not collateralized. Cumulative appreciation/(depreciation) for futures contracts is represented in the tables listed after the fund's portfolio. Collateral pledged for initial margin on futures contracts, which is not included in the table above, amounted to \$86,295.

Federal tax information (Unaudited)

Pursuant to §852 of the Internal Revenue Code, as amended, the fund hereby designates \$466,014 as a capital gain dividend with respect to the taxable year ended December 31, 2023, or, if subsequently determined to be different, the net capital gain of such year.

The fund designated 100.00% of ordinary income distributions as qualifying for the dividends received deduction for corporations.

Shareholder meeting results (Unaudited)

October 20, 2023 special meeting

At the meeting, a new Management Contract for your fund with Putnam Investment Management, LLC was approved, as follows:

Votes for	Votes against	Abstentions/Votes withheld
1,349,164	166,473	85,533

At the meeting, a new Sub-Management Contract for your fund between Putnam Investment Management, LLC and Putnam Investments Limited was approved, as follows:









Votes for	Votes against	Abstentions/Votes withheld
1,346,358	168,290	86,522

At the meeting, a new Sub-advisory Contract for your fund between Putnam Investment Management, LLC, Putnam Investments Limited and The Putnam Advisory Company, LLC was approved, as follows:

Votes for	Votes against	Abstentions/Votes withheld
1,375,803	138,845	86,522

All tabulations are rounded to the nearest whole number.

About the Trustees

Name Year of birth Position held	Principal occupations during past five years	Other directorships	
Independent Trustees			
Liaquat Ahamed Born 1952 Trustee since 2012	Author; won Pulitzer Prize for <i>Lords of Finance: The Bankers Who Broke the World</i> .	Chair of the Sun Valley Writers Conference, a literary not-for-profit organization, and a Trustee of the Journal of Philosophy.	
Barbara M. Baumann Born 1955 Trustee since 2010 Vice Chair since 2022	President of Cross Creek Energy Corporation, a strategic consultant to domestic energy firms and direct investor in energy projects.	Director of Devon Energy Corporation, a publicly traded independent natural gas and oil exploration and production company; Director of National Fuel Gas Company, a publicly traded energy company that engages in the production, gathering, transportation, distribution, and marketing of natural gas; Senior Advisor to the energy private equity firm First Reserve; member of the Finance Committee of the Children's Hospital of Colorado; member of the Investment Committee of the Board of The Denver Foundation; and previously a Director of publicly traded companies Buckeye Partners LP, UNS Energy Corporation, CVR Energy Company, and SM Energy Corporation.	
Katinka Domotorffy Born 1975 Trustee since 2012	Voting member of the Investment Committees of the Anne Ray Foundation and Margaret A. Cargill Foundation, part of the Margaret A. Cargill Philanthropies.	Director of the Great Lakes Science Center and of College Now Greater Cleveland.	
Catharine Bond Hill 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.	Director of Yale-NUS College and Trustee of Yale University.	
Kenneth R. Leibler Born 1949 Trustee since 2006 Vice Chair from 2016 to 2018, Chair since 2018	Vice Chair Emeritus of the Board of Trustees of Beth Israel Deaconess Hospital in Boston. Member of the Investment Committee of the Boston Arts Academy Foundation.	Director of Eversource Corporation, which operates New England's largest energy delivery system; previously the Chairman of the Boston Options Exchange, an electronic marketplace for the trading of listed derivatives securities; previously the Chairman and Chief Executive Officer of the Boston Stock Exchange; and previously the President and Chief Operating Officer of the American Stock Exchange.	
Jennifer Williams Murphy* Born 1964 Trustee since 2022	Chief Executive Officer and Founder of Runa Digital Assets, LLC, an institutional investment advisory firm specializing in active management of digital assets. Until 2021, Chief Operating Officer of Western Asset Management, LLC, a global investment adviser, and Chief Executive Officer and President of Western Asset Mortgage Capital Corporation, a mortgage finance real estate investment trust.	Previously, a Director of Western Asset Mortgage Capital Corporation.	
Marie Pillai Born 1954 Trustee since 2022	Senior Advisor, Hunter Street Partners, LP, an asset-oriented private investment firm; Specialty Leader and Member of the Curriculum Committee of the Center for Board Certified Fiduciaries, a public benefit corporation providing coursework for developing fiduciaries. Until 2019, Vice President, Chief Investment Officer, and Treasurer of General Mills, Inc., a global food company.	Member of the Investment Committee of the Bush Foundation, a nonprofit organization supporting community problem-solving in Minnesota, North Dakota, and South Dakota; Member of the Finance Council and Corporate Board of the Archdiocese of Saint Paul and Minneapolis; Director of Choice Bank, a private, community bank based in North Dakota; and previously a Board Member of Catholic Charities of St. Paul and Minneapolis; former Director of the Catholic Community Foundation of Minnesota; and former Investment Advisory Board Member of the University of Minnesota.	
George Putnam III 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.	Director of The Boston Family Office, LLC, a registered investment adviser; a Director of the Gloucester Marine Genomics Institute; a Trustee of the Lowell Observatory Foundation; and previously a Trustee of the Marine Biological Laboratory.	

Name Year of birth Position held	Principal occupations during past five years	Other directorships	
Manoj P. Singh Born 1952 Trustee since 2017	Until 2015, Chief Operating Officer and Global Managing Director at Deloitte Touche Tohmatsu, Ltd., a global professional services organization, serving on the Deloitte U.S. Board of Directors and the boards of Deloitte member firms in China, Mexico, and Southeast Asia.	Director of ReNew Energy Global PLC, a publicly traded renewable energy company; 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; 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.	
Mona K. Sutphen Born 1967 Trustee since 2020	Partner, Investment Strategies, at The Vistria Group, a private investment firm focused on middle-market companies in the health care, education, and financial services industries. From 2014 to 2018, Partner at Macro Advisory Partners, a global consulting firm.	Director of Spotify Technology S.A., a publicly traded audio content streaming service; Director of Unitek Learning, a private nursing and medical services education provider in the United States; Board Member, International Rescue Committee; Co-Chair of the Board of Human Rights First; Trustee of Mount Holyoke College; member of the Advisory Board for the Center on Global Energy Policy at Columbia University's School of International and Public Affairs; previously Director of Pattern Energy and Pioneer Natural Resources, publicly traded energy companies; and previously Managing Director of UBS AG.	

Interested Trustees

Robert L. Reynolds† Born 1952 Trustee since 2008	Chair of Great-West Lifeco U.S. LLC. Prior to 2019, also 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. LLC, a holding company that owns Putnam Investments and Great-West Financial, and a member of Great-West Financial's Board of Directors. Until 2023, President and Chief Executive Officer of Putnam Investments, President and Chief Executive Officer of Putnam Management, and member of Putnam Investments' Board of Directors.	Director of the Concord Museum; Director of Dana-Farber Cancer Institute; Director of the U.S. Ski & Snowboard Foundation; Chair of the Boston Advisory Board of the American Ireland Fund; Council Co-Chair of the American Enterprise Institute; Member of U.S. Chamber of Commerce, Center for Capital Markets Competitiveness; Chair of Massachusetts High Technology Council; Member of the Chief Executives Club of Boston; Member of the Massachusetts General Hospital President's Council; Chairman of the Board of Directors of the Ron Burton Training Village; Director and former Chair of the Massachusetts Competitive Partnership; former Chair of the West Virginia University Foundation; and former Executive Committee Member of the Greater Boston Chamber of Commerce.	
Jane E. Trust‡ Born 1962 Trustee since 2024	Since 2020, Senior Vice President, Fund Board Management, of Franklin Templeton. Since 2015, Officer and/or Trustee/Director of 127 funds associated with Legg Mason Partners Fund Advisor, LLC ("LMPFA") or its affiliates, and President and Chief Executive Officer of LMPFA. From 2018 to 2020, Senior Managing Director of Legg Mason & Co., LLC (Legg Mason & Co.). From 2016 to 2018, Managing Director of Legg Mason & Co. In 2015, Senior Vice President of LMPFA.	None.	

*Ms. Murphy is the founder, controlling member, and Chief Executive Officer of Runa Digital Assets, LLC ("RDA"), the investment manager of Runa Digital Partners, LP ("RDP"), a private investment fund. Ms. Murphy also holds a controlling interest in RDP's general partner and is a limited partner in RDP. A subsidiary of Franklin Templeton and certain individuals employed by Franklin Templeton or its affiliates have made passive investments as limited partners in RDP (one of whom serves on the advisory board for RDA, which has no governance or oversight authority over RDA), representing in the aggregate approximately 33% of RDP as of October 31, 2023. In addition, if certain conditions are met, Franklin Templeton will be entitled to receive a portion of any incentive compensation allocable to RDP's general partner. For so long as Franklin Templeton maintains its investment in RDP, Ms. Murphy also has agreed upon request to advise and consult with Franklin Templeton and its affiliates on the market for digital assets. Ms. Murphy provides similar service to other limited partners in RDP that request her advice. Ms. Murphy also is entitled to receive deferred cash compensation in connection with her prior employment by an affiliate of Franklin Templeton, which employment ended at the end of 2021. With regard to Ms. Murphy, the relationships described above may give rise to a potential conflict of interest with respect to the Funds.

†Mr. Reynolds is an "interested person" (as defined in the Investment Company Act of 1940) of the fund and Putnam Management. He is President of your fund and each of the other Putnam funds and holds direct beneficial interest in shares of Franklin Templeton, of which Putnam Management is an indirect wholly-owned subsidiary.

‡Ms. Trust is an "interested person" (as defined in the Investment Company Act of 1940) of the fund and Putnam Management by virtue of her positions with certain affiliates of Putnam Management.

The address of each Trustee is 100 Federal Street, Boston, MA 02110.

As of December 31, 2023, there were 105 funds in the Putnam family of funds, including 89 mutual funds, 4 closed-end funds, and 12 exchange-traded funds. Each Trustee serves as Trustee of the 105 funds in the Putnam family of funds. Ms. Trust also serves as Trustee of 127 other funds that are advised by one or more affiliates of Putnam Management.

Each Trustee serves for an indefinite term, until his or her resignation, retirement at age 75, removal, or death.

Officers

In addition to Robert L. Reynolds, the other officers of the fund are shown below:

Kevin R. Blatchford *(Born 1967)*

Vice President and Assistant Treasurer

Since 2023

Director, Financial Reporting, Putnam Holdings

James F. Clark *(Born 1974)*

Vice President and Chief Compliance Officer

Since 2016

Chief Compliance Officer, Putnam Management and Putnam Holdings

Michael J. Higgins *(Born 1976)*

Vice President, Treasurer, and Clerk

Since 2010

Jonathan S. Horwitz *(Born 1955)*

Executive Vice President, Principal Executive Officer, and Compliance Liaison

Since 2004

Kelley Hunt *(Born 1984)*

AML Compliance Officer

Since 2023

Manager, U.S. Financial Crime Compliance, Franklin Templeton

Martin Lemaire *(Born 1984)*

Vice President and Derivatives Risk Manager

Since 2022

Risk Manager and Risk Analyst, Putnam Management

Alan G. McCormack *(Born 1964)*

Vice President and Derivatives Risk Manager

Since 2022

Head of Quantitative Equities and Risk, Putnam Management

Denere P. Poulack *(Born 1968)*

Assistant Vice President, Assistant Clerk, and Assistant Treasurer

Since 2004

Janet C. Smith *(Born 1965)*

Vice President, Principal Financial Officer, Principal Accounting Officer, and Assistant Treasurer

Since 2007

Head of Fund Administration Services, Putnam Holdings and Putnam Management

Stephen J. Tate *(Born 1974)*

Vice President and Chief Legal Officer

Since 2021

General Counsel, Putnam Holdings, Putnam Management, and Putnam Retail Management

The principal occupations of the officers for the past five years have been with the employers as shown above, although in some cases they have held different positions with such employers. The address of each officer, other than Ms. Hunt, is 100 Federal Street, Boston, MA 02110. Ms. Hunt's address is 100 Fountain Parkway, St. Petersburg, FL 33716.

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Other important information

Proxy voting

The Putnam funds' proxy voting guidelines and procedures, as well as information regarding how your fund voted proxies relating to portfolio securities during the 12-month period ended June 30, 2023, are available in the Individual Investors section of putnam.com and on the Securities and Exchange Commission's (SEC) website at 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 at no charge by calling 1-800-225-1581.

Fund portfolio holdings

The fund will file a complete schedule of its portfolio holdings with the SEC for the first and third quarters of each fiscal year on Form N-PORT within 60 days of the end of such fiscal quarter. Shareholders may obtain the fund's Form N-PORT from the SEC's website at www.sec.gov.

Fund information

Investment Manager

Putnam Investment Management, LLC
100 Federal Street
Boston, MA 02110

Investment Sub-Advisors

Putnam Investments Limited
16 St James's Street
London, England SW1A 1ER

The Putnam Advisory Company, LLC
100 Federal Street
Boston, MA 02110

Marketing Services

Putnam Retail Management
Limited Partnership
100 Federal Street
Boston, MA 02110

Investor Servicing Agent

Putnam Investments
Mailing address:
P.O. Box 219697
Kansas City, MO 64121-9697
1-800-225-1581

Custodian

State Street Bank and Trust Company

Legal Counsel

Ropes & Gray LLP

Independent Registered Public Accounting Firm

PricewaterhouseCoopers LLP

Trustees

Kenneth R. Leibler, *Chair*
Barbara M. Baumann, *Vice Chair*
Liaquat Ahamed
Katinka Domotorffy
Catharine Bond Hill
Jennifer Williams Murphy
Marie Pillai
George Putnam III
Robert L. Reynolds
Manoj P. Singh
Mona K. Sutphen
Jane E. Trust

The fund's Statement of Additional Information contains additional information about the fund's Trustees and is available without charge upon request by calling 1-800-225-1581.

