

Putnam Variable Trust

Putnam VT Mortgage Securities Fund

Annual report

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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

As high a level of current income as Putnam Investment Management, LLC (Putnam Management) believes is consistent with preservation of capital

Net asset value December 31, 2023

Class IA: \$6.37 | Class IB: \$6.34

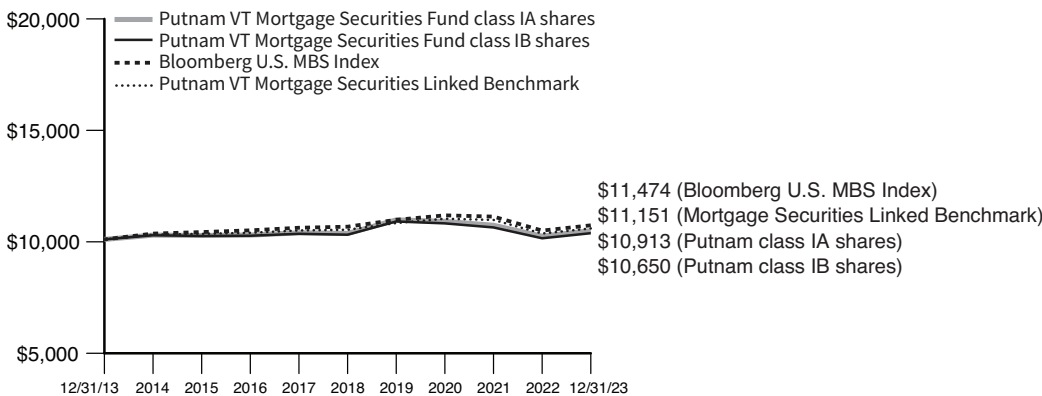
Annualized total return at net asset value (as of 12/31/23)

	Class IA shares (2/1/00)	Class IB shares (2/1/00)	Bloomberg U.S. MBS Index	Putnam VT Mortgage Securities Linked Benchmark
1 year	5.58%	5.27%	5.05%	5.05%
5 years	0.54	0.30	0.25	0.25
10 years	0.88	0.63	1.38	1.10
Life of fund	3.72	3.47	3.82	3.57

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

Before April 30, 2018, the fund was managed with a materially different investment strategy and may have achieved materially different performance results under its current investment strategy from that shown for periods before this date.

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



The Bloomberg U.S. MBS Index is an unmanaged index of agency mortgage-backed pass-through securities (both fixed rate and hybrid adjustable-rate mortgages) guaranteed by Ginnie Mae (GNMA), Fannie Mae (FNMA), and Freddie Mac (FHLMC).

The Bloomberg Government Bond Index is an unmanaged index of U.S. Treasury and agency securities.

The Putnam VT Mortgage Securities Linked Benchmark represents the performance of the Bloomberg Government Bond Index through April 29, 2018, and the performance of the Bloomberg U.S. MBS Index thereafter.

All Bloomberg indices are provided by Bloomberg Index Services Limited.

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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

Agency pass-throughs	114.6%
Agency collateralized mortgage obligations	31.4%
Commercial mortgage-backed securities	27.1%
Non-agency residential mortgage-backed securities	22.0%
Asset-backed securities	0.3%
Cash and net other assets	17.9%

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 use of different classifications of securities for presentation purposes, and rounding. Allocations may not total 100% because the table includes the notional value of certain derivatives (the economic value for purposes of calculating periodic payment obligations), in addition to the market value of securities. Holdings and allocations may vary over time.

Credit quality

AAA	36.1%
AA	2.4%
A	4.3%
BBB	10.2%
BB	5.4%
B	4.8%
CCC and below	3.5%
Not rated	15.6%
Cash and net other assets	17.9%

Credit qualities are shown as a percentage of the fund's net assets. A bond rated BBB or higher is considered investment grade. This table reflects the highest security rating provided by one or more of Standard & Poor's, Moody's, and Fitch. Ratings and portfolio credit quality will vary over time. Cash and net other assets, if any, represent the market value weights of cash, derivatives, and short-term securities in the portfolio. The fund itself has not been rated by an independent rating agency. Due to rounding, percentages may not equal 100%.

Report from your fund's managers

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

Bond market volatility remained elevated for much of the period. The U.S. Federal Reserve signaled it would likely keep interest rates higher for longer, or at least until the rate of inflation moved closer to its 2% target. The failure of several U.S. regional banks in March 2023 and concern over the large U.S. fiscal deficit also cautioned investors.

In May, U.S. Treasury yields moved higher following a resolution to a months-long U.S. debt ceiling debate. After skipping a rate hike in June, the Fed raised the federal funds rate to a 22-year high of 5.25%–5.50% in July. As inflation continued to ease, the Fed held interest rates steady through period-end. The U.S. economy, buoyed by a strong labor market, remained in expansion. Company fundamentals also showed strength, with quarterly earnings reports largely better than anticipated.

At its mid-December meeting, the Fed indicated that it would consider cutting interest rates three times in calendar 2024. Market expectations for a slowdown in the Fed's rate hikes contributed to lower yields. The yield on the benchmark 10-year Treasury Bill began the period at 3.88%, climbed to 4.99% in October, and fell back to 3.88% at period-end. Credit spreads largely tightened over the period. [Credit spreads are the yield advantage credit-sensitive bonds offer over comparable-maturity U.S. Treasuries. Bond prices rise as yield spreads tighten and decline as spreads widen.]

How did Putnam VT Mortgage Securities Fund perform for the reporting period?

The fund's class IA shares returned 5.58%, outperforming its primary benchmark, the Bloomberg U.S. MBS Index, which returned 5.05%.

Which holdings and strategies contributed to fund performance relative to the primary benchmark for the reporting period?

Exposure to non-agency residential mortgage-backed securities [RMBS], led by our agency credit risk transfer holdings, contributed to fund returns. Strength in the U.S. housing market, buoyed by constrained supply of new homes, was supportive of the RMBS market. Homeowner balance sheets also were strong for those who locked in ultra-low mortgage rates and experienced rapid home price appreciation in recent years.

Overall, our prepayment strategies also were additive to fund returns. Our agency interest-only [IO] securities were notable contributors to relative performance. Prepayment speeds remained below historical averages, which benefited the agency IO sector. Our tactical mortgage basis positioning [a strategy that seeks to capitalize on the difference between longer-term U.S. Treasury yields and the interest rates on 30-year home mortgages] modestly added to returns.

What about detractors to fund performance relative to the primary benchmark for the reporting period?

Commercial mortgage-backed securities [CMBS] strategies detracted from fund performance. Negative headlines surrounding office properties, regional U.S. banking stress, and higher long-term interest rates contributed to a broad decline in the CMBS market in the first quarter of calendar 2023. The CMBS market stabilized thereafter but remained challenged by an uncertain economic outlook and higher long-term interest rates.

How did you use derivatives during the period?

Futures were used to help hedge Treasury term structure risk and for yield curve positioning. In addition, interest-rate swaps were used to help hedge term structure risk and for yield curve positioning. Options also were used to help hedge duration and convexity, to isolate prepayment risk, and to manage downside risks.

What are your views on the sectors in which the fund invests?

The broad commercial real estate market continues to face meaningful headwinds and increased risks, in our view. However, an improving U.S. economic outlook and the increased likelihood of Fed rate cuts this year could drive long-term rates lower, which could benefit commercial borrowers. In our view, commercial property prices will continue to be pressured over the medium term. We believe much of this risk has been priced into the CMBS market, based on substantial spread widening over the past two years. These conditions are creating relative value and attractive opportunities for security selection, in our view.

U.S. homeowner fundamentals remain strong, supported by locked-in ultra-low mortgage rates and substantial home price appreciation in recent years. We expect U.S. home prices to remain unchanged in calendar 2024 as affordability pressures continue to limit demand, while supply gradually increases. Non-agency RMBS performed well in calendar 2023 and remain attractively valued, in our view.

We also find long-term value in agency mortgage-backed securities. We maintain a modestly long position overall but will remain tactical as conditions change. We expect prepayment speeds will be stable going forward. Many prepayment-sensitive securities offer attractive risk-adjusted returns with upside potential, if interest rates stabilize and volatility declines, in our view. We believe these securities provide an attractive source of diversification in our portfolio, and can perform well during a slowdown in the economy or housing market.

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 **Michael V. Salm** is Chief Investment Officer, Fixed Income. He joined Putnam in 1997 and has been in the investment industry since 1989.

Brett S. Kozlowski, CFA, and Jatin Misra, PhD, CFA, are also Portfolio Managers of the fund.

Your fund's managers also manage other accounts advised by Putnam Management 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. In the most recent six-month period, your fund's expenses were limited; had expenses not been limited, they would have been higher. 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
Net expenses for the fiscal year ended 12/31/22*†	0.50%	0.75%
Total annual operating expenses for the fiscal year ended 12/31/22†	0.92%	1.17%
Annualized expense ratio for the six-month period ended 12/31/23‡	0.50%	0.75%

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.

*Reflects Putnam Management's contractual obligation to limit certain fund expenses through 4/30/24.

†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*†	\$2.58	\$3.86	\$2.55	\$3.82
Ending value (after expenses)	\$1,044.30	\$1,042.80	\$1,022.68	\$1,021.42

*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 Mortgage Securities Fund:

Opinion on the Financial Statements

We have audited the accompanying statement of assets and liabilities, including the fund's portfolio, of Putnam VT Mortgage Securities 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

U.S. GOVERNMENT AND AGENCY MORTGAGE OBLIGATIONS (134.6%)*	Principal amount	Value
U.S. Government Guaranteed Mortgage Obligations (29.1%)		
Government National Mortgage Association Pass-Through Certificates		
6.50%, with due dates from 4/15/28 to 7/20/36	\$14,187	\$14,844
6.00%, with due dates from 4/15/28 to 11/20/38	34,586	36,264
5.50%, TBA, 1/1/54	1,000,000	1,006,204
5.50%, 4/20/38	48,960	50,380
4.50%, TBA, 1/1/54	1,000,000	976,268
4.50%, 5/20/48	64,851	64,152
4.00%, TBA, 1/1/54	1,000,000	955,331
3.50%, TBA, 1/1/54	1,000,000	931,438
3.00%, TBA, 1/1/54	1,000,000	905,968
2.50%, TBA, 1/1/54	2,000,000	1,751,938
2.00%, TBA, 1/1/54	2,000,000	1,693,824
		8,386,611
U.S. Government Agency Mortgage Obligations (105.5%)		
Federal Home Loan Mortgage Corporation Pass-Through Certificates		
7.50%, with due dates from 9/1/30 to 7/1/31	5,844	6,163
7.00%, with due dates from 11/1/26 to 4/1/32	31,412	32,705
Federal National Mortgage Association Pass-Through Certificates		
7.50%, with due dates from 9/1/30 to 11/1/30	2,712	2,825
7.00%, with due dates from 12/1/28 to 12/1/35	117,349	123,568
6.50%, 9/1/36	5,884	6,173
Uniform Mortgage-Backed Securities		
6.00%, TBA, 1/1/54	5,000,000	5,079,689
5.50%, TBA, 1/1/54	2,000,000	2,009,845
5.00%, TBA, 1/1/54	3,000,000	2,969,999
4.50%, TBA, 1/1/54	2,000,000	1,940,312
4.00%, TBA, 1/1/54	2,000,000	1,892,812
3.50%, TBA, 1/1/54	3,000,000	2,753,906
3.00%, TBA, 1/1/54	2,000,000	1,770,312
2.50%, TBA, 1/1/54	5,000,000	4,258,594
2.50%, TBA, 1/1/39	1,000,000	921,953
2.00%, TBA, 1/1/54	6,000,000	4,906,031
2.00%, TBA, 1/1/39	1,000,000	896,188
1.50%, TBA, 1/1/39	1,000,000	870,870
		30,441,945
Total U.S. government and agency mortgage obligations (cost \$37,605,937)		\$38,828,556

MORTGAGE-BACKED SECURITIES (80.2%)*	Principal amount	Value
Agency collateralized mortgage obligations (31.1%)		
Federal Home Loan Mortgage Corporation		
Strips FRB Ser. 406, Class F30, (US 30 Day Average SOFR + 1.15%), 6.487%, 10/25/53	\$97,343	\$98,688
REMICs Ser. 4018, Class DI, IO, 4.50%, 7/15/41	43,360	2,325
REMICs Ser. 4953, Class AI, IO, 4.00%, 2/25/50	695,876	137,338
REMICs Ser. 23-5349, Class IB, IO, 4.00%, 12/15/46	291,927	57,702
REMICs Ser. 4019, Class JI, IO, 4.00%, 5/15/41	72,594	4,589
REMICs IFB Ser. 3408, Class EK, ((-4.024 x US 30 Day Average SOFR) + 25.33%), 3.851%, 4/15/37	9,984	11,742
REMICs IFB Ser. 3065, Class DC, ((-3 x US 30 Day Average SOFR) + 19.52%), 3.501%, 3/15/35	70,058	72,578

MORTGAGE-BACKED SECURITIES (80.2%)* cont.	Principal amount	Value
Agency collateralized mortgage obligations cont.		
REMICs Ser. 5050, Class IM, IO, 3.50%, 10/25/50	\$551,462	\$103,070
REMICs Ser. 4136, Class IQ, IO, 3.50%, 11/15/42	191,922	26,263
Strips Ser. 304, Class C37, IO, 3.50%, 12/15/27	33,886	1,031
REMICs Ser. 5071, Class IV, IO, 3.00%, 12/25/50	1,049,126	178,063
REMICs Ser. 23-5349, Class IA, IO, 3.00%, 12/15/42	672,549	60,182
REMICs IFB Ser. 5003, Class DS, IO, ((-1 x US 30 Day Average SOFR) + 5.99%), 0.648%, 8/25/50	619,296	78,968
REMICs IFB Ser. 4915, Class SD, IO, ((-1 x US 30 Day Average SOFR) + 5.94%), 0.598%, 9/25/49	444,734	47,089
REMICs IFB Ser. 4933, Class SA, IO, ((-1 x US 30 Day Average SOFR) + 5.89%), 0.548%, 12/25/49	656,707	82,425
REMICs Ser. 3391, PO, zero %, 4/15/37	2,483	2,091
Federal National Mortgage Association		
REMICs Ser. 15-58, Class KI, IO, 6.00%, 3/25/37	278,697	46,974
Trust FRB Ser. 03-W8, Class 3F2, (US 30 Day Average SOFR + 0.46%), 5.802%, 5/25/42	1,690	1,687
REMICs Ser. 15-86, Class MI, IO, 5.50%, 11/25/45	235,891	38,646
REMICs Ser. 18-51, Class BI, IO, 5.50%, 7/25/38	257,795	21,125
REMICs Ser. 17-19, Class IH, IO, 5.00%, 3/25/47	257,936	37,200
REMICs Ser. 20-31, IO, 4.50%, 5/25/50	1,153,733	222,779
REMICs Ser. 23-49, Class IC, IO, 4.00%, 11/25/49	194,824	32,830
REMICs Ser. 12-104, Class HI, IO, 4.00%, 9/25/27	68,023	2,518
REMICs Ser. 21-25, Class IJ, IO, 3.50%, 5/25/51	447,880	83,664
REMICs Ser. 20-62, Class MI, IO, 3.50%, 5/25/49	1,103,038	201,172
REMICs Ser. 23-49, Class IB, IO, 3.50%, 3/25/47	581,596	91,213
REMICs IFB Ser. 08-24, Class SP, ((-3.667 x US 30 Day Average SOFR) + 22.86%), 3.293%, 2/25/38	21,912	21,769
REMICs Ser. 20-96, IO, 3.00%, 1/25/51	816,190	133,839
REMICs Ser. 23-49, Class IA, IO, 3.00%, 8/25/46	578,374	68,615
REMICs Ser. 21-12, Class NI, IO, 2.50%, 3/25/51	692,088	112,893
REMICs Ser. 21-3, Class IB, IO, 2.50%, 2/25/51	715,508	114,539
REMICs IFB Ser. 11-123, Class KS, IO, ((-1 x US 30 Day Average SOFR) + 6.49%), 1.148%, 10/25/41	14,925	1,226
REMICs IFB Ser. 18-20, Class SB, IO, ((-1 x US 30 Day Average SOFR) + 6.14%), 0.798%, 3/25/48	323,609	28,931
REMICs IFB Ser. 18-38, Class SP, IO, ((-1 x US 30 Day Average SOFR) + 6.09%), 0.748%, 6/25/48	665,040	74,239
REMICs IFB Ser. 20-41, Class SE, IO, ((-1 x US 30 Day Average SOFR) + 5.99%), 0.648%, 6/25/50	1,221,859	160,320
REMICs IFB Ser. 16-50, Class SM, IO, ((-1 x US 30 Day Average SOFR) + 5.99%), 0.648%, 8/25/46	502,728	35,502
REMICs IFB Ser. 16-8, Class SA, IO, ((-1 x US 30 Day Average SOFR) + 5.94%), 0.598%, 3/25/46	726,926	78,723
REMICs IFB Ser. 19-71, Class CS, IO, ((-1 x US 30 Day Average SOFR) + 5.89%), 0.548%, 11/25/49	62,865	8,541
REMICs Ser. 08-53, Class DO, PO, zero %, 7/25/38	12,208	10,002

MORTGAGE-BACKED SECURITIES (80.2%)* cont.	Principal amount	Value
Agency collateralized mortgage obligations cont.		
Government National Mortgage Association		
Ser. 16-75, Class LI, IO, 6.00%, 1/20/40	\$158,623	\$26,342
Ser. 20-167, Class IT, IO, 5.00%, 9/20/47	435,688	86,987
Ser. 15-89, Class LI, IO, 5.00%, 12/20/44	268,338	54,443
Ser. 14-76, IO, 5.00%, 5/20/44	149,443	29,793
Ser. 13-51, Class QI, IO, 5.00%, 2/20/43	109,040	14,316
Ser. 13-6, Class OI, IO, 5.00%, 1/20/43	48,668	9,220
Ser. 10-35, Class UI, IO, 5.00%, 3/20/40	69,571	14,303
Ser. 10-9, Class UI, IO, 5.00%, 1/20/40	226,118	46,990
Ser. 09-121, Class UI, IO, 5.00%, 12/20/39	176,585	36,414
Ser. 18-1, IO, 4.50%, 1/20/48	253,738	49,766
Ser. 13-34, Class HI, IO, 4.50%, 3/20/43	161,993	29,565
Ser. 13-39, Class IJ, IO, 4.50%, 3/20/43	448,989	84,289
Ser. 10-35, Class AI, IO, 4.50%, 3/20/40	152,643	24,726
Ser. 10-35, Class DI, IO, 4.50%, 3/20/40	92,899	17,371
Ser. 10-35, Class QI, IO, 4.50%, 3/20/40	53,474	9,968
Ser. 09-121, Class CI, IO, 4.50%, 12/16/39	217,535	40,293
Ser. 15-53, Class MI, IO, 4.00%, 4/16/45	188,143	34,732
Ser. 14-100, Class NI, IO, 4.00%, 6/20/43	108,548	6,255
Ser. 13-165, Class IL, IO, 4.00%, 3/20/43	48,173	7,450
Ser. 12-56, Class IB, IO, 4.00%, 4/20/42	148,657	25,482
Ser. 12-38, Class MI, IO, 4.00%, 3/20/42	591,093	103,004
Ser. 14-182, Class BI, IO, 4.00%, 1/20/39	240,762	22,050
Ser. 21-177, Class IG, IO, 3.50%, 10/20/51	1,402,801	201,771
Ser. 20-175, Class JI, IO, 3.50%, 11/20/50	1,525,072	262,896
Ser. 15-168, Class IG, IO, 3.50%, 3/20/43	93,082	11,848
Ser. 12-136, IO, 3.50%, 11/20/42	241,022	34,527
Ser. 14-102, Class IG, IO, 3.50%, 3/16/41	28,966	1,137
Ser. 15-52, Class KI, IO, 3.50%, 11/20/40	82,483	4,674
Ser. 21-176, Class GI, IO, 3.00%, 10/20/51	853,957	123,593
Ser. 21-188, Class IU, IO, 3.00%, 10/20/51	589,004	117,327
Ser. 21-188, Class IW, IO, 3.00%, 10/20/51	597,240	93,926
Ser. 21-76, Class NI, IO, 3.00%, 8/20/50	1,229,129	189,040
Ser. 14-174, Class AI, IO, 3.00%, 11/16/29	130,296	5,955
Ser. 16-H13, Class IK, IO, 2.671%, 6/20/66 W	559,878	45,677
Ser. 21-7, Class MI, IO, 2.50%, 1/20/51	1,022,914	137,452
Ser. 21-8, Class IP, IO, 2.50%, 1/20/51	1,262,091	176,966
Ser. 20-162, Class UI, IO, 2.50%, 10/20/50	912,183	121,828
Ser. 20-138, Class IB, IO, 2.50%, 9/20/50	1,108,304	142,665
Ser. 16-H04, Class HI, IO, 2.345%, 7/20/65 W	261,838	6,677
Ser. 16-H07, Class PI, IO, 2.276%, 3/20/66 W	1,183,431	74,454
Ser. 16-H24, IO, 2.16%, 9/20/66 W	608,047	45,690
IFB Ser. 23-66, Class PS, ((-2.5 x US 30 Day Average SOFR) + 15.38%), 2.031%, 5/20/53	193,153	192,080
Ser. 15-H23, Class TI, IO, 1.917%, 9/20/65 W	554,693	22,909
IFB Ser. 23-20, Class SP, IO, ((-1 x US 30 Day Average SOFR) + 7.00%), 1.662%, 2/20/53	2,325,442	146,939
Ser. 14-H25, Class BI, IO, 1.65%, 12/20/64 W	567,009	14,696
IFB Ser. 23-7, Class AS, IO, ((-1 x US 30 Day Average SOFR) + 6.90%), 1.562%, 1/20/53	3,705,669	206,506
IFB Ser. 23-84, Class UA, ((-2 x US 30 Day Average SOFR) + 12.00%), 1.325%, 6/20/53	139,737	126,101
IFB Ser. 13-182, Class SP, IO, ((-1 x CME Term SOFR 1 Month) + 6.59%), 1.228%, 12/20/43	118,549	13,536
IFB Ser. 23-136, Class GS, IO, ((-1 x US 30 Day Average SOFR) + 6.50%), 1.162%, 9/20/53	4,419,602	207,402
IFB Ser. 11-156, Class SK, IO, ((-1 x CME Term SOFR 1 Month) + 6.49%), 1.128%, 4/20/38	358,460	41,664
Ser. 17-H14, Class LI, IO, 1.014%, 6/20/67 W	411,031	19,035
FRB Ser. 16-H19, Class AI, IO, 0.878%, 9/20/66 W	977,101	39,978

MORTGAGE-BACKED SECURITIES (80.2%)* cont.	Principal amount	Value
Agency collateralized mortgage obligations cont.		
Government National Mortgage Association		
Ser. 17-H25, IO, 0.846%, 11/20/67 W	\$554,513	\$18,336
IFB Ser. 21-98, Class SK, IO, ((-1 x CME Term SOFR 1 Month) + 6.19%), 0.828%, 6/20/51	864,447	112,274
IFB Ser. 20-112, Class MS, IO, ((-1 x CME Term SOFR 1 Month) + 6.19%), 0.828%, 8/20/50	1,407,717	187,043
IFB Ser. 23-56, Class AS, IO, ((-1 x US 30 Day Average SOFR) + 6.16%), 0.822%, 4/20/53	4,530,453	331,481
Ser. 16-H23, Class NI, IO, 0.769%, 10/20/66 W	929,993	39,711
IFB Ser. 13-87, Class SA, IO, ((-1 x CME Term SOFR 1 Month) + 6.09%), 0.728%, 6/20/43	555,417	56,555
Ser. 16-H24, Class JI, IO, 0.717%, 11/20/66 W	336,513	16,605
IFB Ser. 19-56, Class SK, IO, ((-1 x CME Term SOFR 1 Month) + 6.04%), 0.678%, 5/20/49	391,635	38,426
IFB Ser. 19-158, Class AS, IO, ((-1 x CME Term SOFR 1 Month) + 6.04%), 0.677%, 9/16/43	536,050	55,780
IFB Ser. 23-181, Class DS, IO, ((-1 x US 30 Day Average SOFR) + 6.00%), 0.662%, 11/20/53	4,894,677	271,336
IFB Ser. 18-148, Class GS, IO, ((-1 x CME Term SOFR 1 Month) + 5.99%), 0.627%, 2/16/46	300,240	30,171
IFB Ser. 20-7, Class SK, IO, ((-1 x CME Term SOFR 1 Month) + 5.94%), 0.578%, 1/20/50	548,510	59,161
IFB Ser. 19-125, Class SG, IO, ((-1 x CME Term SOFR 1 Month) + 5.94%), 0.578%, 10/20/49	612,261	81,440
IFB Ser. 19-110, Class SQ, IO, ((-1 x CME Term SOFR 1 Month) + 5.94%), 0.578%, 9/20/49	632,527	67,417
Ser. 15-H20, Class CI, IO, 0.536%, 8/20/65 W	796,214	42,438
IFB Ser. 19-121, Class SD, IO, ((-1 x CME Term SOFR 1 Month) + 5.89%), 0.528%, 10/20/49	249,994	32,619
IFB Ser. 20-47, Class SA, IO, ((-1 x CME Term SOFR 1 Month) + 5.89%), 0.528%, 5/20/44	450,198	41,661
Ser. 16-H24, Class BI, IO, 0.515%, 11/20/66 W	1,813,861	67,920
FRB Ser. 15-H16, Class XI, IO, 0.514%, 7/20/65 W	431,722	22,536
Ser. 15-H14, Class AI, IO, 0.467%, 6/20/65 W	1,102,371	41,735
Ser. 16-H18, Class QI, IO, 0.454%, 6/20/66 W	577,745	29,309
Ser. 15-H22, Class AI, IO, 0.432%, 9/20/65 W	830,706	41,037
Ser. 17-H20, Class AI, IO, 0.379%, 10/20/67 W	1,239,880	49,701
IFB Ser. 23-40, Class SP, IO, ((-1 x US 30 Day Average SOFR) + 5.65%), 0.312%, 3/20/53	3,392,668	131,214
IFB Ser. 23-43, Class S, IO, ((-1 x US 30 Day Average SOFR) + 5.60%), 0.262%, 3/20/53	4,286,653	139,396
IFB Ser. 22-209, Class SG, IO, ((-1 x US 30 Day Average SOFR) + 5.60%), 0.262%, 12/20/52	3,531,801	210,501
Ser. 17-H08, Class GI, IO, 0.229%, 2/20/67 W	475,186	40,756
Ser. 18-H01, Class XI, IO, 0.221%, 1/20/68 W	722,881	47,434
Ser. 17-H03, Class KI, IO, 0.19%, 1/20/67 W	769,583	64,029
Ser. 14-H21, Class AI, IO, 0.157%, 10/20/64 W	786,885	24,625
Ser. 17-H25, Class CI, IO, 0.112%, 12/20/67 W	882,146	52,483
Ser. 16-H27, Class GI, IO, 0.104%, 12/20/66 W	864,318	42,576
Ser. 18-H02, Class IM, IO, 0.091%, 2/20/68 W	503,121	30,430
Ser. 15-H13, Class AI, IO, 0.087%, 6/20/65 W	561,672	24,129
Ser. 15-H10, Class HI, IO, 0.076%, 4/20/65 W	1,139,375	47,968
Ser. 17-H06, Class MI, IO, 0.065%, 2/20/67 W	778,202	30,064
Ser. 17-H04, Class BI, IO, 0.038%, 2/20/67 W	494,159	21,166
Ser. 16-H03, Class AI, IO, 0.035%, 1/20/66 W	713,867	25,983
Ser. 16-H06, Class DI, IO, 0.032%, 7/20/65 W	630,384	15,968
Ser. 15-H04, Class AI, IO, 0.029%, 12/20/64 W	521,062	16,094
Ser. 17-H10, Class MI, IO, 0.02%, 4/20/67 W	551,974	18,602
Ser. 17-H08, Class NI, IO, 0.019%, 3/20/67 W	476,815	18,262
Ser. 17-H09, IO, 0.014%, 4/20/67 W	498,993	15,257
Ser. 16-H10, Class AI, IO, zero %, 4/20/66 W	656,871	13,307
		8,960,735

MORTGAGE-BACKED SECURITIES (80.2%)* cont.	Principal amount	Value
Commercial mortgage-backed securities (27.2%)		
BANK FRB Ser. 20-BN26, Class XA, IO, 1.209%, 3/15/63 W	\$1,000,252	\$52,871
BANK 144A FRB Ser. 18-BN11, Class D, 3.00%, 3/15/61	59,000	34,296
Barclays Commercial Mortgage Trust 144A		
Ser. 19-C4, Class E, 3.25%, 8/15/52	111,000	66,535
Ser. 19-C3, Class D, 3.00%, 5/15/52	65,000	43,509
FRB Ser. 19-C5, Class F, 2.601%, 11/15/52 W	80,000	42,280
Benchmark Mortgage Trust FRB Ser. 18-B1, Class C, 4.177%, 1/15/51 W	59,000	43,805
Benchmark Mortgage Trust 144A		
FRB Ser. 18-B3, Class D, 3.022%, 4/10/51 W	218,000	126,522
Ser. 19-B11, Class D, 3.00%, 5/15/52	115,000	73,893
Ser. 18-B1, Class E, 3.00%, 1/15/51 W	108,000	60,159
Ser. 19-B13, Class D, 2.50%, 8/15/57	105,000	57,456
BWAY Mortgage Trust 144A FRB Ser. 22-26BW, Class F, 4.866%, 2/10/44 W	138,000	86,573
CD Commercial Mortgage Trust		
FRB Ser. 17-CD3, Class C, 4.538%, 2/10/50 W	134,000	57,783
Ser. 17-CD3, Class B, 3.984%, 2/10/50 W	60,000	39,809
CD Commercial Mortgage Trust 144A		
Ser. 17-CD3, Class D, 3.25%, 2/10/50	140,000	56,446
Ser. 19-CD8, Class D, 3.00%, 8/15/57	84,000	44,867
Citigroup Commercial Mortgage Trust FRB		
Ser. 15-GC27, Class C, 4.419%, 2/10/48 W	116,000	104,545
Citigroup Commercial Mortgage Trust 144A		
FRB Ser. 15-GC27, Class D, 4.419%, 2/10/48 W	70,000	59,405
Ser. 15-P1, Class D, 3.225%, 9/15/48	157,000	117,766
Ser. 15-GC27, Class E, 3.00%, 2/10/48	150,000	100,506
COMM Mortgage Trust		
FRB Ser. 13-CR13, Class C, 4.991%, 11/10/46 W	79,000	72,370
FRB Ser. 14-CR16, Class C, 4.913%, 4/10/47 W	119,000	99,118
FRB Ser. 14-CR17, Class C, 4.732%, 5/10/47 W	63,000	52,644
FRB Ser. 18-COR3, Class C, 4.559%, 5/10/51 W	67,000	45,946
Ser. 13-CR12, Class AM, 4.30%, 10/10/46	106,000	86,971
FRB Ser. 15-CR23, Class C, 4.287%, 5/10/48 W	72,000	64,345
Ser. 15-DC1, Class B, 4.035%, 2/10/48 W	85,000	74,174
FRB Ser. 15-CR26, Class D, 3.465%, 10/10/48 W	165,000	108,212
COMM Mortgage Trust 144A		
FRB Ser. 13-LC13, Class D, 5.391%, 8/10/46 W	101,000	76,255
FRB Ser. 14-CR17, Class D, 4.796%, 5/10/47 W	228,000	196,235
FRB Ser. 14-CR17, Class E, 4.796%, 5/10/47 W	124,000	82,410
FRB Ser. 15-LC19, Class E, 4.213%, 2/10/48 W	115,000	79,672
FRB Ser. 13-CR6, Class D, 3.859%, 3/10/46 W	117,000	86,298
Ser. 12-CR4, Class B, 3.703%, 10/15/45	123,000	71,914
Ser. 17-COR2, Class D, 3.00%, 9/10/50	113,000	73,450
FRB Ser. 18-COR3, Class D, 2.809%, 5/10/51 W	112,000	59,133
Credit Suisse Mortgage Trust 144A FRB		
Ser. 22-NWPT, Class A, 8.505%, 9/9/24	111,000	112,182
CSAIL Commercial Mortgage Trust		
FRB Ser. 15-C3, Class C, 4.351%, 8/15/48 W	56,000	42,024
FRB Ser. 15-C1, Class C, 4.25%, 4/15/50 W	124,000	96,059
FRB Ser. 15-C2, Class C, 4.175%, 6/15/57 W	69,000	57,178
FRB Ser. 15-C2, Class D, 4.175%, 6/15/57 W	166,000	107,962
CSAIL Commercial Mortgage Trust 144A		
FRB Ser. 18-C14, Class D, 4.902%, 11/15/51 W	73,000	49,205
Ser. 19-C17, Class D, 2.50%, 9/15/52	138,000	70,720
DBUBS Mortgage Trust 144A FRB Ser. 11-LC3A, Class D, 5.358%, 8/10/44 W	120,160	102,931
Federal Home Loan Mortgage Corporation		
144A Multifamily Structured Credit Risk FRB Ser. 21-MN3, Class M2, 9.337%, 11/25/51	148,000	137,125

MORTGAGE-BACKED SECURITIES (80.2%)* cont.	Principal amount	Value
Commercial mortgage-backed securities cont.		
GS Mortgage Securities Corp., II 144A FRB Ser. 13-GC10, Class D, 4.537%, 2/10/46 W	\$154,000	\$137,641
GS Mortgage Securities Trust		
FRB Ser. 14-GC18, Class C, 5.056%, 1/10/47 W	87,000	79,653
FRB Ser. 14-GC22, Class C, 4.685%, 6/10/47 W	42,000	26,292
FRB Ser. 15-GC30, Class C, 4.068%, 5/10/50 W	40,000	30,733
GS Mortgage Securities Trust 144A		
FRB Ser. 14-GC24, Class D, 4.518%, 9/10/47 W	213,000	94,346
FRB Ser. 13-GC13, Class D, 3.833%, 7/10/46 W	105,000	42,860
Ser. 17-GS5, Class D, 3.509%, 3/10/50 W	61,000	26,716
JPMBB Commercial Mortgage Securities Trust		
FRB Ser. 14-C22, Class C, 4.559%, 9/15/47 W	73,000	55,758
JPMBB Commercial Mortgage Securities Trust 144A		
FRB Ser. C14, Class D, 4.15%, 8/15/46 W	155,000	96,456
FRB Ser. 14-C25, Class D, 3.932%, 11/15/47 W	139,000	83,085
JPMDB Commercial Mortgage Securities Trust		
FRB Ser. 18-C8, Class C, 4.764%, 6/15/51 W	53,000	42,263
Ser. 17-C5, Class C, 4.512%, 3/15/50 W	88,000	54,625
JPMDB Commercial Mortgage Securities Trust 144A FRB Ser. 16-C2, Class D, 3.327%, 6/15/49 W		
	157,000	99,800
JPMorgan Chase Commercial Mortgage Securities Trust		
Ser. 06-LDP9, Class AMS, 5.337%, 5/15/47	96,612	92,773
FRB Ser. 13-LC11, Class D, 4.161%, 4/15/46 W	62,000	22,406
FRB Ser. 13-C10, Class C, 4.073%, 12/15/47 W	73,044	66,328
Ser. 13-LC11, Class B, 3.499%, 4/15/46	49,000	41,895
JPMorgan Chase Commercial Mortgage Securities Trust 144A FRB Ser. 11-C3, Class D, 5.526%, 2/15/46 W		
	145,000	98,520
Morgan Stanley Bank of America Merrill Lynch Trust		
FRB Ser. 15-C25, Class C, 4.517%, 10/15/48 W	122,000	102,670
FRB Ser. 14-C16, Class B, 4.352%, 6/15/47 W	114,000	103,843
FRB Ser. 15-C22, Class C, 4.20%, 4/15/48 W	98,000	88,002
FRB Ser. 17-C34, Class C, 4.174%, 11/15/52 W	60,000	49,465
Ser. 14-C19, Class C, 4.00%, 12/15/47	69,000	63,851
FRB Ser. 13-C9, Class C, 3.73%, 5/15/46 W	58,000	42,237
Morgan Stanley Bank of America Merrill Lynch Trust 144A		
FRB Ser. 14-C15, Class D, 5.011%, 4/15/47 W	180,000	177,300
FRB Ser. 12-C5, Class E, 4.633%, 8/15/45 W	63,000	56,787
FRB Ser. 12-C6, Class E, 4.425%, 11/15/45 W	124,000	78,878
FRB Ser. 15-C24, Class E, 4.323%, 5/15/48 W	104,000	75,670
FRB Ser. 15-C23, Class D, 4.138%, 7/15/50 W	103,000	89,148
FRB Ser. 13-C10, Class F, 3.997%, 7/15/46 W	141,000	6,775
Morgan Stanley Capital I Trust		
FRB Ser. 18-H3, Class C, 4.851%, 7/15/51 W	125,000	104,155
FRB Ser. 15-MS1, Class C, 4.023%, 5/15/48 W	172,000	138,097
Morgan Stanley Capital I Trust 144A FRB		
Ser. 11-C3, Class E, 4.944%, 7/15/49 W	51,240	47,763
Multifamily Connecticut Avenue Securities Trust		
144A FRB Ser. 19-01, Class M10, 8.702%, 10/25/49	411,540	400,204
Ready Capital Mortgage Financing, LLC 144A		
FRB Ser. 22-FL9, Class A, 7.823%, 6/25/37	66,577	66,531
RIAL Issuer, Ltd. 144A FRB Ser. 22-FL8, Class B, 8.608%, 1/19/37 (Bermuda)		
	109,000	104,401
UBS Commercial Mortgage Trust		
FRB Ser. 18-C13, Class C, 4.958%, 10/15/51 W	54,000	46,480
FRB Ser. 18-C11, Class C, 4.882%, 6/15/51 W	117,000	86,389
FRB Ser. 17-C3, Class C, 4.387%, 8/15/50 W	156,000	129,384

MORTGAGE-BACKED SECURITIES (80.2%)* cont.	Principal amount	Value
Commercial mortgage-backed securities cont.		
UBS Commercial Mortgage Trust 144A		
FRB Ser. 12-C1, Class E, 5.00%, 5/10/45 W	\$74,969	\$57,859
FRB Ser. 18-C11, Class D, 3.00%, 6/15/51 W	216,000	140,182
Wells Fargo Commercial Mortgage Trust		
FRB Ser. 16-NXS5, Class D, 4.977%, 1/15/59 W	51,000	28,285
FRB Ser. 18-C46, Class C, 4.97%, 8/15/51 W	51,000	40,380
FRB Ser. 15-SG1, Class B, 4.452%, 9/15/48 W	92,000	82,571
FRB Ser. 15-C29, Class D, 4.218%, 6/15/48 W	99,000	88,142
FRB Ser. 20-C57, Class C, 4.023%, 8/15/53 W	23,000	18,920
FRB Ser. 13-LC12, Class B, 3.954%, 7/15/46 W	112,398	97,722
Ser. 15-C31, Class D, 3.852%, 11/15/48	104,000	69,893
Ser. 16-BNK1, Class C, 3.071%, 8/15/49 W	65,000	33,952
Wells Fargo Commercial Mortgage Trust 144A		
FRB Ser. 15-C31, Class E, 4.594%, 11/15/48 W	118,000	68,213
FRB Ser. 15-C30, Class D, 4.498%, 9/15/58 W	98,000	75,398
Ser. 17-RB1, Class D, 3.401%, 3/15/50	107,000	51,962
Ser. 16-C33, Class D, 3.123%, 3/15/59	122,000	91,069
Ser. 20-C55, Class D, 2.50%, 2/15/53	100,000	54,424
WF-RBS Commercial Mortgage Trust		
Ser. 14-C19, Class B, 4.723%, 3/15/47 W	44,000	43,686
FRB Ser. 12-C10, Class C, 4.329%, 12/15/45 W	57,000	38,827
Ser. 14-C21, Class C, 4.234%, 8/15/47 W	118,000	92,003
WF-RBS Commercial Mortgage Trust 144A		
FRB Ser. 11-C4, Class C, 4.979%, 6/15/44 W	43,377	39,690
FRB Ser. 12-C9, Class D, 4.719%, 11/15/45 W	24,434	23,774
	7,860,691	
Residential mortgage-backed securities (non-agency) (21.9%)		
A&D Mortgage Trust 144A		
Ser. 23-NQM5, Class A1, 7.049%, 11/25/68	134,964	136,068
Ser. 23-NQM2, Class A1, 6.132%, 5/25/68	142,330	141,896
American Home Mortgage Investment Trust FRB		
Ser. 07-1, Class GA1C, (CME Term SOFR 1 Month + 0.30%), 5.66%, 5/25/47	375,084	203,235
Bayview Financial Mortgage Pass-Through Trust		
Ser. 06-C, Class 1A3, 6.528%, 11/28/36	161,592	153,356
Carrington Mortgage Loan Trust FRB		
Ser. 06-NC2, Class A4, (CME Term SOFR 1 Month + 0.59%), 5.95%, 6/25/36	378,735	357,652
Chevy Chase Funding, LLC Mortgage-Backed Certificates 144A FRB Ser. 06-4A, Class A2, (CME Term SOFR 1 Month + 0.29%), 5.65%, 11/25/47		
	124,826	89,716
COLT Mortgage Loan Trust 144A Ser. 23-3, Class A1, 7.18%, 9/25/68		
	202,793	207,122
Countrywide Alternative Loan Trust FRB		
Ser. 06-OA19, Class A1, (CME Term SOFR 1 Month + 0.29%), 5.652%, 2/20/47	156,806	120,051
Countrywide Asset-Backed Certificates FRB		
Ser. 07-10, Class 1A1, (CME Term SOFR 1 Month + 0.29%), 5.65%, 6/25/47	202,454	189,893
CSMC Trust 144A FRB Ser. 20-RPL2, Class A12, 3.529%, 2/25/60 W		
	110,930	117,596
Federal Home Loan Mortgage Corporation		
Structured Agency Credit Risk Debt FRN Ser. 15-HQA1, Class B, (US 30 Day Average SOFR + 8.91%), 14.252%, 3/25/28	246,684	254,714
Structured Agency Credit Risk Debt FRN Ser. 16-DNA3, Class M3, (US 30 Day Average SOFR + 5.11%), 10.452%, 12/25/28	123,969	131,838
Seasoned Credit Risk Transfer Trust Ser. 19-3, Class M, 4.75%, 10/25/58 W	50,000	46,532

MORTGAGE-BACKED SECURITIES (80.2%)* cont.	Principal amount	Value
Residential mortgage-backed securities (non-agency) cont.		
Federal Home Loan Mortgage Corporation 144A		
Structured Agency Credit Risk Trust FRB Ser. 19-HQA1, Class B2, (US 30 Day Average SOFR + 12.36%), 17.702%, 2/25/49	\$222,000	\$276,724
Structured Agency Credit Risk Trust REMICs FRB Ser. 20-DNA5, Class B2, (US 30 Day Average SOFR + 11.50%), 16.837%, 10/25/50	56,000	73,150
Structured Agency Credit Risk Trust FRB Ser. 18-HQA2, Class B2, (US 30 Day Average SOFR + 11.11%), 16.452%, 10/25/48	413,000	509,447
Structured Agency Credit Risk Trust FRB Ser. 19-DNA1, Class B2, (US 30 Day Average SOFR + 10.86%), 16.202%, 1/25/49	32,000	40,239
Structured Agency Credit Risk Trust FRB Ser. 19-DNA2, Class B2, (US 30 Day Average SOFR + 10.61%), 15.952%, 3/25/49	114,000	134,476
Structured Agency Credit Risk Trust REMICs FRB Ser. 20-DNA4, Class B2, (US 30 Day Average SOFR + 10.11%), 15.452%, 8/25/50	65,000	83,911
Structured Agency Credit Risk Trust REMICs FRB Ser. 20-HQA3, Class B2, (US 30 Day Average SOFR + 10.11%), 15.452%, 7/25/50	64,000	81,220
Structured Agency Credit Risk Trust REMICs FRB Ser. 22-DNA3, Class B2, (US 30 Day Average SOFR + 9.75%), 15.087%, 4/25/42	50,000	55,615
Structured Agency Credit Risk Trust FRB Ser. 18-DNA3, Class B2, (US 30 Day Average SOFR + 7.86%), 13.202%, 9/25/48	431,000	487,146
Structured Agency Credit Risk Trust REMICs FRB Ser. 20-HQA3, Class B1, (US 30 Day Average SOFR + 5.86%), 11.202%, 7/25/50	193,006	213,070
Structured Agency Credit Risk Trust REMICs FRB Ser. 20-HQA4, Class B1, (US 30 Day Average SOFR + 5.36%), 10.702%, 9/25/50	40,760	44,296
Structured Agency Credit Risk Trust REMICs FRB Ser. 20-DNA5, Class B1, (US 30 Day Average SOFR + 4.80%), 10.137%, 10/25/50	205,000	229,728
Structured Agency Credit Risk Trust REMICs FRB Ser. 20-HQA2, Class B1, (US 30 Day Average SOFR + 4.21%), 9.552%, 3/25/50	124,000	134,858
Seasoned Credit Risk Transfer Trust Ser. 19-2, Class M, 4.75%, 8/25/58 W	69,000	61,729
Seasoned Credit Risk Transfer Trust Ser. 17-3, Class M2, 4.75%, 7/25/56 W	138,000	129,138
Seasoned Credit Risk Transfer Trust FRB Ser. 18-3, Class 3, 4.75%, 8/25/57 W	70,000	63,494
Federal National Mortgage Association		
Connecticut Avenue Securities FRB Ser. 16-C03, Class 1B, (US 30 Day Average SOFR + 11.86%), 17.202%, 10/25/28	154,758	179,648
Federal National Mortgage Association 144A		
Connecticut Avenue Securities Trust FRB Ser. 22-R02, Class 2B1, (US 30 Day Average SOFR + 4.50%), 9.837%, 1/25/42	35,000	36,181
Connecticut Avenue Securities Trust FRB Ser. 19-R01, Class 2B1, (US 30 Day Average SOFR + 4.46%), 9.802%, 7/25/31	211,000	225,770
Connecticut Avenue Securities Trust FRB Ser. 19-R05, Class 1B1, (US 30 Day Average SOFR + 4.21%), 9.552%, 7/25/39	72,938	75,823
Connecticut Avenue Securities Trust FRB Ser. 19-R03, Class 1B1, (US 30 Day Average SOFR + 4.21%), 9.552%, 9/25/31	60,760	64,240

MORTGAGE-BACKED SECURITIES (80.2%)* cont.	Principal amount	Value
Residential mortgage-backed securities (non-agency) cont.		
Federal National Mortgage Association 144A Connecticut Avenue Securities Trust FRB Ser. 20-SBT1, Class 1M2, (US 30 Day Average SOFR + 3.76%), 9.102%, 2/25/40	\$79,000	\$83,024
Connecticut Avenue Securities Trust FRB Ser. 20-R02, Class 2B1, (US 30 Day Average SOFR + 3.11%), 8.452%, 1/25/40	35,000	35,136
Connecticut Avenue Securities Trust FRB Ser. 22-R02, Class 2M2, (US 30 Day Average SOFR + 3.00%), 8.337%, 1/25/42	292,000	296,118
JPMorgan Alternative Loan Trust FRB Ser. 06-A6, Class 1A1, (CME Term SOFR 1 Month + 0.43%), 5.79%, 11/25/36	65,121	54,327
Morgan Stanley ABS Capital I, Inc. Trust FRB Ser. 04-HE9, Class M2, (CME Term SOFR 1 Month + 1.04%), 6.40%, 11/25/34	6,138	5,869
Morgan Stanley Re-REMIC Trust 144A FRB Ser. 10-R4, Class 4B, (CME Term SOFR 1 Month + 0.34%), 2.278%, 2/26/37	62,113	52,572
Structured Asset Mortgage Investments II Trust FRB Ser. 07-AR7, Class 1A1, (CME Term SOFR 1 Month + 0.96%), 6.32%, 5/25/47	359,112	287,942
FRB Ser. 06-AR7, Class A1BG, (CME Term SOFR 1 Month + 0.23%), 5.59%, 8/25/36	21,929	18,386
Towd Point Mortgage Trust 144A Ser. 19-2, Class A2, 3.75%, 12/25/58 ^W	102,000	92,185
WaMu Mortgage Pass-Through Certificates Trust FRB Ser. 05-AR8, Class 2AC2, (CME Term SOFR 1 Month + 1.03%), 6.39%, 7/25/45	60,152	53,284
		6,328,415
Total mortgage-backed securities (cost \$25,188,639)		\$23,149,841
ASSET-BACKED SECURITIES (0.3%)*		
Mello Warehouse Securitization Trust 144A FRB Ser. 21-3, Class D, (CME Term SOFR 1 Month + 2.11%), 7.47%, 10/22/24	\$94,000	\$92,695
Total asset-backed securities (cost \$89,886)		\$92,695
SHORT-TERM INVESTMENTS (14.1%)*		
Putnam Short Term Investment Fund Class P5.53% ^L	Shares 2,743,853	\$2,743,853
State Street Institutional U.S. Government Money Market Fund, Premier Class 5.32% ^P	Shares 621,000	621,000
U.S. Treasury Bills 5.455%, 1/23/24 # ^Δ	\$700,000	697,849
Total short-term investments (cost \$4,062,586)		\$4,062,702
Total investments (cost \$66,947,048)		\$66,133,794

Key to holding's abbreviations

CME	Chicago Mercantile Exchange
FRB	Floating Rate Bonds: The rate shown is the current interest rate at the close of the reporting period. Rates may be subject to a cap or floor. For certain securities, the rate may represent a fixed rate currently in place at the close of the reporting period.
FRN	Floating Rate Notes: The rate shown is the current interest rate or yield at the close of the reporting period. Rates may be subject to a cap or floor. For certain securities, the rate may represent a fixed rate currently in place at the close of the reporting period.
IFB	Inverse Floating Rate Bonds, which are securities that pay interest rates that vary inversely to changes in the market interest rates. As interest rates rise, inverse floaters produce less current income. The rate shown is the current interest rate at the close of the reporting period. Rates may be subject to a cap or floor.
IO	Interest Only
PO	Principal Only
REMICs	Real Estate Mortgage Investment Conduits
SOFR	Secured Overnight Financing Rate
TBA	To Be Announced Commitments

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 \$28,854,517.
- # 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 \$443,354 and is included in Investments in securities on the Statement of assets and liabilities (Notes 1 and 8).
- Δ This security, in part or in entirety, was pledged and segregated with the custodian for collateral on certain derivative contracts at the close of the reporting period. Collateral at period end totaled \$101,623 and is included in Investments in securities on the Statement of assets and liabilities (Notes 1 and 8).
- ^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.
- ^P This security was pledged, or purchased with cash that was pledged, to the fund for collateral on certain derivative contracts and TBA commitments. The rate quoted in the security description is the annualized 7-day yield of the fund at the close of the reporting period.
- ^W The rate shown represents the weighted average coupon associated with the underlying mortgage pools. Rates may be subject to a cap or floor. Unless otherwise noted, the rates quoted in Short-term investments security descriptions represent the weighted average yield to maturity. 144A after the name of an issuer represents securities exempt from registration under Rule 144A of the Securities Act of 1933, as amended. These securities may be resold in transactions exempt from registration, normally to qualified institutional buyers. See Note 1 to the financial statements regarding TBA commitments. The dates shown on debt obligations are the original maturity dates.

FUTURES CONTRACTS OUTSTANDING at 12/31/23	Number of contracts	Notional amount	Value	Expiration date	Unrealized appreciation/ (depreciation)
U.S. Treasury Note 2yr (Short)	96	\$19,767,750	\$19,767,750	Mar-24	\$(204,489)
U.S. Treasury Note Ultra 10yr (Short)	106	12,509,656	12,509,656	Mar-24	(564,208)
Unrealized appreciation					—
Unrealized (depreciation)					(768,697)
Total					\$(768,697)

FORWARD PREMIUM SWAP OPTION CONTRACTS OUTSTANDING at 12/31/23

Counterparty	Fixed right or obligation % to receive or (pay)/ Floating rate index/Maturity date	Expiration date/strike	Contract amount	Premium receivable/ (payable)	Unrealized appreciation/ (depreciation)
Bank of America N.A.					
	3.63/US SOFR/Mar-26 (Written)	Mar-24/3.63	\$4,239,200	\$52,778	\$22,807
	(3.63)/US SOFR/Mar-26 (Written)	Mar-24/3.63	4,239,200	52,778	38,450
	1.8838/US SOFR/Apr-34 (Purchased)	Apr-24/1.8838	3,068,600	(22,444)	(20,529)
	3.1625/US SOFR/Mar-37 (Written)	Mar-27/3.1625	2,037,900	140,615	509
	(3.1625)/US SOFR/Mar-37 (Written)	Mar-27/3.1625	2,037,900	140,615	36,682
	(4.225)/US SOFR/Nov-36 (Purchased)	Nov-26/4.225	1,304,300	(66,780)	(22,982)
	3.725/US SOFR/Nov-36 (Purchased)	Nov-26/3.725	1,304,300	(63,780)	29,542
	(3.03)/US SOFR/Feb-33 (Written)	Feb-28/3.03	1,289,800	89,935	8,190
	3.03/US SOFR/Feb-33 (Written)	Feb-28/3.03	1,289,800	89,935	(7,777)
	(3.03)/US SOFR/Mar-36 (Purchased)	Mar-26/3.03	883,600	(56,506)	804
	3.03/US SOFR/Mar-36 (Purchased)	Mar-26/3.03	883,600	(56,506)	(20,835)
	0.9876/US SOFR/Mar-50 (Purchased)	Mar-30/0.9876	671,400	(14,584)	(4,337)
	(0.9876)/US SOFR/Mar-50 (Purchased)	Mar-30/0.9876	671,400	(216,835)	15,127
	(1.405)/US SOFR/Dec-58 (Purchased)	Dec-28/1.405	153,500	(23,543)	25,596
	1.405/US SOFR/Dec-58 (Purchased)	Dec-28/1.405	153,500	(23,543)	(16,550)
Barclays Bank PLC					
	3.00/US SOFR/Dec-48 (Purchased)	Dec-38/3.00	3,929,100	(260,499)	29,193
	1.945/US SOFR/Jun-51 (Purchased)	Jun-31/1.945	2,648,900	(142,776)	(26,966)
	(1.945)/US SOFR/Jun-51 (Purchased)	Jun-31/1.945	2,648,900	(561,567)	46,991
Citibank, N.A.					
	3.803/US SOFR/Mar-34 (Written)	Mar-24/3.803	928,900	8,554	2,545
	3.518/US SOFR/Mar-34 (Purchased)	Mar-24/3.518	928,900	(17,456)	3,344
	(3.233)/US SOFR/Mar-34 (Written)	Mar-24/3.233	928,900	8,708	(1,598)
Deutsche Bank AG					
	2.98/US SOFR/Mar-35 (Written)	Mar-30/2.98	1,137,900	233,759	(6,293)
	(2.98)/US SOFR/Mar-35 (Written)	Mar-30/2.98	1,137,900	233,759	13,689
	(3.19)/US SOFR/Mar-38 (Written)	Mar-28/3.19	332,400	23,152	4,597
	3.19/US SOFR/Mar-38 (Written)	Mar-28/3.19	332,400	23,152	(1,722)
JPMorgan Chase Bank N.A.					
	(3.0925)/US SOFR/Mar-43 (Written)	Mar-33/3.0925	691,100	58,052	11,956
	3.0925/US SOFR/Mar-43 (Written)	Mar-33/3.0925	691,100	58,052	(5,923)
	3.1525/US SOFR/Mar-40 (Written)	Mar-30/3.1525	339,100	26,874	(2,160)
	(3.1525)/US SOFR/Mar-40 (Written)	Mar-30/3.1525	339,100	26,874	6,046
Toronto-Dominion Bank					
	(2.118)/US SOFR/Mar-41 (Purchased)	Mar-31/2.118	149,600	(19,835)	1,490
	2.118/US SOFR/Mar-41 (Purchased)	Mar-31/2.118	149,600	(4,982)	(709)
Unrealized appreciation					297,558
Unrealized (depreciation)					(138,381)
Total					\$159,177

TBA SALE COMMITMENTS OUTSTANDING at 12/31/23 (proceeds receivable \$5,729,609)	Principal amount	Settlement date	Value
Uniform Mortgage-Backed Securities, 6.50%, 1/1/54	\$1,000,000	1/16/24	\$1,024,531
Uniform Mortgage-Backed Securities, 4.50%, 1/1/54	1,000,000	1/16/24	970,156
Uniform Mortgage-Backed Securities, 4.00%, 1/1/54	2,000,000	1/16/24	1,892,812
Uniform Mortgage-Backed Securities, 3.50%, 1/1/54	2,000,000	1/16/24	1,835,937
Total			\$5,723,436

CENTRALLY CLEARED INTEREST RATE SWAP CONTRACTS OUTSTANDING at 12/31/23

Notional amount	Value	Upfront premium received (paid)	Termination date	Payments made by fund	Payments received by fund	Unrealized appreciation/(depreciation)
\$20,585,000	\$225,817 ^E	\$169,102	3/20/26	4.40% — Annually	US SOFR — Annually	\$(56,714)
4,104,000	125,213 ^E	106,810	3/20/29	4.10% — Annually	US SOFR — Annually	(18,403)
7,975,000	255,679 ^E	(245,709)	3/20/34	US SOFR — Annually	3.80% — Annually	9,969
1,426,000	58,523 ^E	(56,484)	3/20/54	US SOFR — Annually	3.50% — Annually	2,039
1,868,000	61,196 ^E	59,723	3/20/29	4.15% — Annually	US SOFR — Annually	(1,472)
251,000	12,630 ^E	(13,599)	3/20/54	US SOFR — Annually	3.55% — Annually	(970)
893,000	18,289	(12)	12/15/33	3.712% — Annually	US SOFR — Annually	(19,198)
Total		\$19,831				\$(84,749)

^E Extended effective date.

OTC CREDIT DEFAULT CONTRACTS OUTSTANDING — PROTECTION SOLD at 12/31/23

Swap counterparty/Referenced debt*	Rating***	Upfront premium received (paid)**	Notional amount	Value	Termination date	Payments received by fund	Unrealized appreciation/(depreciation)
Citigroup Global Markets, Inc.							
CMBX NA BB.11 Index	B+/P	\$402	\$1,000	\$361	11/18/54	500 bp — Monthly	\$41
CMBX NA BB.13 Index	BB-/P	91,070	213,000	81,749	12/16/72	500 bp — Monthly	9,527
CMBX NA BB.6 Index	B+/P	16,692	57,174	16,792	5/11/63	500 bp — Monthly	(44)
CMBX NA BB.9 Index	B/P	34,073	81,000	30,918	9/17/58	500 bp — Monthly	3,235
CMBX NA BBB-.11 Index	BBB-/P	3,150	15,000	2,486	11/18/54	300 bp — Monthly	673
CMBX NA BBB-.13 Index	BBB-/P	31,495	110,000	26,554	12/16/72	300 bp — Monthly	5,005
CMBX NA BBB-.15 Index	BBB-/P	920	4,000	737	11/18/64	300 bp — Monthly	185
CMBX NA BBB-.16 Index	BBB-/P	18,640	82,000	14,875	4/17/65	300 bp — Monthly	3,813
Credit Suisse International							
CMBX NA BB.7 Index	B-/P	2,541	15,438	5,501	1/17/47	500 bp — Monthly	(2,942)
Goldman Sachs International							
CMBX NAA.7 Index	A-/P	2,018	16,782	1,995	1/17/47	200 bp — Monthly	30
CMBX NA BB.14 Index	BB-/P	6,816	54,000	19,964	12/16/72	500 bp — Monthly	(13,095)
CMBX NA BB.6 Index	B+/P	34,199	117,325	34,458	5/11/63	500 bp — Monthly	(145)
CMBX NA BB.7 Index	B-/P	16,284	46,314	16,502	1/17/47	500 bp — Monthly	(172)
CMBX NA BBB-.16 Index	BBB-/P	10,678	52,000	9,433	4/17/65	300 bp — Monthly	1,276
JPMorgan Securities LLC							
CMBX NAA.13 Index	A-/P	81	1,000	96	12/16/72	200 bp — Monthly	(15)
CMBX NA BB.10 Index	B-/P	2,006	25,000	10,678	5/11/63	500 bp — Monthly	(8,647)
CMBX NA BB.7 Index	B-/P	1,370	3,250	1,158	1/17/47	500 bp — Monthly	216
CMBX NA BB.7 Index	B-/P	30,848	51,190	18,239	1/17/47	500 bp — Monthly	12,667
CMBX NA BBB-.8 Index	BB-/P	6,549	42,000	6,317	10/17/57	300 bp — Monthly	257
Merrill Lynch International							
CMBX NAA.13 Index	A-/P	11,581	87,000	8,387	12/16/72	200 bp — Monthly	3,228
CMBX NAA.13 Index	A-/P	11,339	87,000	8,387	12/16/72	200 bp — Monthly	2,986
CMBX NAA.15 Index	A-/P	65	4,000	347	11/18/64	200 bp — Monthly	(280)
CMBX NA BB.6 Index	B+/P	335	1,787	525	5/11/63	500 bp — Monthly	(188)
CMBX NA BB.7 Index	B-/P	1,452	9,750	3,474	1/17/47	500 bp — Monthly	(2,011)
Morgan Stanley & Co. International PLC							
CMBX NAA.7 Index	A-/P	8,531	67,128	7,981	1/17/47	200 bp — Monthly	586
CMBX NA BB.13 Index	BB-/P	47,356	105,000	40,299	12/16/72	500 bp — Monthly	7,160
CMBX NA BB.6 Index	B+/P	25,456	85,165	25,013	5/11/63	500 bp — Monthly	526
CMBX NA BB.7 Index	B-/P	10,583	28,439	10,133	1/17/47	500 bp — Monthly	482

OTC CREDIT DEFAULT CONTRACTS OUTSTANDING — PROTECTION SOLD at 12/31/23 cont.

Swap counterparty/ Referenced debt*	Rating***	Upfront premium received (paid)**	Notional amount	Value	Termination date	Payments received by fund	Unrealized appreciation/ (depreciation)
Morgan Stanley & Co. International PLC cont.							
CMBX NA BBB-.16 Index	BBB-/P	\$1,591	\$7,000	\$1,270	4/17/65	300 bp — Monthly	\$325
CMBX NA BBB-.7 Index	BB/P	36,264	163,403	31,047	1/17/47	300 bp — Monthly	5,344
CMBX NA BBB-.9 Index	BB/P	194	2,000	350	9/17/58	300 bp — Monthly	(154)
Upfront premium received		464,579					Unrealized appreciation
Upfront premium (paid)		—					Unrealized (depreciation)
Total		\$464,579					Total
							\$29,869

* Payments related to the referenced debt are made upon a credit default event.

** Upfront premium is based on the difference between the original spread on issue and the market spread on day of execution.

*** Ratings for an underlying index represent the average of the ratings of all the securities included in that index. The Moody's, Standard & Poor's or Fitch ratings are believed to be the most recent ratings available at December 31, 2023. Securities rated by Putnam are indicated by "/P." The Putnam rating categories are comparable to the Standard & Poor's classifications.

OTC CREDIT DEFAULT CONTRACTS OUTSTANDING — PROTECTION PURCHASED at 12/31/23

Swap counterparty/ Referenced debt*	Rating***	Upfront premium received (paid)**	Notional amount	Value	Termination date	Payments (paid) by fund	Unrealized appreciation/ (depreciation)
Citigroup Global Markets, Inc.							
CMBX NA BB.10 Index		\$(62,649)	\$135,000	\$57,659	11/17/59	(500 bp) — Monthly	\$(5,122)
CMBX NA BB.7 Index		(57,908)	158,444	56,454	1/17/47	(500 bp) — Monthly	(1,632)
CMBX NA BB.8 Index		(15,155)	33,824	13,848	10/17/57	(500 bp) — Monthly	(1,340)
CMBX NA BBB-.10 Index		(13,826)	46,000	11,031	11/17/59	(300 bp) — Monthly	(2,822)
CMBX NA BBB-.12 Index		(86,840)	306,000	71,665	8/17/61	(300 bp) — Monthly	(15,354)
CMBX NA BBB-.7 Index		(2,566)	11,884	2,258	1/17/47	(300 bp) — Monthly	(317)
CMBX NA BBB-.8 Index		(44,430)	230,000	34,592	10/17/57	(300 bp) — Monthly	(9,972)
CMBX NA BBB-.9 Index		(1,183)	5,000	874	9/17/58	(300 bp) — Monthly	(312)
Credit Suisse International							
CMBX NA BB.10 Index		(2,854)	24,000	10,250	11/17/59	(500 bp) — Monthly	7,373
CMBX NA BB.10 Index		(3,202)	24,000	10,250	11/17/59	(500 bp) — Monthly	7,025
CMBX NA BB.10 Index		(1,616)	13,000	5,552	11/17/59	(500 bp) — Monthly	3,924
Goldman Sachs International							
CMBX NA BB.8 Index		(5,308)	12,563	5,143	10/17/57	(500 bp) — Monthly	(177)
CMBX NA BBB-.12 Index		(6,593)	25,000	5,855	8/17/61	(300 bp) — Monthly	(753)
JPMorgan Securities LLC							
CMBX NAA.15 Index		(364)	4,000	347	11/18/64	(200 bp) — Monthly	(19)
CMBX NA BB.11 Index		(5,148)	5,956	1,749	5/11/63	(500 bp) — Monthly	(3,405)
CMBX NA BB.11 Index		(545)	1,000	361	11/18/54	(500 bp) — Monthly	(185)
CMBX NA BBB-.7 Index		(56,108)	142,012	26,982	1/17/47	(300 bp) — Monthly	(29,236)
Merrill Lynch International							
CMBX NA BB.10 Index		(455)	8,000	3,417	11/17/59	(500 bp) — Monthly	2,954
Morgan Stanley & Co. International PLC							
CMBX NA BB.10 Index		(15,661)	33,000	14,094	11/17/59	(500 bp) — Monthly	(1,599)
CMBX NA BB.8 Index		(2,635)	5,798	2,374	10/17/57	(500 bp) — Monthly	(267)
CMBX NA BB.9 Index		(34,305)	81,000	30,918	9/17/58	(500 bp) — Monthly	(3,466)
CMBX NA BBB-.10 Index		(70,816)	219,000	52,516	11/17/59	(300 bp) — Monthly	(18,428)
CMBX NA BBB-.11 Index		(3,659)	15,000	2,486	11/18/54	(300 bp) — Monthly	(1,182)
CMBX NA BBB-.12 Index		(10,179)	32,000	7,494	8/17/61	(300 bp) — Monthly	(2,703)
CMBX NA BBB-.13 Index		(6,362)	20,000	4,828	12/16/72	(300 bp) — Monthly	(1,545)
CMBX NA BBB-.8 Index		(25,524)	124,000	18,650	10/17/57	(300 bp) — Monthly	(7,111)
Upfront premium received		—					Unrealized appreciation
Upfront premium (paid)		(535,891)					Unrealized (depreciation)
Total		\$(535,891)					Total
							\$(85,671)

* Payments related to the referenced debt are made upon a credit default event.

** Upfront premium is based on the difference between the original spread on issue and the market spread on day of execution.

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:

	Valuation inputs		
	Level 1	Level 2	Level 3
Investments in securities:			
Asset-backed securities	\$—	\$92,695	\$—
Mortgage-backed securities	—	23,149,841	—
U.S. government and agency mortgage obligations	—	38,828,556	—
Short-term investments	621,000	3,441,702	—
Totals by level	\$621,000	\$65,512,794	\$—

	Valuation inputs		
	Level 1	Level 2	Level 3
Other financial instruments:			
Futures contracts	\$(768,697)	\$—	\$—
Forward premium swap option contracts	—	159,177	—
TBA sale commitments	—	(5,723,436)	—
Interest rate swap contracts	—	(104,580)	—
Credit default contracts	—	15,510	—
Totals by level	\$(768,697)	\$(5,653,329)	\$—

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 (Notes 1 and 8):	
Unaffiliated issuers (identified cost \$64,203,195)	\$63,389,941
Affiliated issuers (identified cost \$2,743,853) (Notes 1 and 5)	2,743,853
Interest and other receivables	240,569
Receivable for shares of the fund sold	2,038
Receivable for investments sold	94,366
Receivable for sales of TBA securities (Note 1)	3,896,354
Receivable from Manager (Note 2)	7,731
Receivable for variation margin on futures contracts (Note 1)	9,938
Receivable for variation margin on centrally cleared swap contracts (Note 1)	514,409
Unrealized appreciation on forward premium swap option contracts (Note 1)	297,558
Unrealized appreciation on OTC swap contracts (Note 1)	78,838
Premium paid on OTC swap contracts (Note 1)	535,891
Deposits with broker (Note 1)	349,030
Receivable from broker (Note 1)	8,745
Total assets	72,169,261

Liabilities

Payable for purchases of TBA securities (Note 1)	35,487,613
Payable for shares of the fund repurchased	32,874
Payable for custodian fees (Note 2)	16,073
Payable for investor servicing fees (Note 2)	3,245
Payable for Trustee compensation and expenses (Note 2)	46,277
Payable for administrative services (Note 2)	402
Payable for distribution fees (Note 2)	2,940
Payable for variation margin on futures contracts (Note 1)	11,978
Payable for variation margin on centrally cleared swap contracts (Note 1)	546,488
Unrealized depreciation on forward premium swap option contracts (Note 1)	138,381
Unrealized depreciation on OTC swap contracts (Note 1)	134,640
Premium received on OTC swap contracts (Note 1)	464,579
TBA sale commitments, at value (proceeds receivable \$5,729,609) (Note 1)	5,723,436
Collateral on certain derivative contracts and TBA commitments, at value (Notes 1 and 8)	621,000
Other accrued expenses	84,818
Total liabilities	43,314,744

Net assets

\$28,854,517

Represented by

Paid-in capital (Unlimited shares authorized) (Notes 1 and 4)	\$56,723,583
Total distributable earnings (Note 1)	(27,869,066)
Total — Representing net assets applicable to capital shares outstanding	\$28,854,517

Computation of net asset value Class IA

Net assets	\$14,759,985
Number of shares outstanding	2,318,437
Net asset value, offering price and redemption price per share (net assets divided by number of shares outstanding)	\$6.37

Computation of net asset value Class IB

Net assets	\$14,094,532
Number of shares outstanding	2,224,476
Net asset value, offering price and redemption price per share (net assets divided by number of shares outstanding)	\$6.34

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

Statement of operations

Year ended 12/31/23

Investment income

Interest (including interest income of \$139,178 from investments in affiliated issuers) (Note 5)	\$2,196,123
Total investment income	2,196,123

Expenses

Compensation of Manager (Note 2)	114,250
Investor servicing fees (Note 2)	20,511
Custodian fees (Note 2)	62,205
Trustee compensation and expenses (Note 2)	1,334
Distribution fees (Note 2)	35,409
Administrative services (Note 2)	930
Auditing and tax fees	80,461
Other	20,777
Fees waived and reimbursed by Manager (Note 2)	(153,835)
Total expenses	182,042
Expense reduction (Note 2)	(1,574)
Net expenses	180,468
Net investment income	2,015,655

Realized and unrealized gain (loss)

Net realized gain (loss) on:

Securities from unaffiliated issuers (Notes 1 and 3)	(2,397,584)
Futures contracts (Note 1)	1,620,202
Swap contracts (Note 1)	929,332
Written options (Note 1)	(370,690)
Total net realized loss	(218,740)

Change in net unrealized appreciation (depreciation) on:

Securities from unaffiliated issuers and TBA sale commitments	1,371,853
Futures contracts	(732,707)
Swap contracts	(1,185,566)
Written options	218,660
Total change in net unrealized depreciation	(327,760)

Net loss on investments	(546,500)
Net increase in net assets resulting from operations	\$1,469,155

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
Decrease in net assets		
Operations:		
Net investment income	\$2,015,655	\$1,832,936
Net realized loss on investments	(218,740)	(10,234,743)
Change in net unrealized appreciation (depreciation) of investments	(327,760)	4,754,234
Net increase (decrease) in net assets resulting from operations	1,469,155	(3,647,573)
Distributions to shareholders (Note 1):		
From ordinary income		
Net investment income		
Class IA	(2,466,239)	(1,724,359)
Class IB	(2,261,936)	(1,487,430)
Increase (decrease) from capital share transactions (Note 4)	1,432,098	(3,270,620)
Total decrease in net assets	(1,826,922)	(10,129,982)
Net assets:		
Beginning of year	30,681,439	40,811,421
End of year	\$28,854,517	\$30,681,439

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	From return of capital	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,e}	Ratio of net investment income (loss) to average net assets (%) ^e	Portfolio turnover (%) ^f
Class IA														
12/31/23	\$7.17	.44	(.10)	.34	(1.14)	—	—	(1.14)	\$6.37	5.58	\$14,760	.50	7.01	1,865
12/31/22	8.74	.42	(1.23)	(.81)	(.76)	—	—	(.76)	7.17	(9.95)	16,054	.50	5.41	1,110
12/31/21	9.05	.40	(.71)	(.31)	—	—	—	—	8.74	(3.43)	20,386	.50	4.44	904
12/31/20	10.18	.35	(.57)	(.22)	(.87)	(.02)	(.02)	(.91)	9.05	(1.29)	26,269	.50	3.89	895
12/31/19	9.21	.36	.85	1.21	(.24)	—	—	(.24)	10.18	13.36	31,822	.50	3.68	1,171
Class IB														
12/31/23	\$7.14	.43	(.11)	.32	(1.12)	—	—	(1.12)	\$6.34	5.27	\$14,095	.75	6.76	1,865
12/31/22	8.69	.40	(1.21)	(.81)	(.74)	—	—	(.74)	7.14	(10.07)	14,627	.75	5.16	1,110
12/31/21	9.02	.38	(.71)	(.33)	—	—	—	—	8.69	(3.66)	20,425	.75	4.19	904
12/31/20	10.16	.33	(.58)	(.25)	(.85)	(.02)	(.02)	(.89)	9.02	(1.68)	20,478	.75	3.64	895
12/31/19	9.18	.33	.86	1.19	(.21)	—	—	(.21)	10.16	13.20	26,965	.75	3.44	1,171

^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 arrangements, if any (Note 2). Also excludes acquired fund fees and expenses, if any.

^e Reflects an involuntary contractual expense limitation in effect during the period. As a result of such limitation, the expenses of each class reflect the following reductions as a percentage of average net assets.

	% of average net assets
December 31, 2023	0.53%
December 31, 2022	0.43
December 31, 2021	0.28
December 31, 2020	0.24
December 31, 2019	0.22

^f Portfolio turnover includes TBA purchase and sale commitments.

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

Putnam VT Mortgage Securities 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 as high a level of current income as Putnam Management believes is consistent with preservation of capital. The fund invests mainly in mortgages, mortgage-related fixed income securities and related derivatives that are either investment-grade or below-investment-grade in quality (sometimes referred to as “junk bonds”). Under normal circumstances, the fund invests at least 80% of its net assets (plus any borrowings for investment purposes) in mortgages, mortgage-related fixed income securities and related derivatives (i.e., derivatives used to acquire exposure to, or whose underlying securities are, mortgages or mortgage-related securities). The fund generally uses the net unrealized gain or loss, or market value, of mortgage-related derivatives for purposes of this policy but may use the notional value of a derivative if that is determined to be a more appropriate measure of the fund’s investment exposure. This policy may be changed only after 60 days’ notice to shareholders.

The fund expects to invest in mortgage-backed investments that are obligations of U.S. government agencies and instrumentalities and accordingly are backed by the full faith and credit of the United States (e.g., Ginnie Mae mortgage-backed bonds) as well as in mortgage-backed investments that are backed by only the credit of a federal agency or government-sponsored entity (e.g., Fannie Mae and Freddie Mac mortgage-backed bonds), and that have short- to long-term maturities. The fund currently has significant investment exposure to commercial mortgage-backed securities.

The fund also expects to invest in lower-rated, higher-yielding mortgage-backed securities, including non-agency residential mortgage-backed securities (which may be backed by non-qualified or “sub-prime” mortgages), commercial mortgage-backed securities, and collateralized mortgage obligations (including interest only, principal only, and other prepayment derivatives). Non-agency (i.e., privately issued) securities typically are lower-rated and higher yielding than securities issued or backed by agencies such as Ginnie Mae, Fannie Mae or Freddie Mac. While the fund’s emphasis will be on mortgage-backed securities, it may also invest to a lesser extent in other types of asset-backed securities.

Putnam Management may consider, among other factors, credit, interest rate, prepayment and liquidity risks, as well as general market conditions, when deciding whether to buy or sell investments. The fund typically uses to a significant extent derivatives, including credit default swaps, interest rate swaps, total return swaps, to-be-announced (TBA) commitments, futures, options and swaptions, including on mortgage-backed securities and indices, for both hedging and non-hedging purposes, including to obtain or adjust exposure to mortgage-backed 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, including mortgage backed securities and short-term investments with remaining maturities of 60 days or less, are valued on the basis of valuations provided by an independent pricing service approved by the Trustees or dealers selected by Putnam Management. Such service providers use information with respect to transactions in bonds, quotations from bond dealers, market transactions in comparable securities and various relationships between securities in determining value. These securities will generally be categorized as Level 2.

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.

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. Certain securities may be valued on the basis of a price provided by a single source. 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.

Securities purchased or sold on a delayed delivery basis may be settled at a future date beyond customary settlement time; interest income is accrued based on the terms of the securities. Losses may arise due to changes in the fair value of the underlying securities or if the counterparty does not perform under the contract.

Stripped securities The fund may invest in stripped securities which represent a participation in securities that may be structured in classes with rights to receive different portions of the interest and principal. Interest-only securities receive all of the interest and principal-only securities receive all of the principal. If the interest-only securities experience greater than anticipated prepayments of principal, the fund may fail to recoup fully its initial investment in these securities. Conversely, principal-only securities increase in value if prepayments are greater than anticipated and decline if prepayments are slower than anticipated. The fair value of these securities is highly sensitive to changes in interest rates.

Options contracts The fund uses options contracts to hedge duration and convexity, to isolate prepayment risk and to manage downside risks.

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 contracts for hedging treasury term structure risk and for yield curve positioning.

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.

Interest rate swap contracts The fund entered into OTC and/or centrally cleared interest rate swap contracts, which are arrangements between two parties to exchange cash flows based on a notional principal amount, for hedging term structure risk and for yield curve positioning.

An OTC and centrally cleared interest rate swap can be purchased or sold with an upfront premium. For OTC interest rate swap contracts, an upfront payment received by the fund is recorded as a liability on the fund's books. An upfront payment made by the fund is recorded as an asset on the fund's books. OTC and centrally cleared interest rate swap contracts are marked to market daily based upon quotations from an independent pricing service or market makers. Any change is recorded as an unrealized gain or loss on OTC interest rate swaps. Daily fluctuations in the value of centrally cleared interest rate swaps are settled through a central clearing agent and are recorded in variation margin on the Statement of assets and liabilities and recorded as unrealized gain or loss. Payments, including upfront premiums, received or made are recorded as realized gains or losses at the reset date or the closing of the contract. Certain OTC and centrally cleared interest rate swap contracts may include extended effective dates. Payments related to these swap contracts are accrued based on the terms of the contract.

The fund could be exposed to credit or market risk due to unfavorable changes in the fluctuation of interest rates or if the counterparty defaults, in the case of OTC interest rate contracts, or the central clearing agency or a clearing member defaults, in the case of centrally cleared interest rate swap contracts, on its respective obligation to perform under the contract. The fund's maximum risk of loss from counterparty risk or central clearing risk is the fair value of the contract. This risk may be mitigated for OTC interest rate swap contracts by having a master netting arrangement between the fund and the counterparty and for centrally cleared interest rate swap contracts through the daily exchange of variation margin. There is minimal counterparty risk with respect to centrally cleared interest rate swap contracts due to the clearinghouse guarantee fund and other resources that are available in the event of a clearing member default. Risk of loss may exceed amounts recognized on the Statement of assets and liabilities.

OTC and centrally cleared interest rate swap contracts outstanding, including their respective notional amounts at period end, if any, are listed after the fund's portfolio.

At the close of the reporting period, the fund has deposited cash valued at \$349,030 in a segregated account to cover margin requirements on open centrally cleared interest rate swap contracts.

Credit default contracts The fund entered into OTC and/or centrally cleared credit default contracts to hedge credit risk, to hedge market risk and for gaining exposure to specific sectors.

In OTC and centrally cleared credit default contracts, the protection buyer typically makes a periodic stream of payments to a counterparty, the protection seller, in exchange for the right to receive a contingent payment upon the occurrence of a credit event on the reference obligation or all other equally ranked obligations of the reference entity. Credit events are contract specific but may include bankruptcy, failure to pay, restructuring and obligation acceleration. For OTC credit default contracts, an upfront payment received by the fund is recorded as a liability on the fund's books. An upfront payment made by the fund is recorded as an asset on the fund's books. Centrally cleared credit default contracts provide the same rights to the protection buyer and seller except the payments between parties, including upfront premiums, are settled through a central clearing agent through variation margin payments. Upfront and periodic payments received or paid by the fund for OTC and centrally cleared credit default contracts are recorded as realized gains or losses at the reset date or close of the contract. The OTC and centrally cleared credit default contracts are marked to market daily based upon quotations from an independent pricing service or market makers. Any change in value of OTC credit default contracts is recorded as an unrealized gain or loss. Daily fluctuations in the value of centrally cleared credit default contracts are recorded in variation margin on the Statement of assets and liabilities and recorded as unrealized gain or loss. Upon the occurrence of a credit event, the difference between the par value and fair value of the reference obligation, net of any proportional amount of the upfront payment, is recorded as a realized gain or loss.

In addition to bearing the risk that the credit event will occur, the fund could be exposed to market risk due to unfavorable changes in interest rates or in the price

of the underlying security or index or the possibility that the fund may be unable to close out its position at the same time or at the same price as if it had purchased the underlying reference obligations. In certain circumstances, the fund may enter into offsetting OTC and centrally cleared credit default contracts which would mitigate its risk of loss. Risks of loss may exceed amounts recognized on the Statement of assets and liabilities. The fund's maximum risk of loss from counterparty risk, either as the protection seller or as the protection buyer, is the fair value of the contract. This risk may be mitigated for OTC credit default contracts by having a master netting arrangement between the fund and the counterparty and for centrally cleared credit default contracts through the daily exchange of variation margin. Counterparty risk is further mitigated with respect to centrally cleared credit default swap contracts due to the clearinghouse guarantee fund and other resources that are available in the event of a clearing member default. Where the fund is a seller of protection, the maximum potential amount of future payments the fund may be required to make is equal to the notional amount.

OTC and centrally cleared credit default contracts outstanding, including their respective notional amounts at period end, if any, are listed after the fund's portfolio.

TBA commitments The fund may enter into TBA (to be announced) commitments to purchase securities for a fixed unit price at a future date beyond customary settlement time. Although the unit price and par amount have been established, the actual securities have not been specified. However, it is anticipated that the amount of the commitments will not significantly differ from the principal amount. The fund holds, and maintains until settlement date, cash or high-grade debt obligations in an amount sufficient to meet the purchase price, or the fund may enter into offsetting contracts for the forward sale of other securities it owns. Income on the securities will not be earned until settlement date.

The fund may also enter into TBA sale commitments to hedge its portfolio positions, to sell mortgage-backed securities it owns under delayed delivery arrangements or to take a short position in mortgage-backed securities. Proceeds of TBA sale commitments are not received until the contractual settlement date. During the time a TBA sale commitment is outstanding, either equivalent deliverable securities or an offsetting TBA purchase commitment deliverable on or before the sale commitment date are held as "cover" for the transaction, or other liquid assets in an amount equal to the notional value of the TBA sale commitment are segregated. If the TBA sale commitment is closed through the acquisition of an offsetting TBA purchase commitment, the fund realizes a gain or loss. If the fund delivers securities under the commitment, the fund realizes a gain or a loss from the sale of the securities based upon the unit price established at the date the commitment was entered into.

TBA commitments, which are accounted for as purchase and sale transactions, may be considered securities themselves, and involve a risk of loss due to changes in the value of the security prior to the settlement date as well as the risk that the counterparty to the transaction will not perform its obligations. Counterparty risk is mitigated by having a master agreement between the fund and the counterparty.

Unsettled TBA commitments are valued at their fair value according to the procedures described under "Security valuation" above. The contract is marked to market daily and the change in fair value is recorded by the fund as an unrealized gain or loss. Based on market circumstances, Putnam Management will determine whether to take delivery of the underlying securities or to dispose of the TBA commitments prior to settlement.

TBA purchase commitments outstanding at period end, if any, are listed within the fund's portfolio and TBA sale commitments 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 that govern OTC derivative and foreign exchange contracts and Master Securities Forward Transaction Agreements that govern transactions involving mortgage-backed and other asset-backed securities that may result in delayed delivery (Master Agreements) with certain counterparties 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, are 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.

With respect to ISDA Master Agreements, 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 or 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 \$95,814 on open derivative contracts subject to the Master Agreements. Collateral pledged by the fund at period end for these agreements totaled \$101,623 and may include amounts related to unsettled agreements.

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.

Under the Regulated Investment Company Modernization Act of 2010, the fund will be permitted to carry forward capital losses incurred for an unlimited period and the carry forwards will retain their character as either short-term or long-term capital losses. At December 31, 2023, the fund had the following capital loss carryovers available, to the extent allowed by the Code, to offset future net capital gain, if any:

Loss carryover			
Short-term	Long-term		Total
\$21,520,103	\$3,133,166		\$24,653,269

Distributions to shareholders Distributions to shareholders from net investment income 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 unrealized gains and losses on certain futures contracts, from income on swap contracts and from interest-only securities. 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 \$192,219 to increase undistributed net investment income and \$192,219 to increase 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	\$3,428,033
Unrealized depreciation	(8,676,462)
Net unrealized depreciation	(5,248,429)
Undistributed ordinary income	2,032,631
Capital loss carryforward	(24,653,269)
Cost for federal income tax purposes	\$64,960,197

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 31.1% 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:

0.550%	of the first \$5 billion,
0.500%	of the next \$5 billion,
0.450%	of the next \$10 billion,
0.400%	of the next \$10 billion,
0.350%	of the next \$50 billion,
0.330%	of the next \$50 billion,
0.320%	of the next \$100 billion and
0.315%	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 0.390% 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 plans, 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 reduced by \$106,890 as a result of this limit.

Putnam Management has also contractually agreed to waive fees (and, to the extent necessary, bear other expenses) of the fund through April 30, 2025, to the extent that total expenses of the fund (excluding brokerage, interest, taxes, investment-related expenses, payments under distribution plans, extraordinary expenses and acquired fund fees and expenses) would exceed an annual rate of 0.50% of the fund's average net assets. During the reporting period, the fund's expenses were reduced by \$46,945 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 0.20% of the average net assets of the portion of the fund managed by PIL.

On January 1, 2024, a subsidiary of Franklin Templeton acquired Putnam U.S. Holdings I, LLC ("Putnam Holdings"), the parent company of Putnam Management and PIL, 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) and PIL (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 and the sub-management contract for the fund between Putnam Management and PIL that were in place for the fund before the Transaction. However, Putnam Management and PIL continue to provide uninterrupted services with respect to the fund pursuant to new investment management and sub-management 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 and sub-management contracts are substantially similar to those of the previous investment management and sub-management contracts, and the fee rates payable under the new investment management and sub-management contracts are the same as the fee rates under the previous investment management and sub-management 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	\$10,595
Class IB	9,916
Total	\$20,511

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 \$1,574 under the expense offset arrangements.

Each Independent Trustee of the fund receives an annual Trustee fee, of which \$24, 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 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, including TBA commitments (Long-term)	\$1,066,849,010	\$1,027,441,578
U.S. government securities (Long-term)	—	—
Total	\$1,066,849,010	\$1,027,441,578

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 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	36,406	\$231,631	33,247	\$260,595	300,411	\$2,025,080	517,060	\$3,955,533
Shares issued in connection with reinvestment of distributions	407,643	2,466,239	220,789	1,724,359	375,114	2,261,936	190,941	1,487,430
	444,049	2,697,870	254,036	1,984,954	675,525	4,287,016	708,001	5,442,963
Shares repurchased	(364,014)	(2,298,655)	(349,410)	(2,708,108)	(499,992)	(3,254,133)	(1,009,021)	(7,990,429)
Net increase (decrease)	80,035	\$399,215	(95,374)	\$(723,154)	175,533	\$1,032,883	(301,020)	\$(2,547,466)

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
Putnam Short Term Investment Fund Class P*	\$4,038,650	\$24,982,530	\$26,277,327	\$139,178	\$2,743,853
Total Short-term investments	\$4,038,650	\$24,982,530	\$26,277,327	\$139,178	\$2,743,853

*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.

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. The fund may invest in higher-yielding, lower-rated bonds that may have a higher rate of default. The fund may invest a significant portion of its assets in securitized debt instruments, including mortgage-backed and asset-backed investments. The yields and values of these investments are sensitive to changes in interest rates, the rate of principal payments on the underlying assets and the market's perception of the issuers. The market for these investments may be volatile and limited, which may make them difficult to buy or sell.

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 TBA commitment option contracts (contract amount)	\$16,200,000
Purchased swap option contracts (contract amount)	\$57,500,000
Written TBA commitment option contracts (contract amount)	\$16,200,000
Written swap option contracts (contract amount)	\$46,900,000
Futures contracts (number of contracts)	200
Centrally cleared interest rate swap contracts (notional)	\$106,600,000
OTC credit default contracts (notional)	\$5,400,000

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
Credit contracts	Receivables	\$450,220	Payables	\$434,710
Interest rate contracts	Receivables, Net assets — Unrealized appreciation	624,388*	Payables, Net assets — Unrealized depreciation	1,338,488*
Total		\$1,074,608		\$1,773,198

*Includes cumulative appreciation/depreciation of futures contracts and/or centrally cleared swaps 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 (see 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	Swaps	Total
Credit contracts	\$—	\$—	\$54,277	\$54,277
Interest rate contracts	(852,294)	1,620,202	875,055	\$1,642,963
Total	\$(852,294)	\$1,620,202	\$929,332	\$1,697,240

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	Swaps	Total
Credit contracts	\$—	\$—	\$(7,262)	\$(7,262)
Interest rate contracts	(442,977)	(732,707)	(1,178,304)	\$(2,353,988)
Total	\$(442,977)	\$(732,707)	\$(1,185,566)	\$(2,361,250)

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	Barclays Capital, Inc. (clearing broker)	Citibank, N.A.	Citigroup Global Markets, Inc.	Credit Suisse International
Assets:						
Centrally cleared interest rate swap contracts [§]	\$—	\$—	\$514,409	\$—	\$—	\$—
OTC Credit default contracts — protection sold* [#]	—	—	—	—	—	—
OTC Credit default contracts — protection purchased* [#]	—	—	—	—	247,686	25,994
Futures contracts [§]	—	—	—	—	—	—
Forward premium swap option contracts [#]	177,707	76,184	—	5,889	—	—
Total Assets	\$177,707	\$76,184	\$514,409	\$5,889	\$247,686	\$25,994
Liabilities:						
Centrally cleared interest rate swap contracts [§]	—	—	546,488	—	—	—
OTC Credit default contracts — protection sold* [#]	—	—	—	—	174,007	5,483
OTC Credit default contracts — protection purchased* [#]	—	—	—	—	—	—
Futures contracts [§]	—	—	—	—	—	—
Forward premium swap option contracts [#]	93,010	26,966	—	1,598	—	—
Total Liabilities	\$93,010	\$26,966	\$546,488	\$1,598	\$174,007	\$5,483
Total Financial and Derivative Net Assets	\$84,697	\$49,218	\$(32,079)	\$4,291	\$73,679	\$20,511
Total collateral received (pledged) ^{†#}	\$—	\$49,218	\$—	\$—	\$73,679	\$—
Net amount	\$84,697	\$—	\$(32,079)	\$4,291	\$—	\$20,511
<i>Controlled collateral received (including TBA commitments)**</i>	\$—	\$110,000	\$—	\$—	\$224,000	\$—
<i>Uncontrolled collateral received</i>	\$—	\$—	\$—	\$—	\$—	\$—
<i>Collateral (pledged) (including TBA commitments)**</i>	\$—	\$—	\$—	\$—	\$—	\$—

* Excludes premiums, if any. Included in unrealized appreciation and depreciation on OTC swap contracts on the Statement of assets and liabilities.

** 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 and centrally cleared swap contracts is represented in the tables listed after the fund's portfolio. Collateral pledged for initial margin on futures contracts and centrally cleared swap contracts, which is not included in the table above, amounted to \$443,354 and \$349,030, respectively.

Deutsche Bank AG	Goldman Sachs International	JPMorgan Chase Bank N.A.	JPMorgan Securities LLC	Merrill Lynch International	Morgan Stanley & Co. International PLC	Toronto-Dominion Bank	Total
\$—	\$—	\$—	\$—	\$—	\$—	\$—	\$514,409
—	—	—	—	—	—	—	—
—	10,971	—	29,320	3,409	132,840	—	450,220
—	—	—	9,938	—	—	—	9,938
18,286	—	18,002	—	—	—	1,490	297,558
\$18,286	\$10,971	\$18,002	\$39,258	\$3,409	\$132,840	\$1,490	\$1,272,125
—	—	—	—	—	—	—	546,488
—	82,101	—	36,376	21,037	115,706	—	434,710
—	—	—	—	—	—	—	—
—	—	—	11,978	—	—	—	11,978
8,015	—	8,083	—	—	—	709	138,381
\$8,015	\$82,101	\$8,083	\$48,354	\$21,037	\$115,706	\$709	\$1,131,557
\$10,271	\$(71,130)	\$9,919	\$(9,096)	\$(17,628)	\$17,134	\$781	\$140,568
\$—	\$(71,130)	\$—	\$—	\$—	\$—	\$—	\$—
\$10,271	\$—	\$9,919	\$(9,096)	\$(17,628)	\$17,134	\$781	\$—
\$—	\$—	\$—	\$287,000	\$—	\$—	\$—	\$621,000
\$—	\$—	\$—	\$—	\$—	\$—	\$—	\$—
\$—	\$(101,623)	\$—	\$—	\$—	\$—	\$—	\$(101,623)

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
4,510,701	43,816	202,017

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
4,341,939	91,360	323,235

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					
LiaquatAhamed	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-Advisor

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

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.

