

Annual Report | December 31, 2022

Vanguard Variable Insurance Funds

Real Estate Index Portfolio

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Please note: The opinions expressed in this report are just that—informed opinions. They should not be considered promises or advice. Also, please keep in mind that the information and opinions cover the period through the date on the front of this report. Of course, the risks of investing in your portfolio are spelled out in the prospectus.

Your Portfolio's Performance at a Glance

- Despite some relief in midsummer and late fall, the 12 months ended December 31, 2022, were a volatile, challenging period for financial markets. The Real Estate Index Portfolio returned -26.30%, in line with the -26.12% return of its benchmark.
- Overall, the economic backdrop deteriorated as inflation soared to multidecade highs, driven by government spending during the pandemic as well as higher energy and food prices in the wake of Russia's invasion of Ukraine. That prompted aggressive tightening by many central banks to bring inflation back in check, which increased fears of recession.
- Rising rates were not good for bonds or real estate equity markets. All real estate sectors posted negative double-digit returns for the calendar year, with the worst declines posted by real estate operating companies, mortgage REITs, and real estate services. However, these sectors had small weightings in the index. Specialized REITs—at more than 37%, the largest weighting in the index—returned -24%.
- For the decade ended December 31, the portfolio had an annualized total return of 6.36%, roughly in line with its benchmark.
- Please note that the portfolio returns are different from those in Vanguard Variable Annuity (and other plans that invest in the portfolio), which take into account insurance-related expenses.

Market Barometer

	Average Annual Total Returns Periods Ended December 31, 2022		
	One Year	Three Years	Five Years
Stocks			
Russell 1000 Index (Large-caps)	-19.13%	7.35%	9.13%
Russell 2000 Index (Small-caps)	-20.44	3.10	4.13
Russell 3000 Index (Broad U.S. market)	-19.21	7.07	8.79
FTSE All-World ex US Index (International)	-15.49	0.61	1.28
Bonds			
Bloomberg U.S. Aggregate Float Adjusted Index (Broad taxable market)	-13.07%	-2.67%	0.06%
Bloomberg Municipal Bond Index (Broad tax-exempt market)	-8.53	-0.77	1.25
FTSE Three-Month U.S. Treasury Bill Index	1.50	0.70	1.24
CPI			
Consumer Price Index	6.45%	4.92%	3.78%

About Your Portfolio's Expenses

As a shareholder of the portfolio, you incur ongoing costs, which include costs for portfolio management, administrative services, and shareholder reports (like this one), among others. Operating expenses, which are deducted from a portfolio's gross income, directly reduce the investment return of the portfolio.

A portfolio's expenses are expressed as a percentage of its average net assets. This figure is known as the expense ratio. The following examples are intended to help you understand the ongoing costs (in dollars) of investing in your portfolio and to compare these costs with those of other mutual funds. The examples are based on an investment of \$1,000 made at the beginning of the period shown and held for the entire period.

The accompanying table illustrates your portfolio's costs in two ways:

- **Based on actual portfolio return.** This section helps you to estimate the actual expenses that you paid over the period. The "Ending Account Value" shown is derived from the portfolio's actual return, and the third column shows the dollar amount that would have been paid by an investor who started with \$1,000 in the portfolio. You may use the information here, together with the amount you invested, to estimate the expenses that you paid over the period.

To do so, simply divide your account value by \$1,000 (for example, an \$8,600 account value divided by \$1,000 = 8.6), then multiply the result by the number given for your portfolio under the heading "Expenses Paid During Period."

- **Based on hypothetical 5% yearly return.** This section is intended to help you compare your portfolio's costs with those of other mutual funds. It assumes that the portfolio had a yearly return of 5% before expenses, but that the expense ratio is unchanged. In this case—because the return used is not the portfolio's actual return—the results do not apply to your investment. The example is useful in making comparisons because the Securities and Exchange Commission requires all mutual funds to calculate expenses based on a 5% return. You can assess your portfolio's costs by comparing this hypothetical example with the hypothetical examples that appear in shareholder reports of other funds.

Note that the expenses shown in the table are meant to highlight and help you compare *ongoing* costs only and do not reflect transaction costs incurred by the portfolio for buying and selling securities. The portfolio's expense ratio does not reflect additional fees and expenses associated with the annuity or life insurance program through which you invest.

The calculations assume no shares were bought or sold during the period. Your actual costs may have been higher or lower, depending on the amount of your investment and the timing of any purchases or redemptions.

You can find more information about the portfolio's expenses, including annual expense ratios, in the Financial Statements section of this report. For additional information on operating expenses and other shareholder costs, please refer to your portfolio's current prospectus.

Six Months Ended December 31, 2022

Real Estate Index Portfolio	Beginning Account Value 6/30/2022	Ending Account Value 12/31/2022	Expenses Paid During Period
Based on Actual Portfolio Return	\$1,000.00	\$ 927.60	\$1.26
Based on Hypothetical 5% Yearly Return	1,000.00	1,023.89	1.33

The calculations are based on expenses incurred in the most recent six-month period. The portfolio's annualized six-month expense ratio for that period is 0.26%. The dollar amounts shown as "Expenses Paid" are equal to the annualized expense ratio multiplied by the average account value over the period, multiplied by the number of days in the most recent six-month period, then divided by the number of days in the most recent 12-month period (184/365).

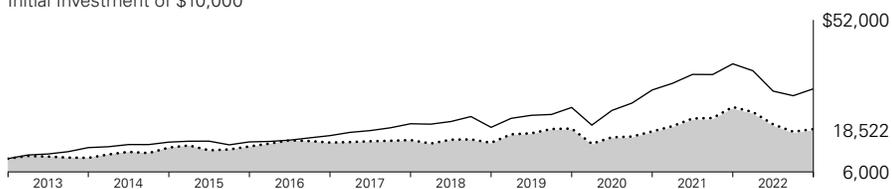
Real Estate Index Portfolio

Performance Summary

All of the returns in this report represent past performance, which is not a guarantee of future results that may be achieved by the portfolio. (Current performance may be lower or higher than the performance data cited. For performance data current to the most recent month-end, visit our website at vanguard.com/performance.) Note, too, that both investment returns and principal value can fluctuate widely, so an investor's shares, when sold, could be worth more or less than their original cost. The returns shown do not reflect taxes that a shareholder would pay on portfolio distributions or on the sale of portfolio shares. Nor do the returns reflect fees and expenses associated with the annuity or life insurance program through which a shareholder invests. If these fees and expenses were included, the portfolio's returns would be lower.

Cumulative Performance: December 31, 2012, Through December 31, 2022

Initial Investment of \$10,000



Average Annual Total Returns
Periods Ended December 31, 2022

	One Year	Five Years	Ten Years	Final Value of a \$10,000 Investment
Real Estate Index Portfolio	-26.30%	3.69%	6.36%	\$18,522
Real Estate Spliced Index	-26.12	3.92	6.60	18,944
Dow Jones U.S. Total Stock Market Float Adjusted Index	-19.53	8.65	12.03	31,151

Real Estate Spliced Index: the MSCI US REIT Index through January 18, 2018; and the MSCI US Investable Market Real Estate 25/50 Index thereafter.

Portfolio Allocation

As of December 31, 2022

Diversified Real Estate Activities	0.1%
Diversified REITs	3.0
Health Care REITs	7.7
Hotel & Resort REITs	2.7
Industrial REITs	12.1
Office REITs	5.5
Real Estate Development	0.3
Real Estate Operating Companies	0.4
Real Estate Services	3.8
Residential REITs	13.7
Retail REITs	13.0
Specialized REITs	37.7

The table reflects the portfolio's investments, except for short-term investments and derivatives. Sector categories are based on the Global Industry Classification Standard ("GICS"), except for the "Other" category (if applicable), which includes securities that have not been provided a GICS classification as of the effective reporting period.

The portfolio may invest in derivatives (such as futures and swap contracts) for various reasons, including, but not limited to, attempting to remain fully invested and tracking its target index as closely as possible.

The Global Industry Classification Standard ("GICS") was developed by and is the exclusive property and a service mark of MSCI Inc. ("MSCI") and Standard and Poor's, a division of McGraw-Hill Companies, Inc. ("S&P"), and is licensed for use by Vanguard. Neither MSCI, S&P nor any third party involved in making or compiling the GICS or any GICS classification makes any express or implied warranties or representations with respect to such standard or classification (or the results to be obtained by the use thereof), and all such parties hereby expressly disclaim all warranties of originality, accuracy, completeness, merchantability or fitness for a particular purpose with respect to any such standard or classification. Without limiting any of the foregoing, in no event shall MSCI, S&P, any of its affiliates or any third party involved in making or compiling the GICS or any GICS classification have any liability for any direct, indirect, special, punitive, consequential or any other damages (including lost profits) even if notified of the possibility of such damages.

Financial Statements

Schedule of Investments

As of December 31, 2022

The portfolio files its complete schedule of portfolio holdings with the Securities and Exchange Commission (SEC) for the first and third quarters of each fiscal year as an exhibit to its reports on Form N-PORT. The portfolio's Form N-PORT reports are available on the SEC's website at www.sec.gov.

	Shares	Market Value* (\$000)		Shares	Market Value* (\$000)
Equity Real Estate Investment Trusts (REITs) (95.4%)			Plymouth Industrial REIT Inc.		
Diversified REITs (3.0%)			Industrial Logistics Properties Trust		
WP Carey Inc.	169,783	13,269		35,075	673
STORE Capital Corp.	224,010	7,182		56,942	186
Essential Properties Realty Trust Inc.	124,568	2,924			
Broadstone Net Lease Inc.	152,886	2,478			
Alexander & Baldwin Inc.	64,652	1,211			
American Assets Trust Inc.	44,988	1,192			
Global Net Lease Inc.	90,754	1,141			
Empire State Realty Trust Inc. Class A	120,872	815			
Armada Hoffer Properties Inc.	59,264	681			
Gladstone Commercial Corp.	34,614	640			
iStar Inc.	74,677	570			
One Liberty Properties Inc.	14,726	327			
NexPoint Diversified Real Estate Trust	27,582	309			
		32,739			132,441
Health Care REITs (7.7%)			Office REITs (5.5%)		
Welltower Inc.	407,642	26,721	Alexandria Real Estate Equities Inc.	136,455	19,877
Ventas Inc.	351,734	15,846	Boston Properties Inc.	131,141	8,863
Healthpeak Properties Inc.	474,795	11,903	Kilroy Realty Corp.	92,583	3,580
Healthcare Realty Trust Inc. Class A	335,490	6,465	Cousins Properties Inc.	133,380	3,373
Medical Properties Trust Inc.	526,331	5,863	Vornado Realty Trust	143,652	2,989
Omega Healthcare Investors Inc.	205,568	5,746	Highwoods Properties Inc.	93,105	2,605
Physicians Realty Trust	199,172	2,882	Corporate Office Properties Trust	99,264	2,575
Sabra Health Care REIT Inc.	203,777	2,533	Equity Commonwealth	98,215	2,452
National Health Investors Inc.	39,526	2,064	Douglas Emmett Inc.	155,261	2,435
CareTrust REIT Inc.	84,835	1,576	SL Green Realty Corp.	57,173	1,928
LTC Properties Inc.	35,413	1,258	JBG SMITH Properties	90,043	1,709
Community Healthcare Trust Inc.	20,746	743	Hudson Pacific Properties Inc.	123,952	1,206
Universal Health Realty Income Trust	11,396	544	Veris Residential Inc.	67,793	1,080
Global Medical REIT Inc.	54,165	513	Easterly Government Properties Inc. Class A	75,350	1,075
Diversified Healthcare Trust	211,854	137	Piedmont Office Realty Trust Inc. Class A	107,968	990
		84,794	Paramount Group Inc.	157,703	937
Hotel & Resort REITs (2.7%)			Brandywine Realty Trust	149,611	920
Host Hotels & Resorts Inc.	629,300	10,100	Office Properties Income Trust	42,152	563
Ryman Hospitality Properties Inc.	46,148	3,774	Orion Office REIT Inc.	49,967	427
Apple Hospitality REIT Inc.	191,630	3,024	City Office REIT Inc.	36,425	305
Park Hotels & Resorts Inc.	198,974	2,346	Franklin Street Properties Corp.	81,358	222
Sunstone Hotel Investors Inc.	185,623	1,793			
Pebblebrook Hotel Trust	114,931	1,539			
DiamondRock Hospitality Co.	184,275	1,509			
RLJ Lodging Trust	142,292	1,507			
Xenia Hotels & Resorts Inc.	99,935	1,317			
Service Properties Trust	143,874	1,049			
Summit Hotel Properties Inc.	92,884	671			
Chatham Lodging Trust	40,128	492			
		29,121			
Industrial REITs (12.1%)			Residential REITs (13.7%)		
Prologis Inc.	812,033	91,540	AvalonBay Communities Inc.	123,027	19,871
Rexford Industrial Realty Inc.	150,456	8,221	Equity Residential	314,343	18,546
Americold Realty Trust Inc.	236,605	6,698	Mid-America Apartment Communities Inc.	101,552	15,943
EastGroup Properties Inc.	38,325	5,675	Invitation Homes Inc.	537,078	15,919
First Industrial Realty Trust Inc.	115,971	5,597	Sun Communities Inc.	108,522	15,519
STAG Industrial Inc.	157,509	5,089	Essex Property Trust Inc.	57,303	12,144
Terreno Realty Corp.	66,488	3,781	UDR Inc.	285,935	11,074
Innovative Industrial Properties Inc.	24,709	2,504	Equity LifeStyle Properties Inc.	155,488	10,045
LXP Industrial Trust	247,183	2,477	Camden Property Trust	89,036	9,961
			American Homes 4 Rent Class A	275,713	8,310
			Apartment Income REIT Corp. Class A	135,483	4,648
			Independence Realty Trust Inc.	195,882	3,303
			Elme Communities	76,413	1,360
			Apartment Investment & Management Co. Class A	133,034	947
			NexPoint Residential Trust Inc.	20,299	883
			Centerspace	13,454	789
			UMH Properties Inc.	45,743	737
					149,999
			Retail REITs (13.0%)		
			Realty Income Corp.	543,027	34,444
			Simon Property Group Inc.	288,053	33,841
			Kimco Realty Corp.	544,809	11,539
			Regency Centers Corp.	135,336	8,459
			National Retail Properties Inc.	156,038	7,140
			Federal Realty Investment Trust	63,994	6,466
			Brixmor Property Group Inc.	263,614	5,976
			Agree Realty Corp.	70,129	4,974
			Spirit Realty Capital Inc.	119,805	4,784
			Kite Realty Group Trust	192,741	4,057
			Phillips Edison & Co. Inc.	102,796	3,273
			SITE Centers Corp.	170,458	2,328
			Macerich Co.	189,555	2,134

Real Estate Index Portfolio

	Shares	Market Value* (\$000)
Retail Opportunity Investments Corp.	108,997	1,638
Tanger Factory Outlet Centers Inc.	91,250	1,637
Urban Edge Properties	102,701	1,447
InvenTrust Properties Corp.	59,063	1,398
Getty Realty Corp.	35,356	1,197
Acadia Realty Trust	82,817	1,188
NETSTREIT Corp.	44,016	807
RPT Realty	74,393	747
Necessity Retail REIT Inc. Class A	116,637	692
Saul Centers Inc.	12,456	507
Urstadt Biddle Properties Inc. Class A	26,104	495
Alexander's Inc.	2,001	440
CBL & Associates Properties Inc.	11,286	261
*.1 Spirit MTA REIT	42,040	—
		141,869
Specialized REITs (37.7%)		
American Tower Corp.	409,584	86,774
Equinix Inc.	80,126	52,485
Crown Castle Inc.	380,960	51,673
Public Storage	138,959	38,935
VICI Properties Inc.	846,958	27,441
SBA Communications Corp. Class A	94,908	26,604
Digital Realty Trust Inc.	252,932	25,362
Weyerhaeuser Co.	651,437	20,195
Extra Space Storage Inc.	117,834	17,343
Iron Mountain Inc.	255,943	12,759
Gaming & Leisure Properties Inc.	225,610	11,752
CubeSmart	197,293	7,941
Life Storage Inc.	74,137	7,303
Lamar Advertising Co. Class A	76,571	7,228
Rayonier Inc.	128,732	4,243
PotlatchDeltic Corp.	71,008	3,124
National Storage Affiliates Trust	76,831	2,775
EPR Properties	66,154	2,495
Outfront Media Inc.	123,669	2,050
Four Corners Property Trust Inc.	72,188	1,872
Uniti Group Inc.	207,291	1,146
Safehold Inc.	21,776	623
Gladstone Land Corp.	28,701	527
		412,650
Total Equity Real Estate Investment Trusts (REITs) (Cost \$1,157,466)		1,043,724
Real Estate Management & Development (4.6%)		
Diversified Real Estate Activities (0.1%)		
St. Joe Co.	28,414	1,098
RMR Group Inc. Class A	13,332	377
		1,475
Real Estate Development (0.3%)		
* Howard Hughes Corp.	33,125	2,531

	Shares	Market Value* (\$000)
* Forestar Group Inc.	17,688	273
		2,804
Real Estate Operating Companies (0.4%)		
Kennedy-Wilson Holdings Inc.	110,056	1,731
DigitalBridge Group Inc.	143,271	1,567
* Seritage Growth Properties Class A	31,840	377
* FRP Holdings Inc.	5,453	294
*.2 WeWork Inc.	156,588	224
		4,193
Real Estate Services (3.8%)		
* CBRE Group Inc. Class A	282,816	21,766
* Jones Lang LaSalle Inc.	42,219	6,728
* Zillow Group Inc. Class C	139,571	4,496
* Zillow Group Inc. Class A	51,769	1,616
* Cushman & Wakefield plc	128,227	1,598
Newmark Group Inc. Class A	137,954	1,099
Marcus & Millichap Inc.	22,699	782
² eXp World Holdings Inc.	60,057	665
* Anywhere Real Estate Inc.	100,008	639
* Compass Inc. Class A	206,156	480
*.2 Opendoor Technologies Inc.	354,995	412
* Redfin Corp.	85,350	362
RE/MAX Holdings Inc. Class A	16,415	306
Douglas Elliman Inc.	62,893	256
* Doma Holdings Inc.	108,942	49
* Offerpad Solutions Inc.	49,631	23
		41,277
Total Real Estate Management & Development (Cost \$82,014)		49,749
Temporary Cash Investments (0.1%)		
Money Market Fund (0.1%)		
^{3,4} Vanguard Market Liquidity Fund, 4.334% (Cost \$1,595)	15,956	1,595
Total Investments (100.1%)		1,095,068
(Cost \$1,241,075)		
Other Assets and Liabilities—Net (-0.1%)		(1,184)
Net Assets (100%)		1,093,884

Cost is in \$000.

* See Note A in Notes to Financial Statements.

* Non-income-producing security.

1 Security value determined using significant unobservable inputs.

2 Includes partial security positions on loan to broker-dealers. The total value of securities on loan is \$1,183,000.

3 Affiliated money market fund available only to Vanguard funds and certain trusts and accounts managed by Vanguard. Rate shown is the 7-day yield.

4 Collateral of \$1,580,000 was received for securities on loan.

REIT—Real Estate Investment Trust.

Derivative Financial Instruments Outstanding as of Period End

Futures Contracts

	Expiration	Number of Long (Short) Contracts	(\$000)	
			Notional Amount	Value and Unrealized Appreciation (Depreciation)
Long Futures Contracts				
Dow Jones U.S. Real Estate Index	March 2023	20	660	(17)

See accompanying Notes, which are an integral part of the Financial Statements.

Statement of Assets and Liabilities

As of December 31, 2022

(\$000s, except shares, footnotes, and per-share amounts)	Amount
Assets	
Investments in Securities, at Value ¹	
Unaffiliated Issuers (Cost \$1,239,480)	1,093,473
Affiliated Issuers (Cost \$1,595)	1,595
Total Investments in Securities	1,095,068
Investment in Vanguard	42
Cash Collateral Pledged—Futures Contracts	72
Receivables for Accrued Income	4,694
Receivables for Capital Shares Issued	543
Total Assets	1,100,419
Liabilities	
Due to Custodian	1,005
Payables for Investment Securities Purchased	2,207
Collateral for Securities on Loan	1,580
Payables for Capital Shares Redeemed	1,613
Payables to Vanguard	125
Variation Margin Payable—Futures Contracts	5
Total Liabilities	6,535
Net Assets	1,093,884

¹ Includes \$1,183,000 of securities on loan.

At December 31, 2022, net assets consisted of:

Paid-in Capital	1,162,052
Total Distributable Earnings (Loss)	(68,168)
Net Assets	1,093,884
Net Assets	
Applicable to 94,840,478 outstanding \$.001 par value shares of beneficial interest (unlimited authorization)	1,093,884
Net Asset Value Per Share	\$11.53

Statement of Operations

	Year Ended December 31, 2022
	(\$000)
Investment Income	
Income	
Dividends	31,355
Interest ¹	6
Securities Lending—Net	20
Total Income	31,381
Expenses	
The Vanguard Group—Note B	
Investment Advisory Services	118
Management and Administrative	2,977
Marketing and Distribution	78
Custodian Fees	27
Auditing Fees	32
Shareholders' Reports	19
Trustees' Fees and Expenses	—
Other Expenses	9
Total Expenses	3,260
Expenses Paid Indirectly	(1)
Net Expenses	3,259
Net Investment Income	28,122
Realized Net Gain (Loss)	
Capital Gain Distributions Received	7,041
Investment Securities Sold ¹	43,244
Futures Contracts	(300)
Realized Net Gain (Loss)	49,985
Change in Unrealized Appreciation (Depreciation)	
Investment Securities ¹	(476,087)
Futures Contracts	(98)
Change in Unrealized Appreciation (Depreciation)	(476,185)
Net Increase (Decrease) in Net Assets Resulting from Operations	(398,078)

¹ Interest income, realized net gain (loss), and change in unrealized appreciation (depreciation) from an affiliated company of the portfolio were \$5,000, less than \$1,000, and less than \$1,000, respectively. Purchases and sales are for temporary cash investment purposes.

Statement of Changes in Net Assets

	Year Ended December 31,	
	2022 (\$000)	2021 (\$000)
Increase (Decrease) in Net Assets		
Operations		
Net Investment Income	28,122	23,366
Realized Net Gain (Loss)	49,985	55,051
Change in Unrealized Appreciation (Depreciation)	(476,185)	357,888
Net Increase (Decrease) in Net Assets Resulting from Operations	(398,078)	436,305
Distributions		
Total Distributions	(77,984)	(58,868)
Capital Share Transactions		
Issued	147,195	219,715
Issued in Lieu of Cash Distributions	77,984	58,868
Redeemed	(193,133)	(195,227)
Net Increase (Decrease) from Capital Share Transactions	32,046	83,356
Total Increase (Decrease)	(444,016)	460,793
Net Assets		
Beginning of Period	1,537,900	1,077,107
End of Period	1,093,884	1,537,900

Financial Highlights

For a Share Outstanding Throughout Each Period	Year Ended December 31,				
	2022	2021	2020	2019	2018
Net Asset Value, Beginning of Period	\$16.56	\$12.43	\$13.74	\$11.57	\$13.14
Investment Operations					
Net Investment Income ¹	.297	.257	.259	.329	.367
Net Realized and Unrealized Gain (Loss) on Investments	(4.474)	4.553	(1.054)	2.874	(1.084)
Total from Investment Operations	(4.177)	4.810	(.795)	3.203	(.717)
Distributions					
Dividends from Net Investment Income	(.262)	(.293)	(.316)	(.368)	(.383)
Distributions from Realized Capital Gains	(.591)	(.387)	(.199)	(.665)	(.470)
Total Distributions	(.853)	(.680)	(.515)	(1.033)	(.853)
Net Asset Value, End of Period	\$11.53	\$16.56	\$12.43	\$13.74	\$11.57
Total Return	-26.30%	40.21%	-4.85%	28.81%	-5.35%
Ratios/Supplemental Data					
Net Assets, End of Period (Millions)	\$1,094	\$1,538	\$1,077	\$1,242	\$965
Ratio of Total Expenses to Average Net Assets	0.26% ²	0.26%	0.26%	0.26%	0.26%
Ratio of Net Investment Income to Average Net Assets	2.25%	1.79%	2.19%	2.52%	3.04%
Portfolio Turnover Rate	11%	12%	10%	7%	35%

1 Calculated based on average shares outstanding.

2 The ratio of expenses to average net assets for the period net of reduction from custody fee offset arrangements was 0.26%.

Notes to Financial Statements

The Real Estate Index Portfolio, a portfolio of Vanguard Variable Insurance Funds, is registered under the Investment Company Act of 1940 as an open-end investment company. The portfolio's shares are only available for purchase by separate accounts of insurance companies as investments for variable annuity plans, variable life insurance contracts, or other variable benefit insurance contracts.

Significant market disruptions, such as those caused by pandemics (e.g., COVID-19 pandemic), natural or environmental disasters, war (e.g., Russia's invasion of Ukraine), acts of terrorism, or other events, can adversely affect local and global markets and normal market operations. Any such disruptions could have an adverse impact on the value of the portfolio's investments and portfolio performance.

A. The following significant accounting policies conform to generally accepted accounting principles for U.S. investment companies. The portfolio consistently follows such policies in preparing its financial statements.

1. **Security Valuation:** Securities are valued as of the close of trading on the New York Stock Exchange (generally 4 p.m., Eastern time) on the valuation date. Equity securities are valued at the latest quoted sales prices or official closing prices taken from the primary market in which each security trades; such securities not traded on the valuation date are valued at the mean of the latest quoted bid and asked prices. Securities for which market quotations are not readily available, or whose values have been affected by events occurring before the portfolio's pricing time but after the close of the securities' primary markets, are valued by methods deemed by the valuation designee to represent fair value and subject to oversight by the board of trustees. Investments in Vanguard Market Liquidity Fund are valued at that fund's net asset value.

2. **Futures Contracts:** The portfolio uses index futures contracts to a limited extent, with the objectives of maintaining full exposure to the stock market, maintaining liquidity, and minimizing transaction costs. The portfolio may purchase futures contracts to immediately invest incoming cash in the market, or sell futures in response to cash outflows, thereby simulating a fully invested position in the underlying index while maintaining a cash balance for liquidity. The primary risks associated with the use of futures contracts are imperfect correlation between changes in market values of stocks held by the portfolio and the prices of futures contracts, and the possibility of an illiquid market. Counterparty risk involving futures is mitigated because a regulated clearinghouse is the counterparty instead of the clearing broker. To further mitigate counterparty risk, the portfolio trades futures contracts on an exchange, monitors the financial strength of its clearing brokers and clearinghouse, and has entered into clearing agreements with its clearing brokers. The clearinghouse imposes initial margin requirements to secure the portfolio's performance and requires daily settlement of variation margin representing changes in the market value of each contract. Any securities pledged as initial margin for open contracts are noted in the Schedule of Investments.

Futures contracts are valued at their quoted daily settlement prices. The notional amounts of the contracts are not recorded in the Statement of Assets and Liabilities. Fluctuations in the value of the contracts are recorded in the Statement of Assets and Liabilities as an asset (liability) and in the Statement of Operations as unrealized appreciation (depreciation) until the contracts are closed, when they are recorded as realized gains (losses) on futures contracts.

During the year ended December 31, 2022, the portfolio's average investments in long and short futures contracts represented less than 1% and 0% of net assets, respectively, based on the average of the notional amounts at each quarter-end during the period.

3. **Federal Income Taxes:** The portfolio intends to continue to qualify as a regulated investment company and distribute virtually all of its taxable income. The portfolio's tax returns are open to examination by the relevant tax authorities until expiration of the applicable statute of limitations, which is generally three years after the filing of the tax return. Management has analyzed the portfolio's tax positions taken for all open federal and state income tax years, and has concluded that no provision for income tax is required in the portfolio's financial statements.

4. **Distributions:** Distributions to shareholders are recorded on the ex-dividend date. Distributions are determined on a tax basis at the fiscal year-end and may differ from net investment income and realized capital gains for financial reporting purposes.

5. **Securities Lending:** To earn additional income, the portfolio lends its securities to qualified institutional borrowers. Security loans are subject to termination by the portfolio at any time, and are required to be secured at all times by collateral in an amount at least equal to the market value of securities loaned. Daily market fluctuations could cause the value of loaned securities to be more or less than the value of the collateral received. When this occurs, the collateral is adjusted and settled before the opening of the market on the next business day. The portfolio further mitigates its counterparty risk by entering into securities lending transactions only with a diverse group of

prequalified counterparties, monitoring their financial strength, and entering into master securities lending agreements with its counterparties. The master securities lending agreements provide that, in the event of a counterparty's default (including bankruptcy), the portfolio may terminate any loans with that borrower, determine the net amount owed, and sell or retain the collateral up to the net amount owed to the portfolio; however, such actions may be subject to legal proceedings. While collateral mitigates counterparty risk, in the event of a default, the portfolio may experience delays and costs in recovering the securities loaned. The portfolio invests cash collateral received in Vanguard Market Liquidity Fund, and records a liability in the Statement of Assets and Liabilities for the return of the collateral, during the period the securities are on loan. Collateral investments in Vanguard Market Liquidity Fund are subject to market appreciation or depreciation. Securities lending income represents fees charged to borrowers plus income earned on invested cash collateral, less expenses associated with the loan. During the term of the loan, the portfolio is entitled to all distributions made on or in respect of the loaned securities.

6. Credit Facilities and Interfund Lending Program: The portfolio and certain other funds managed by The Vanguard Group ("Vanguard") participate in a \$4.4 billion committed credit facility provided by a syndicate of lenders pursuant to a credit agreement and an uncommitted credit facility provided by Vanguard. Both facilities may be renewed annually. Each fund is individually liable for its borrowings, if any, under the credit facilities. Borrowings may be utilized for temporary or emergency purposes and are subject to the portfolio's regulatory and contractual borrowing restrictions. With respect to the committed credit facility, the participating funds are charged administrative fees and an annual commitment fee of 0.10% of the undrawn committed amount of the facility, which are allocated to the funds based on a method approved by the portfolio's board of trustees and included in Management and Administrative expenses on the portfolio's Statement of Operations. Any borrowings under either facility bear interest at an agreed-upon spread plus the higher of the federal funds effective rate, the overnight bank funding rate, or the Daily Simple Secured Overnight Financing Rate inclusive of an additional agreed-upon spread. However, borrowings under the uncommitted credit facility may bear interest based upon an alternate rate agreed to by the portfolio and Vanguard.

In accordance with an exemptive order (the "Order") from the SEC, the portfolio may participate in a joint lending and borrowing program that allows registered open-end Vanguard funds to borrow money from and lend money to each other for temporary or emergency purposes (the "Interfund Lending Program"), subject to compliance with the terms and conditions of the Order, and to the extent permitted by the portfolio's investment objective and investment policies. Interfund loans and borrowings normally extend overnight but can have a maximum duration of seven days. Loans may be called on one business day's notice. The interest rate to be charged is governed by the conditions of the Order and internal procedures adopted by the board of trustees. The board of trustees is responsible for overseeing the Interfund Lending Program.

For the year ended December 31, 2022, the portfolio did not utilize the credit facilities or the Interfund Lending Program.

7. Other: Distributions received from investment securities are recorded on the ex-dividend date. Non-cash dividends included in income, if any, are recorded at the fair value of the securities received. Each investment security reports annually the tax character of its distributions. Dividend income, capital gain distributions received, and unrealized appreciation (depreciation) reflect the amounts of taxable income, capital gain, and return of capital reported by the REIT's, and management's estimates of such amounts for REIT distributions for which actual information has not been reported. Interest income includes income distributions received from Vanguard Market Liquidity Fund and is accrued daily. Security transactions are accounted for on the date securities are bought or sold. Costs used to determine realized gains (losses) on the sale of investment securities are those of the specific securities sold.

B. In accordance with the terms of a Funds' Service Agreement (the "FSA") between Vanguard and the portfolio, Vanguard furnishes to the portfolio investment advisory, corporate management, administrative, marketing, and distribution services at Vanguard's cost of operations (as defined by the FSA). These costs of operations are allocated to the portfolio based on methods and guidelines approved by the board of trustees and are generally settled twice a month.

Upon the request of Vanguard, the portfolio may invest up to 0.40% of its net assets as capital in Vanguard. At December 31, 2022, the portfolio had contributed to Vanguard capital in the amount of \$42,000, representing less than 0.01% of the portfolio's net assets and 0.02% of Vanguard's capital received pursuant to the FSA. The portfolio's trustees and officers are also directors and employees, respectively, of Vanguard.

C. The portfolio's custodian bank has agreed to reduce its fees when the portfolio maintains cash on deposit in the non-interest-bearing custody account. For the year ended December 31, 2022, custodian fee offset arrangements reduced the portfolio's expenses by \$1,000 (an annual rate of less than 0.01% of average net assets).

D. Various inputs may be used to determine the value of the portfolio's investments and derivatives. These inputs are summarized in three broad levels for financial statement purposes. The inputs or methodologies used to value securities are not necessarily an indication of the risk associated with investing in those securities.

Level 1—Quoted prices in active markets for identical securities.

Level 2—Other significant observable inputs (including quoted prices for similar securities, interest rates, prepayment speeds, credit risk, etc.).

Level 3—Significant unobservable inputs (including the portfolio's own assumptions used to determine the fair value of investments). Any investments and derivatives valued with significant unobservable inputs are noted on the Schedule of Investments.

The following table summarizes the market value of the portfolio's investments and derivatives as of December 31, 2022, based on the inputs used to value them:

	Level 1 (\$000)	Level 2 (\$000)	Level 3 (\$000)	Total (\$000)
Investments				
Assets				
Common Stocks	1,093,473	—	—	1,093,473
Temporary Cash Investments	1,595	—	—	1,595
Total	1,095,068	—	—	1,095,068
Derivative Financial Instruments				
Liabilities				
Futures Contracts ¹	17	—	—	17

¹ Includes cumulative appreciation (depreciation) on futures contracts and centrally cleared swaps, if any, as reported in the Schedule of Investments. Only current day's variation margin is reported within the Statement of Assets and Liabilities.

E. Permanent differences between book-basis and tax-basis components of net assets, if any, are reclassified among capital accounts in the financial statements to reflect their tax character. These reclassifications have no effect on net assets or net asset value per share.

Temporary differences between book-basis and tax-basis components of total distributable earnings (loss) arise when certain items of income, gain, or loss are recognized in different periods for financial statement and tax purposes; these differences will reverse at some time in the future. The differences are primarily related to the deferral of losses from wash sales; the deferral of income from real estate investment trusts; and the recognition of unrealized gains or losses from certain derivative contracts. As of period end, the tax-basis components of total distributable earnings (loss) are detailed in the table as follows:

	Amount (\$000)
Undistributed Ordinary Income	25,927
Undistributed Long-Term Gains	49,781
Capital Loss Carryforwards	—
Qualified Late-Year Losses	—
Net Unrealized Gains (Losses)	(147,456)

The tax character of distributions paid was as follows:

	Year Ended December 31,	
	2022 Amount (\$000)	2021 Amount (\$000)
Ordinary Income*	28,357	25,327
Long-Term Capital Gains	49,627	33,541
Total	77,984	58,868

* Includes short-term capital gains, if any.

As of December 31, 2022, gross unrealized appreciation and depreciation for investments and derivatives based on cost for U.S. federal income tax purposes were as follows:

	Amount (\$000)
Tax Cost	1,242,524
Gross Unrealized Appreciation	134,565
Gross Unrealized Depreciation	(282,021)
Net Unrealized Appreciation (Depreciation)	(147,456)

F. During the year ended December 31, 2022, the portfolio purchased \$138,256,000 of investment securities and sold \$142,236,000 of investment securities, other than temporary cash investments.

The portfolio purchased securities from and sold securities to other Vanguard funds or accounts managed by Vanguard or its affiliates, in accordance with procedures adopted by the board of trustees in compliance with Rule 17a-7 of the Investment Company Act of 1940. For the year ended December 31, 2022, such purchases were \$354,000 and sales were \$117,000, resulting in net realized loss of \$24,000; these amounts, other than temporary cash investments, are included in the purchases and sales of investment securities noted above.

G. Capital shares issued and redeemed were:

	Year Ended December 31,	
	2022 Shares (000)	2021 Shares (000)
Issued	11,004	15,445
Issued in Lieu of Cash Distributions	5,356	4,535
Redeemed	(14,362)	(13,787)
Net Increase (Decrease) in Shares Outstanding	1,998	6,193

At December 31, 2022, one shareholder (an insurance company separate account whose holdings in the portfolio represent the indirect investment of Vanguard Variable Annuity contract holders) was the record or beneficial owner of 38% of the portfolio's net assets. If this shareholder were to redeem its investment in the portfolio, the redemption might result in an increase in the portfolio's expense ratio, cause the portfolio to incur higher transaction costs, or lead to the realization of taxable capital gains.

H. Management has determined that no events or transactions occurred subsequent to December 31, 2022, that would require recognition or disclosure in these financial statements.

Report of Independent Registered Public Accounting Firm

To the Board of Trustees of Vanguard Variable Insurance Funds and Shareholders of Real Estate Index Portfolio

Opinion on the Financial Statements

We have audited the accompanying statement of assets and liabilities, including the schedule of investments, of Real Estate Index Portfolio (one of the portfolios constituting Vanguard Variable Insurance Funds, referred to hereafter as the "Portfolio") as of December 31, 2022, the related statement of operations for the year ended December 31, 2022, the statement of changes in net assets for each of the two years in the period ended December 31, 2022, including the related notes, and the financial highlights for each of the five years in the period ended December 31, 2022 (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Portfolio as of December 31, 2022, 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, 2022 and the financial highlights for each of the five years in the period ended December 31, 2022 in conformity with accounting principles generally accepted in the United States of America.

Basis for Opinion

These financial statements are the responsibility of the Portfolio's management. Our responsibility is to express an opinion on the Portfolio'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 Portfolio 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, 2022 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.

/s/PricewaterhouseCoopers LLP
Philadelphia, Pennsylvania
February 16, 2023

We have served as the auditor of one or more investment companies in The Vanguard Group of Funds since 1975.

Tax information (unaudited)

The portfolio hereby designates \$1,000, or if subsequently determined to be different, the maximum amount allowable by law, of interest earned from obligations of the U.S. government which is generally exempt from state income tax.

The portfolio distributed \$49,627,000 as capital gain dividends (from net long-term capital gains) to shareholders during the fiscal year. The portfolio designates \$47,652,000 of its capital gain dividends as 20% rate gain distributions and \$1,975,000 as unrecaptured section 1250 gain distributions (25% rate gain).

THESE FUNDS ARE NOT SPONSORED, ENDORSED, SOLD OR PROMOTED BY MSCI INC. ("MSCI"), ANY OF ITS AFFILIATES, ANY OF ITS DIRECT OR INDIRECT INFORMATION PROVIDERS OR ANY OTHER THIRD PARTY INVOLVED IN, OR RELATED TO, COMPILING, COMPUTING OR CREATING ANY MSCI INDEX (COLLECTIVELY, THE "MSCI PARTIES"). THE MSCI INDEXES ARE THE EXCLUSIVE PROPERTY OF MSCI. MSCI AND THE MSCI INDEX NAMES ARE SERVICE MARK(S) OF MSCI OR ITS AFFILIATES AND HAVE BEEN LICENSED FOR USE FOR CERTAIN PURPOSES BY VANGUARD. NONE OF THE MSCI PARTIES MAKES ANY REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, TO THE OWNERS OF THESE FUNDS OR ANY MEMBER OF THE PUBLIC REGARDING THE ADVISABILITY OF INVESTING IN FUNDS GENERALLY OR IN THESE FUNDS PARTICULARLY OR THE ABILITY OF ANY MSCI INDEX TO TRACK CORRESPONDING STOCK MARKET PERFORMANCE. MSCI OR ITS AFFILIATES ARE THE LICENSORS OF CERTAIN TRADEMARKS, SERVICE MARKS AND TRADE NAMES AND OF THE MSCI INDEXES WHICH ARE DETERMINED, COMPOSED AND CALCULATED BY MSCI WITHOUT REGARD TO THESE FUNDS OR THE ISSUER OR OWNER OF THESE FUNDS. NONE OF THE MSCI PARTIES HAS ANY OBLIGATION TO TAKE THE NEEDS OF THE ISSUERS OR OWNERS OF THESE FUNDS INTO CONSIDERATION IN DETERMINING, COMPOSING OR CALCULATING THE MSCI INDEXES. NONE OF THE MSCI PARTIES IS RESPONSIBLE FOR OR HAS PARTICIPATED IN THE DETERMINATION OF THE TIMING OF, PRICES AT, OR QUANTITIES OF THESE FUNDS TO BE ISSUED OR IN THE DETERMINATION OR CALCULATION OF THE CONSIDERATION INTO WHICH THESE FUNDS ARE REDEEMABLE. NONE OF THE MSCI PARTIES HAS ANY OBLIGATION OR LIABILITY TO THE OWNERS OF THESE FUNDS IN CONNECTION WITH THE ADMINISTRATION, MARKETING OR OFFERING OF THESE FUNDS.

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The People Who Govern Your Fund

The trustees of your mutual fund are there to see that the fund is operated and managed in your best interests since, as a shareholder, you are a part owner of the fund. Your fund's trustees also serve on the board of directors of The Vanguard Group, Inc., which is owned by the Vanguard funds and provides services to them.

A majority of Vanguard's board members are independent, meaning that they have no affiliation with Vanguard or the funds they oversee, apart from the sizable personal investments they have made as private individuals. The independent board members have distinguished backgrounds in business, academia, and public service. Each of the trustees and executive officers oversees 206 Vanguard funds.

Information for each trustee and executive officer of the fund appears below. That information, as well as the Vanguard fund count, is as of the date on the cover of this fund report. The mailing address of the trustees and officers is P.O. Box 876, Valley Forge, PA 19482. More information about the trustees is in the *Statement of Additional Information*, which can be obtained, without charge, by contacting Vanguard at 800-662-7447, or online at vanguard.com.

Interested Trustee¹

Mortimer J. Buckley

Born in 1969. Trustee since January 2018. Principal occupation(s) during the past five years and other experience: chairman of the board (2019–present) of Vanguard and of each of the investment companies served by Vanguard; chief executive officer (2018–present) of Vanguard; chief executive officer, president, and trustee (2018–present) of each of the investment companies served by Vanguard; president and director (2017–present) of Vanguard; and president (2018–present) of Vanguard Marketing Corporation. Chief investment officer (2013–2017), managing director (2002–2017), head of the Retail Investor Group (2006–2012), and chief information officer (2001–2006) of Vanguard. Member of the board of governors of the Investment Company Institute and the board of governors of FINRA. Trustee and vice chair of The Shipley School.

Independent Trustees

Tara Bunch

Born in 1962. Trustee since November 2021. Principal occupation(s) during the past five years and other experience: head of global operations at Airbnb (2020–present). Vice president of AppleCare (2012–2020). Member of the board of directors of Out & Equal (2002–2006), the advisory board of the University of California, Berkeley School of Engineering (2020–present), and the advisory board of Santa Clara University's Leavey School of Business (2018–present).

Emerson U. Fullwood

Born in 1948. Trustee since January 2008. Principal occupation(s) during the past five years and other experience: executive chief staff and marketing officer for North America and corporate vice president (retired 2008) of Xerox Corporation (document management products and services). Former president of the Worldwide Channels Group, Latin America, and Worldwide Customer Service and executive chief staff officer of Developing Markets of Xerox. Executive in residence and 2009–2010 Distinguished Minett Professor at the Rochester Institute of Technology. Member of the board of directors of the University of Rochester Medical Center, the Monroe Community College Foundation, the United Way of Rochester, North Carolina A&T University, Roberts Wesleyan College, and the Rochester Philharmonic Orchestra. Trustee of the University of Rochester.

F. Joseph Loughrey

Born in 1949. Trustee since October 2009. Principal occupation(s) during the past five years and other experience: president and chief operating officer (retired 2009) and vice chairman of the board (2008–2009) of Cummins Inc. (industrial machinery). Chairman of the board of Hillenbrand, Inc. (specialized consumer services). Director of the V Foundation. Member of the advisory council for the College of Arts and Letters at the University of Notre Dame. Chairman of the board of Saint Anselm College.

Mark Loughridge

Born in 1953. Trustee since March 2012. Principal occupation(s) during the past five years and other experience: senior vice president and chief financial officer (retired 2013) of IBM (information technology services). Fiduciary member of IBM's Retirement Plan Committee (2004–2013), senior vice president and general manager (2002–2004) of IBM Global Financing, vice president and controller (1998–2002) of

IBM, and a variety of other prior management roles at IBM. Member of the Council on Chicago Booth.

Scott C. Malpass

Born in 1962. Trustee since March 2012. Principal occupation(s) during the past five years and other experience: adjunct professor of finance at the University of Notre Dame (2020–present). Chief investment officer (retired 2020) and vice president (retired 2020) of the University of Notre Dame. Assistant professor (retired June 2020) of finance at the Mendoza College of Business, University of Notre Dame, and member of the Notre Dame 403(b) Investment Committee. Member of the board of Catholic Investment Services, Inc. (investment advisors), the board of superintendence of the Institute for the Works of Religion, and the board of directors of Paxos Trust Company (finance).

Deanna Mulligan

Born in 1963. Trustee since January 2018. Principal occupation(s) during the past five years and other experience: chief executive officer of Purposeful (advisory firm for CEOs and C-level executives; 2021–present). Board chair (2020), chief executive officer (2011–2020), and president (2010–2019) of The Guardian Life Insurance Company of America. Chief operating officer (2010–2011) and executive vice president (2008–2010) of Individual Life and Disability of the Guardian Life Insurance Company of America. Member of the board of the Economic Club of New York. Trustee of the Partnership for New York City (business leadership), Chief Executives for Corporate Purpose, and the NewYork-Presbyterian Hospital.

André F. Perold

Born in 1952. Trustee since December 2004. Principal occupation(s) during the past five years and other experience: George Gund Professor of Finance and Banking, Emeritus at the Harvard Business School (retired 2011). Chief investment officer and co-managing partner of HighVista Strategies (private investment firm). Member of the board (2018–present) of RIT Capital Partners (investment firm). Member of the investment committee of Partners Health Care System.

Sarah Bloom Raskin

Born in 1961. Trustee since January 2018. Principal occupation(s) during the past five years and other experience: deputy secretary (2014–2017) of the United States Department of the Treasury. Governor (2010–2014) of the Federal Reserve Board. Commissioner (2007–2010) of financial regulation for the State of Maryland. Colin W. Brown Distinguished Professor of the Practice of Law (2021–present), professor (2020–present), Distinguished Fellow of the Global Financial Markets Center (2020–present), and Rubenstein Fellow (2017–2020) at Duke University. Trustee (2017–present) of Amherst College and member of Amherst College Investment Committee (2019–present). Member of the Regenerative Crisis Response Committee (2020–present).

David A. Thomas

Born in 1956. Trustee since July 2021. Principal occupation(s) during the past five years and other experience: president of Morehouse College (2018–present). Professor of business administration, emeritus at Harvard University (2017–2018). Dean (2011–2016) and professor of management (2016–2017) at the Georgetown University McDonough School of Business. Director of DTE Energy Company (2013–present). Trustee of Common Fund (2019–present).

¹ Mr. Buckley is considered an "interested person," as defined in the Investment Company Act of 1940, because he is an officer of the Vanguard funds.

Peter F. Volanakis

Born in 1955. Trustee since July 2009. Principal occupation(s) during the past five years and other experience: president and chief operating officer (retired 2010) of Corning Incorporated (communications equipment) and director of Corning Incorporated (2000–2010) and Dow Corning (2001–2010). Director (2012) of SPX Corporation (multi-industry manufacturing). Overseer of the Amos Tuck School of Business Administration, Dartmouth College (2001–2013). Member of the BMW Group Mobility Council.

Executive Officers**Jacqueline Angell**

Born in 1974. Principal occupation(s) during the past five years and other experience: principal of Vanguard. Chief compliance officer (November 2022–present) of Vanguard and of each of the investment companies served by Vanguard. Chief compliance officer (2018–2022) and deputy chief compliance officer (2017–2019) of State Street Corporation.

Christine M. Buchanan

Born in 1970. Principal occupation(s) during the past five years and other experience: principal of Vanguard. Chief financial officer (2021–present) and treasurer (2017–2022) of each of the investment companies served by Vanguard. Partner (2005–2017) at KPMG (audit, tax, and advisory services).

John Galloway

Born in 1973. Principal occupation(s) during the past five years and other experience: principal of Vanguard. Investment stewardship officer (September 2020–present) of each of the investment companies served by Vanguard. Head of Investor Advocacy (February 2020–present) and head of Marketing Strategy and Planning (2017–2020) at Vanguard. Special assistant to the President of the United States (2015).

Ashley Grim

Born in 1984. Principal occupation(s) during the past five years and other experience: treasurer (February 2022–present) of each of the investment companies served by Vanguard. Fund transfer agent controller (2019–2022) and director of Audit Services

(2017–2019) at Vanguard. Senior manager (2015–2017) at PriceWaterhouseCoopers (audit and assurance, consulting, and tax services).

Peter Mahoney

Born in 1974. Principal occupation(s) during the past five years and other experience: principal of Vanguard. Controller (2015–present) of each of the investment companies served by Vanguard. Head of International Fund Services (2008–2014) at Vanguard.

Anne E. Robinson

Born in 1970. Principal occupation(s) during the past five years and other experience: general counsel (2016–present) of Vanguard. Secretary (2016–present) of Vanguard and of each of the investment companies served by Vanguard. Managing director (2016–present) of Vanguard. Managing director and general counsel of Global Cards and Consumer Services (2014–2016) at Citigroup. Counsel (2003–2014) at American Express. Nonexecutive director of the board of National Grid (energy).

Michael Rollings

Born in 1963. Principal occupation(s) during the past five years and other experience: finance director (2017–present) and treasurer (2017) of each of the investment companies served by Vanguard. Managing director (2016–present) of Vanguard. Chief financial officer (2016–present) of Vanguard. Director (2016–present) of Vanguard Marketing Corporation. Executive vice president and chief financial officer (2006–2016) of MassMutual Financial Group.

Vanguard Senior Management Team**Matthew Benchener****Joseph Brennan****Mortimer J. Buckley****Gregory Davis****John James****Chris D. McIsaac****Thomas M. Rampulla****Karin A. Risi****Anne E. Robinson****Michael Rollings****Nitin Tandon****Lauren Valente**



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All comparative mutual fund data are from Morningstar, Inc., unless otherwise noted.

You can obtain a free copy of Vanguard's proxy voting guidelines by visiting vanguard.com/proxyreporting or by calling Vanguard at 800-662-2739. The guidelines are also available from the SEC's website, www.sec.gov. In addition, you may obtain a free report on how your fund voted the proxies for securities it owned during the 12 months ended June 30. To get the report, visit either vanguard.com/proxyreporting or www.sec.gov.

You can review information about your portfolio on the SEC's website, and you can receive copies of this information, for a fee, by sending a request via email addressed to publicinfo@sec.gov.

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