



**Semiannual Report** | June 30, 2018

# Vanguard Variable Insurance Fund

Real Estate Index Portfolio

## Vanguard's Principles for Investing Success

We want to give you the best chance of investment success. These principles, grounded in Vanguard's research and experience, can put you on the right path.

**Goals.** Create clear, appropriate investment goals.

**Balance.** Develop a suitable asset allocation using broadly diversified funds.

**Cost.** Minimize cost.

**Discipline.** Maintain perspective and long-term discipline.

A single theme unites these principles: Focus on the things you can control. We believe there is no wiser course for any investor.

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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 fund are spelled out in the prospectus.

See the Glossary for definitions of investment terms used in this report.

About the cover: Nautical images have been part of Vanguard's rich heritage since its start in 1975. For an incoming ship, a lighthouse offers a beacon and safe path to shore. You can similarly depend on Vanguard to put you first—and light the way—as you strive to meet your financial goals. Our client focus and low costs, stemming from our unique ownership structure, assure that your interests are paramount.

## CEO's Perspective



**Tim Buckley**  
President and Chief Executive Officer

Dear Planholder,

I feel extremely fortunate to have the chance to lead a company filled with people who come to work every day passionate about Vanguard's core purpose: to take a stand for all investors, to treat them fairly, and to give them the best chance for investment success.

When I joined Vanguard in 1991, I found a mission-driven team focused on improving lives—helping people retire more comfortably, put their children through college, and achieve financial security. I also found a company with purpose in an industry ripe for improvement.

It was clear, even early in my career, that the cards were stacked against most investors. Hidden fees, performance-chasing, and poor advice were relentlessly eroding investors' dreams.

We knew Vanguard could be different and, as a result, could make a real difference. We have lowered the costs of investing for our shareholders significantly. And we're proud of the performance of our funds.

Vanguard is built for Vanguard investors—we focus solely on you, our fund shareholders. Everything we do is designed to give our clients the best chance for investment success. In my role as CEO,

I'll keep this priority front and center. We're proud of what we've achieved, but we're even more excited about what's to come.

### **Steady, time-tested guidance**

Our guidance for investors, as always, is to stay the course, tune out the hyperbolic headlines, and focus on your goals and what you can control, such as costs and how much you save. This time-tested advice has served our clients well over the decades.

Regardless of how the markets perform in the short term, I'm incredibly optimistic about the future for our investors. We have a dedicated team serving you, and we will never stop striving to make Vanguard the best place for you to invest through our high-quality funds and services, advice and guidance to help you meet your financial goals, and an experience that makes you feel good about entrusting us with your hard-earned savings.

Thank you for your continued loyalty.

Sincerely,

A handwritten signature in black ink, appearing to read "Mortimer J. Buckley".

Mortimer J. Buckley  
President and Chief Executive Officer  
July 13, 2018

## Market Perspective

### U.S. stocks continued to climb, even with periods of volatility

U.S. stocks advanced over the six months ended June 30, 2018, although their path forward was marked by significant bouts of volatility. Corporate earnings remained strong and the U.S. economy continued to indicate growth. Investors worried, however, about high stock valuations, the possibility of inflation, and continued tightening of monetary policy by the Federal Reserve.

The Fed's June increase in the federal funds target rate by a quarter percentage point, to 1.75%–2%, was its second in 2018. In announcing it, Fed Chair Jerome Powell offered a positive assessment of the U.S. economy. The Fed has also continued to shrink the \$4.5 trillion balance sheet it had amassed since it began providing monetary stimulus in the wake of the 2007–2009 recession.

For the six months, the broad U.S. stock market returned 3.22%. U.S. large- and mid-capitalization stocks trailed small-caps, while growth stocks exceeded value. Among sectors, information technology, consumer discretionary, and energy posted the strongest returns. Consumer staples, communication services, and industrials fared the worst.

For U.S. investors, a stronger dollar hurt international stocks, which returned –3.83%. Developed European and Pacific markets declined, as did emerging markets.

### Bond returns were down as inflation concerns heightened

Bond yields rose and prices fell over the six months as inflation expectations rose, the labor market improved, and the Fed suggested that more rate hikes were in store for 2018. (Bond prices and yields move in opposite directions.)

The yield of the benchmark 10-year Treasury note closed the period at 2.86%, up from 2.41% at the end of December 2017. The broad U.S. bond market returned –1.62% for the period. U.S. Treasuries and mortgage-backed securities generally outpaced investment-grade corporate bonds.

International bonds returned –1.31%, as measured by the Barclays Global Aggregate Index ex USD. U.S. investors were hampered by the dollar's strengthening against many currencies. Without this currency impact, international bonds were up more than 1%.

### Market Barometer

	Total Returns Periods Ended June 30, 2018		
	Six Months	One Year	Five Years <sup>1</sup>
<b>Stocks</b>			
Russell 1000 Index (Large-caps)	2.85%	14.54%	13.37%
Russell 2000 Index (Small-caps)	7.66	17.57	12.46
Russell 3000 Index (Broad U.S. market)	3.22	14.78	13.29
FTSE All-World ex US Index (International)	–3.83	7.28	6.35
<b>Bonds</b>			
Bloomberg Barclays U.S. Aggregate Bond Index (Broad taxable market)	–1.62%	–0.40%	2.27%
Bloomberg Barclays Municipal Bond Index (Broad tax-exempt market)	–0.25	1.56	3.53
FTSE Three-Month U.S. Treasury Bill Index	0.78	1.33	0.38
<b>CPI</b>			
Consumer Price Index	2.22%	2.87%	1.54%

<sup>1</sup> Annualized.

## Real Estate Index Portfolio

Real estate investment trusts trailed the broad U.S. stock market during the six months ended June 30, 2018, as rising interest rates limited their investment appeal. The Real Estate Index Portfolio returned 0.70% for the period, a bit below its target index and the average return of its peer funds.

The portfolio seeks to provide a high level of income and moderate long-term capital appreciation by tracking a benchmark index that measures the performance of publicly traded equity REITs and other real estate-related investments.

Please note that the portfolio returns in Vanguard Variable Insurance Fund are different from those in Vanguard Variable Annuity (and other plans that invest in the fund), which take into account insurance-related expenses.

### Fed tightening limited REITs' appeal

In June, the Federal Reserve raised the federal funds target rate one-quarter of a percentage point, to between 1.75% and 2%. It was the second increase in

2018 and the seventh increase since December 2015. REITs tend to lag the broader stock market during periods of rising rates as higher interest rates raise debt-financing costs and erode profit margins.

Specialized REITs, which include storage facilities, data centers, and entertainment and athletic complexes, contributed the most to relative performance. Hotel and resort REITs and industrial REITs were also among the groups that made big contributions to the portfolio's positive overall performance for the period. For industrial REITs, which own and manage industrial facilities and rent space in those properties, the gain was due in part to e-commerce and warehouse users expanding into urban areas.

Real estate services REITs, real estate development REITs, residential REITs, and real estate operating company REITs also contributed to performance. Retail REITs, diversified REITs, office REITs, health care REITs, diversified real estate activities REITs, and mortgage REITs detracted.

Retail REITs—the sector's largest group—were the biggest detractors. Retail REITs were held back by a general decline in the popularity of malls, store closures by national retailers, and an increase in online shopping.

### Changes to the portfolio

As we mentioned in the previous report, Vanguard earlier this year updated the investment objective and principal investment strategies of the portfolio to provide broader exposure to the real estate market. As part of this filing, the benchmark index of the portfolio was updated from the MSCI US REIT Index to the MSCI US Investable Market Real Estate 25/50 Index. The name of the portfolio also was updated from the REIT Index Portfolio to the Real Estate Index Portfolio.

### Total Returns

	Six Months Ended June 30, 2018
Real Estate Index Portfolio	0.70%
VVIF Real Estate Spliced Index <sup>1</sup>	0.79
Variable Insurance Real Estate Funds Average <sup>2</sup>	0.76

### Expense Ratios<sup>3</sup>

Your Portfolio Compared With Its Peer Group

	Portfolio	Variable Insurance Real Estate Funds Average
Real Estate Index Portfolio	0.27%	1.11%



<sup>1</sup> MSCI US REIT Index adjusted to include a 2% cash position (Lipper Money Market Average) through April 30, 2009; MSCI US REIT Index through January 18, 2018; and MSCI US Investable Market Real Estate 25/50 Index thereafter.

<sup>2</sup> Derived from data provided by Lipper, a Thomson Reuters Company.

<sup>3</sup> The portfolio expense ratio shown is from the prospectus dated April 26, 2018, and represents estimated costs for the current fiscal year. For the six months ended June 30, 2018, the Real Estate Index Portfolio's annualized expense ratio was 0.27%. The peer-group expense ratio is derived from data provided by Lipper, a Thomson Reuters Company, and captures information through year-end 2017.

## Portfolio Profile

As of June 30, 2018

### Portfolio Characteristics

	Portfolio	Comparative Index <sup>1</sup>	Broad Index <sup>2</sup>
Number of Stocks	185	185	3,779
Median Market Cap	\$12.7B	\$12.6B	\$64.0B
Price/Earnings Ratio	37.7x	36.6x	20.7x
Price/Book Ratio	2.4x	2.4x	3.0x
Dividend Yield <sup>3</sup>	3.8%	3.8%	1.8%
Return on Equity	6.1%	6.1%	15.0%
Earnings Growth Rate	13.1%	13.2%	8.3%
Foreign Holdings	0.0%	0.0%	0.0%
Turnover Rate <sup>4</sup>	35%	—	—
Expense Ratio <sup>5</sup>	0.27%	—	—
Short-Term Reserves	0.0%	—	—

### Volatility Measures

	Portfolio Versus Target Index <sup>1</sup>	Portfolio Versus Broad Index <sup>2</sup>
R-Squared	1.00	0.30
Beta	1.00	0.70

### Portfolio Allocation by Subsector

Industrial REITs	31.3%
Diversified REITs	15.4
Hotel & Resort REITs	13.0
Specialized REITs	10.5
Residential REITs	8.9
Health Care REITs	6.6
Office REITs	5.8
Retail REITs	4.7
Real Estate Management & Development	3.8

### Ten Largest Holdings<sup>6</sup> (% of total net assets)

American Tower Corp.	Specialized REITs	5.9%
Simon Property Group Inc.	Retail REITs	5.0
Crown Castle International Corp.	Specialized REITs	4.0
Public Storage	Specialized REITs	3.3
Prologis Inc.	Industrial REITs	3.2
Equinix Inc.	Specialized REITs	3.1
Weyerhaeuser Co.	Specialized REITs	2.5
AvalonBay Communities Inc.	Residential REITs	2.2
Equity Residential	Residential REITs	2.2
Welltower Inc.	Health Care REITs	2.1
Top Ten		33.5%

**Beta.** A measure of the magnitude of a portfolio's past share-price fluctuations in relation to the ups and downs of a given market index. The index is assigned a beta of 1.00. Compared with a given index, a portfolio with a beta of 1.20 typically would have seen its share price rise or fall by 12% when the index rose or fell by 10%. For this report, beta is based on returns over the past 36 months for both the portfolio and the index.

**Dividend Yield.** Dividend income earned by stocks, expressed as a percentage of the aggregate market value (or of net asset value, for a portfolio). The yield is determined by dividing the amount of the annual dividends by the aggregate value (or net asset value) at the end of the period. For a portfolio, the dividend yield is based solely on stock holdings and does not include any income produced by other investments.

**R-Squared.** A measure of how much of a portfolio's past returns can be explained by the returns from the market in general, as measured by a given index. If a portfolio's total returns were precisely synchronized with an index's returns, its R-squared would be 1.00. If the portfolio's returns bore no relationship to the index's returns, its R-squared would be 0. For this report, R-squared is based on returns over the past 36 months for both the portfolio and the index.

<sup>1</sup> MSCI US Investable Market Real Estate 25/50 Index.

<sup>2</sup> Dow Jones U.S. Total Stock Market Float Adjusted Index.

<sup>3</sup> This dividend yield may include some payments that represent a return of capital, capital gains distribution, or both by the underlying REITs. These amounts are determined by each REIT at the end of its fiscal year.

<sup>4</sup> Annualized.

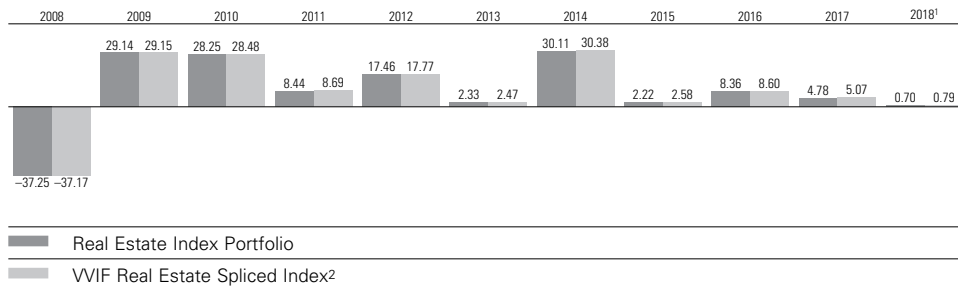
<sup>5</sup> The expense ratio shown is from the prospectus dated April 26, 2018, and represents estimated costs for the current fiscal year. For the six months ended June 30, 2018, the Real Estate Index Portfolio's annualized expense ratio annualized was 0.27%.

<sup>6</sup> The holdings listed exclude any temporary cash investments and equity index products.

## 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](http://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.

### Fiscal-Year Total Returns (%): December 31, 2007–June 30, 2018



### Average Annual Total Returns: Periods Ended June 30, 2018

	Inception Date	One Year	Five Years	Ten Years
Real Estate Index Portfolio	2/9/1999	2.89%	7.92%	7.87%

<sup>1</sup> Six months ended June 30, 2018.

<sup>2</sup> MSCI US REIT Index adjusted to include a 2% cash position (Lipper Money Market Average) through April 30, 2009; MSCI US REIT Index through January 18, 2018; and MSCI US Investable Market Real Estate 25/50 Index thereafter.

See Financial Highlights for dividend and capital gains information.

## Financial Statements (unaudited)

## Statement of Net Assets

As of June 30, 2018

The portfolio reports a complete list of its holdings in regulatory filings four times in each fiscal year, at the quarter-ends. For the second and fourth fiscal quarters, the lists appear in the portfolio's semiannual and annual reports to shareholders. For the first and third fiscal quarters, the portfolio files the lists with the Securities and Exchange Commission on Form N-Q. Shareholders can look up the portfolio's Forms N-Q on the SEC's website at sec.gov. Forms N-Q may also be reviewed and copied at the SEC's Public Reference Room (see the back cover of this report for further information).

	Shares	Market Value* (\$000)		Shares	Market Value* (\$000)		Shares	Market Value* (\$000)		
<b>Equity Real Estate Investment Trusts (REITs) (96.0%)<sup>1</sup></b>			Apple Hospitality REIT Inc.			209,340	3,743	Columbia Property Trust Inc.	114,626	2,603
Diversified REITs (4.7%)			LaSalle Hotel Properties			108,749	3,722	Piedmont Office Realty Trust Inc. Class A	129,493	2,581
VEREIT Inc.	934,609	6,953	RLJ Lodging Trust			167,708	3,698	Mack-Cali Realty Corp.	86,517	1,755
WP Carey Inc.	102,302	6,788	Ryman Hospitality Properties Inc.			44,248	3,679	Government Properties Income Trust	94,986	1,506
Liberty Property Trust	141,376	6,267	Sunstone Hotel Investors Inc.			215,798	3,587	Tier REIT Inc.	45,941	1,092
Forest City Realty Trust Inc. Class A	217,612	4,964	Pebblebrook Hotel Trust			66,138	2,566	Easterly Government Properties Inc.	54,598	1,079
STORE Capital Corp.	167,621	4,593	Xenia Hotels & Resorts Inc.			102,325	2,493	Franklin Street Properties Corp.	103,048	882
Colony Capital Inc.	467,398	2,917	DiamondRock Hospitality Co.			192,229	2,361	NorthStar Realty Europe Corp.	47,890	694
PS Business Parks Inc.	19,613	2,520	MGM Growth Properties LLC Class A			67,699	2,062	City Office REIT Inc.	32,470	417
Washington REIT	75,281	2,283	Chesapeake Lodging Trust			57,746	1,827	New York REIT Inc.	15,704	286
Empire State Realty Trust Inc.	131,799	2,254	Summit Hotel Properties Inc.			100,009	1,431			108,747
Lexington Realty Trust	207,079	1,808	CorePoint Lodging Inc.			39,376	1,020	<b>Residential REITs (13.0%)</b>		
Alexander & Baldwin Inc.	65,514	1,540	Chatham Lodging Trust			44,048	935	AvalonBay Communities Inc.	132,440	22,765
Select Income REIT	63,907	1,436	Hersha Hospitality Trust Class A			36,342	780	Equity Residential	353,100	22,489
Global Net Lease Inc.	64,485	1,317	Ashford Hospitality Trust Inc.			88,604	718	Essex Property Trust Inc.	63,339	15,142
American Assets Trust Inc.	31,658	1,212	Braemar Hotels & Resorts Inc.			27,617	315	Mid-America Apartment Communities Inc.	108,983	10,971
iStar Inc.	65,341	705						UDR Inc.	257,006	9,648
Armada Hoffler Properties Inc.	43,503	648	<b>Industrial REITs (6.6%)</b>					Camden Property Trust	88,992	8,110
Gladstone Commercial Corp.	27,382	526	Prologis Inc.			511,439	33,596	Sun Communities Inc.	76,245	7,463
One Liberty Properties Inc.	13,816	365	Duke Realty Corp.			342,084	9,931	Equity LifeStyle Properties Inc.	80,575	7,405
Winthrop Realty Trust	32,397	47	DCT Industrial Trust Inc.			89,912	6,000	Invitation Homes Inc.	298,708	6,888
		<b>49,143</b>	Gramercy Property Trust			154,240	4,214	Apartment Investment & Management Co.	150,899	6,383
<b>Health Care REITs (8.9%)</b>			First Industrial Realty Trust Inc.			115,526	3,851	American Campus Communities Inc.	130,999	5,617
Welltower Inc.	355,283	22,273	EastGroup Properties Inc.			33,279	3,180	American Homes 4 Rent Class A	245,712	5,450
Ventas Inc.	341,635	19,456	STAG Industrial Inc.			93,570	2,548	Education Realty Trust Inc.	72,634	3,014
HCP Inc.	449,897	11,616	Rexford Industrial Realty Inc.			75,590	2,373	Independence Realty Trust Inc.	82,028	846
Omega Healthcare Investors Inc.	190,550	5,907	Terreno Realty Corp.			53,068	1,999	Preferred Apartment Communities Inc. Class A	37,841	643
Healthcare Trust of America Inc. Class A	196,682	5,303	Monmouth Real Estate Investment Corp.			70,906	1,172	Investors Real Estate Trust	115,505	639
Medical Properties Trust Inc.	349,563	4,908						Front Yard Residential Corp.	48,757	508
Senior Housing Properties Trust	228,213	4,128	<b>Office REITs (10.4%)</b>					NexPoint Residential Trust Inc.	17,223	490
Sabra Health Care REIT Inc.	171,134	3,719	Boston Properties Inc.			148,093	18,574	UMH Properties Inc.	30,745	472
Healthcare Realty Trust Inc.	119,875	3,486	Alexandria Real Estate Equities Inc.			97,144	12,257			<b>134,943</b>
National Health Investors Inc.	39,801	2,932	Vornado Realty Trust			163,965	12,120	<b>Retail REITs (15.4%)</b>		
Physicians Realty Trust	172,396	2,748	SL Green Realty Corp.			86,678	8,714	Simon Property Group Inc.	307,280	52,296
Quality Care Properties Inc.	89,947	1,935	Kilroy Realty Corp.			94,860	7,175	Realty Income Corp.	272,549	14,660
LTC Properties Inc.	37,926	1,621	Douglas Emmett Inc.			154,540	6,209	GGP Inc.	642,483	13,126
CareTrust REIT Inc.	73,154	1,221	Hudson Pacific Properties Inc.			150,502	5,332	Regency Centers Corp.	147,355	9,148
Universal Health Realty Income Trust	12,585	805	Highwoods Properties Inc.			98,972	5,021	Federal Realty Investment Trust	70,273	8,893
New Senior Investment Group Inc.	78,856	597	JBG SMITH Properties			107,565	3,923	Kimco Realty Corp.	408,467	6,940
MedEquities Realty Trust Inc.	27,206	300	Cousins Properties Inc.			402,923	3,904	National Retail Properties Inc.	147,647	6,491
		<b>92,955</b>	Equity Commonwealth			118,429	3,731	Macerich Co.	101,388	5,762
<b>Hotel &amp; Resort REITs (5.8%)</b>			Paramount Group Inc.			206,797	3,185			
Host Hotels & Resorts Inc.	704,228	14,838	Brandywine Realty Trust			171,524	2,895			
Park Hotels & Resorts Inc.	192,690	5,902	Corporate Office Properties Trust			97,006	2,812			
Hospitality Properties Trust	157,751	4,513								



Real Estate Index Portfolio

	Shares	Market Value* (\$000)		Shares	Market Value* (\$000)		Amount (\$000)
Brixmor Property Group Inc.	292,046	5,090	PotlatchDeltic Corp.	57,033	2,900	<b>Other Assets and Liabilities (-0.1%)</b>	
Weingarten Realty Investors	117,223	3,612	CoreCivic Inc.	113,529	2,712	<b>Other Assets</b>	
Spirit Realty Capital Inc.	429,924	3,452	Outfront Media Inc.	132,080	2,569	Investment in Vanguard	53
Taubman Centers Inc.	58,396	3,431	QTS Realty Trust Inc. Class A	48,571	1,919	Receivables for Investment Securities Sold	581
DDR Corp.	150,402	2,692	National Storage Affiliates Trust	48,232	1,487	Receivables for Accrued Income	4,057
Retail Properties of America Inc.	210,204	2,686	Four Corners Property Trust Inc.	58,649	1,445	Receivables for Capital Shares Issued	198
Urban Edge Properties	109,309	2,500	InfraREIT Inc.	42,083	933	Variation Margin Receivable—	
Acadia Realty Trust	80,303	2,198	CatchMark Timber Trust Inc. Class A	46,741	595	Futures Contracts	5
^ Tanger Factory Outlet Centers Inc.	90,575	2,128	^ Farmland Partners Inc.	29,537	260	Other Assets	5
Retail Opportunity Investments Corp.	107,647	2,062			<b>325,497</b>	<b>Total Other Assets</b>	<b>4,899</b>
Agree Realty Corp.	29,626	1,563	<b>Total Equity Real Estate Investment Trusts (REITs) (Cost \$1,037,661)</b>			<b>1,000,202</b>	
Washington Prime Group Inc.	178,386	1,447	<b>Real Estate Management &amp; Development (3.8%)</b>				
Kite Realty Group Trust	78,906	1,348	* CBRE Group Inc. Class A	308,792	14,742		
^ Seritage Growth Properties Class A	31,008	1,316	Jones Lang LaSalle Inc.	43,461	7,214		
Ramco-Gershenson Properties Trust	76,220	1,007	* Howard Hughes Corp.	39,388	5,219		
^ CBL & Associates Properties Inc.	164,556	917	Realogy Holdings Corp.	125,138	2,853		
Getty Realty Corp.	32,384	912	Kennedy-Wilson Holdings Inc.	129,417	2,737		
Alexander's Inc.	2,198	841	HFF Inc. Class A	34,976	1,202		
^ Pennsylvania REIT	67,725	744	^* Redfin Corp.	43,168	997		
Saul Centers Inc.	12,811	686	RE/MAX Holdings Inc. Class A	16,873	885		
Urstadt Biddle Properties Inc. Class A	28,424	643	* Marcus & Millichap Inc.	18,100	706		
* Spirit MTA REIT	42,604	439	* St. Joe Co.	37,003	664		
Cedar Realty Trust Inc.	89,548	423	* Five Point Holdings LLC Class A	53,088	597		
Whitestone REIT	32,845	410	* Tejon Ranch Co.	20,628	501		
		<b>159,863</b>	RMR Group Inc. Class A	5,789	454		
<b>Specialized REITs (31.2%)</b>			* FRP Holdings Inc.	6,556	425		
American Tower Corp.	422,908	60,971	^* Altisource Portfolio Solutions SA	10,813	315		
Crown Castle International Corp.	390,320	42,084	^* Forestar Group Inc.	10,019	208		
Public Storage	150,224	34,080	<b>Total Real Estate Management &amp; Development (Cost \$38,461)</b>			<b>39,719</b>	
Equinix Inc.	75,999	32,671	<b>Temporary Cash Investments (0.3%)<sup>1</sup></b>				
Weyerhaeuser Co.	725,401	26,448	<b>Money Market Fund (0.3%)</b>				
Digital Realty Trust Inc.	197,149	21,998	<sup>3,4</sup> Vanguard Market Liquidity Fund, 2.122%	31,541	3,154		
* SBA Communications Corp. Class A	111,714	18,446			Face Amount (\$000)		
Extra Space Storage Inc.	120,851	12,062	<b>U.S. Government and Agency Obligations (0.0%)</b>				
Iron Mountain Inc.	259,844	9,097	<sup>5</sup> United States Treasury Bill, 1.916%, 9/6/18	300	299		
Gaming and Leisure Properties Inc.	194,154	6,951	<b>Total Temporary Cash Investments (Cost \$3,453)</b>			<b>3,453</b>	
CubeSmart	174,777	5,631	<b>Total Investments (100.1%) (Cost \$1,079,575)</b>			<b>1,043,374</b>	
Lamar Advertising Co. Class A	80,512	5,500					
VICI Properties Inc.	266,432	5,499					
CyrusOne Inc.	92,327	5,388					
Rayonier Inc.	123,799	4,790					
EPR Properties	70,809	4,588					
Life Storage Inc.	44,552	4,335					
CoreSite Realty Corp.	32,944	3,651					
GEO Group Inc.	118,971	3,276					
Uniti Group Inc.	160,328	3,211					

	Amount (\$000)
<b>Other Assets and Liabilities (-0.1%)</b>	
<b>Other Assets</b>	
Investment in Vanguard	53
Receivables for Investment Securities Sold	581
Receivables for Accrued Income	4,057
Receivables for Capital Shares Issued	198
Variation Margin Receivable—	
Futures Contracts	5
Other Assets	5
<b>Total Other Assets</b>	<b>4,899</b>
<b>Liabilities</b>	
Payables for Investment Securities Purchased	(2,426)
Collateral for Securities on Loan	(1,841)
Payables for Capital Shares Redeemed	(1,331)
Payables to Vanguard	(659)
<b>Total Liabilities</b>	<b>(6,257)</b>
<b>Net Assets (100%)</b>	
<b>Applicable to 84,643,156 outstanding \$0.01 par value shares of beneficial interest (unlimited authorization)</b>	<b>1,042,016</b>
<b>Net Asset Value Per Share</b>	<b>\$12.31</b>

At June 30, 2018, net assets consisted of:

	Amount (\$000)
Paid-in Capital	1,021,919
Undistributed Net Investment Income	14,321
Accumulated Net Realized Gains	41,930
Unrealized Appreciation (Depreciation)	
Investment Securities	(36,201)
Futures Contracts	47
<b>Net Assets</b>	<b>1,042,016</b>

- See Note A in Notes to Financial Statements.
  - \* Non-income-producing security.
  - ^ Includes partial security positions on loan to broker-dealers. The total value of securities on loan is \$1,748,000.
  - 1 The portfolio invests a portion of its cash reserves in equity markets through the use of index futures contracts. After giving effect to futures investments, the portfolio's effective common stock and temporary cash investment positions represent 100.0% and 0.1%, respectively, of net assets.
  - 2 Security value determined using significant unobservable inputs.
  - 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 Includes \$1,841,000 of collateral received for securities on loan.
  - 5 Securities with a value of \$299,000 have been segregated as initial margin for open futures contracts.
- REIT—Real Estate Investment Trust.

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Derivative Financial Instruments Outstanding as of Period End

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Futures Contracts

				(\$000)
	Expiration	Number of Long (Short) Contracts	Notional Amount	Value and Unrealized Appreciation (Depreciation)
Long Futures Contracts				
Dow Jones U.S. Real Estate Index	September 2018	65	2,079	47

Unrealized appreciation (depreciation) on open futures contracts is required to be treated as realized gain (loss) for tax purposes.

## Statement of Operations

	Six Months Ended June 30, 2018 (\$000)
<b>Investment Income</b>	
<b>Income</b>	
Dividends	16,316
Interest <sup>1</sup>	12
Securities Lending—Net	7
<b>Total Income</b>	<b>16,335</b>
<b>Expenses</b>	
The Vanguard Group—Note B	
Investment Advisory Services	117
Management and Administrative	1,093
Marketing and Distribution	77
Custodian Fees	11
Shareholders' Reports	4
<b>Total Expenses</b>	<b>1,302</b>
<b>Net Investment Income</b>	<b>15,033</b>
<b>Realized Net Gain (Loss)</b>	
Investment Securities Sold <sup>1</sup>	40,327
Futures Contracts	(53)
Capital Gain Distributions Received	1,650
<b>Realized Net Gain (Loss)</b>	<b>41,824</b>
<b>Change in Unrealized Appreciation (Depreciation)</b>	
Investment Securities <sup>1</sup>	(52,645)
Futures Contracts	52
<b>Change in Unrealized Appreciation (Depreciation)</b>	<b>(52,593)</b>
<b>Net Increase (Decrease) in Net Assets Resulting from Operations</b>	<b>4,364</b>

<sup>1</sup> Interest income, realized net gain (loss), and change in unrealized appreciation (depreciation) from an affiliated company of the portfolio were \$11,000, 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

	Six Months Ended June 30, 2018 (\$000)	Year Ended December 31, 2017 (\$000)
<b>Increase (Decrease) in Net Assets</b>		
<b>Operations</b>		
Net Investment Income	15,033	30,921
Realized Net Gain (Loss)	41,824	38,019
Change in Unrealized Appreciation (Depreciation)	(52,593)	(18,204)
<b>Net Increase (Decrease) in Net Assets Resulting from Operations</b>	<b>4,364</b>	<b>50,736</b>
<b>Distributions</b>		
Net Investment Income	(30,725)	(26,681)
Realized Capital Gain <sup>1</sup>	(37,675)	(47,580)
<b>Total Distributions</b>	<b>(68,400)</b>	<b>(74,261)</b>
<b>Capital Share Transactions</b>		
Issued	80,619	113,956
Issued in Lieu of Cash Distributions	68,400	74,261
Redeemed	(119,815)	(180,812)
<b>Net Increase (Decrease) from Capital Share Transactions</b>	<b>29,204</b>	<b>7,405</b>
<b>Total Increase (Decrease)</b>	<b>(34,832)</b>	<b>(16,120)</b>
<b>Net Assets</b>		
<b>Beginning of Period</b>	<b>1,076,848</b>	<b>1,092,968</b>
<b>End of Period<sup>2</sup></b>	<b>1,042,016</b>	<b>1,076,848</b>

<sup>1</sup> Includes fiscal 2018 and 2017 short-term gain distributions totaling \$360,000 and \$786,000, respectively. Short-term gain distributions are treated as ordinary income dividends for tax purposes.

<sup>2</sup> Net Assets—End of Period includes undistributed (overdistributed) net investment income of \$14,321,000 and \$30,013,000.

## Financial Highlights

For a Share Outstanding Throughout Each Period	Six Months Ended June 30,	Year Ended December 31,				
	2018	2017	2016	2015	2014	2013
<b>Net Asset Value, Beginning of Period</b>	<b>\$13.14</b>	<b>\$13.48</b>	<b>\$13.77</b>	<b>\$14.17</b>	<b>\$11.87</b>	<b>\$12.12</b>
<b>Investment Operations</b>						
Net Investment Income	.181 <sup>1</sup>	.375 <sup>1</sup>	.346	.358	.307	.308
Net Realized and Unrealized Gain (Loss) on Investments	(.158)	.220	.734	(.032)	3.061	.002
Total from Investment Operations	.023	.595	1.080	.326	3.368	.310
<b>Distributions</b>						
Dividends from Net Investment Income	(.383)	(.336)	(.375)	(.251)	(.367)	(.255)
Distributions from Realized Capital Gains	(.470)	(.599)	(.995)	(.475)	(.701)	(.305)
Total Distributions	(.853)	(.935)	(1.370)	(.726)	(1.068)	(.560)
<b>Net Asset Value, End of Period</b>	<b>\$12.31</b>	<b>\$13.14</b>	<b>\$13.48</b>	<b>\$13.77</b>	<b>\$14.17</b>	<b>\$11.87</b>
<b>Total Return</b>	<b>0.70%</b>	<b>4.78%</b>	<b>8.36%</b>	<b>2.22%</b>	<b>30.11%</b>	<b>2.33%</b>
<b>Ratios/Supplemental Data</b>						
Net Assets, End of Period (Millions)	\$1,042	\$1,077	\$1,093	\$990	\$1,009	\$655
Ratio of Total Expenses to Average Net Assets	0.27%	0.27%	0.27%	0.27%	0.27%	0.27%
Ratio of Net Investment Income to Average Net Assets	3.06%	2.87%	2.55%	2.60%	3.96%	2.50%
Portfolio Turnover Rate	35%	10%	14%	21%	11%	19%

The expense ratio, net investment income ratio, and turnover rate for the current period have been annualized.

<sup>1</sup> Calculated based on average shares outstanding.

## Notes to Financial Statements

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.

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 materially 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 board of trustees to represent fair value. Investments in Vanguard Market Liquidity Fund are valued at that fund's net asset value. Temporary cash investments are valued using the latest bid prices or using valuations based on a matrix system (which considers such factors as security prices, yields, maturities, and ratings), both as furnished by independent pricing services.

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.

Futures contracts are valued at their quoted daily settlement prices. The notional amounts of the contracts are not recorded in the Statement of Net Assets. Fluctuations in the value of the contracts are recorded in the Statement of Net Assets 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 futures gains (losses).

During the six months ended June 30, 2018, 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 all of its taxable income. Management has analyzed the portfolio's tax positions taken for all open federal income tax years (December 31, 2014–2017), and for the period ended June 30, 2018, and has concluded that no provision for federal income tax is required in the portfolio's financial statements.

4. **Distributions:** Distributions to shareholders are recorded on the ex-dividend date.

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 Net Assets for the

return of the collateral, during the period the securities are on loan. 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 Facility:** The portfolio and certain other funds managed by The Vanguard Group (“Vanguard”) participate in a \$3.1 billion committed credit facility provided by a syndicate of lenders pursuant to a credit agreement that may be renewed annually; each fund is individually liable for its borrowings, if any, under the credit facility. Borrowings may be utilized for temporary and emergency purposes, and are subject to the portfolio’s regulatory and contractual borrowing restrictions. The participating funds are charged administrative fees and an annual commitment fee of 0.10% of the undrawn amount of the facility; these fees 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 this facility bear interest at a rate based upon the higher of the one-month London Interbank Offered Rate, federal funds effective rate, or overnight bank funding rate plus an agreed-upon spread.

The portfolio had no borrowings outstanding at June 30, 2018, or at any time during the period then ended.

7. **Other:** Distributions received from REITs are recorded on the ex-dividend date. Each REIT 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 REITs, 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. Premiums and discounts on debt securities purchased are amortized and accreted, respectively, to interest income over the lives of the respective securities. 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. Vanguard does not require reimbursement in the current period for certain costs of operations (such as deferred compensation/benefits and risk/insurance costs); the portfolio’s liability for these costs of operations is included in Payables to Vanguard on the Statement of Net Assets. All other costs of operations payable to Vanguard 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 June 30, 2018, the portfolio had contributed to Vanguard capital in the amount of \$53,000, representing 0.01% of the portfolio’s net assets and 0.02% of Vanguard’s capitalization. The portfolio’s trustees and officers are also directors and employees, respectively, of Vanguard.

**C.** Various inputs may be used to determine the value of the portfolio’s investments. 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 valued with significant unobservable inputs are noted on the Statement of Net Assets.

The following table summarizes the market value of the portfolio’s investments as of June 30, 2018, based on the inputs used to value them:

Investments	Level 1 (\$000)	Level 2 (\$000)	Level 3 (\$000)
Common Stocks	1,039,874	—	47
Temporary Cash Investments	3,154	299	—
Futures Contracts—Assets <sup>1</sup>	5	—	—
Total	1,043,033	299	47

<sup>1</sup> Represents variation margin on the last day of the reporting period.

D. Distributions are determined on a tax basis and may differ from net investment income and realized capital gains for financial reporting purposes. Differences may be permanent or temporary. Permanent differences are reclassified among capital accounts in the financial statements to reflect their tax character. Temporary differences arise when certain items of income, expense, gain, or loss are recognized in different periods for financial statement and tax purposes. These differences will reverse at some time in the future. Differences in classification may also result from the treatment of short-term gains as ordinary income for tax purposes. The portfolio's tax-basis capital gains and losses are determined only at the end of each fiscal year.

At June 30, 2018, the cost of investment securities for tax purposes was \$1,079,575,000. Net unrealized depreciation of investment securities for tax purposes was \$36,201,000, consisting of unrealized gains of \$70,914,000 on securities that had risen in value since their purchase and \$107,115,000 in unrealized losses on securities that had fallen in value since their purchase.

E. During the six months ended June 30, 2018, the portfolio purchased \$275,113,000 of investment securities and sold \$295,947,000 of investment securities, other than temporary cash investments.

F. Capital shares issued and redeemed were:

	Six Months Ended June 30, 2018	Year Ended December 31, 2017
	Shares (000)	Shares (000)
Issued	6,773	8,703
Issued in Lieu of Cash Distributions	6,005	5,946
Redeemed	(10,067)	(13,812)
Net Increase (Decrease) in Shares Outstanding	2,711	837

At June 30, 2018, 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 46% of the portfolio's net assets. If the shareholder were to redeem its investment in the portfolio, the redemption might result in an increase in the portfolio's expense ratio or cause the portfolio to incur higher transaction costs.

G. Management has determined that no events or transactions occurred subsequent to June 30, 2018, that would require recognition or disclosure in these financial statements.

## 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 in the Financial Statements section. For additional information on operating expenses and other shareholder costs, please refer to the prospectus.

### Six Months Ended June 30, 2018

	Beginning Account Value 12/31/2017	Ending Account Value 6/30/2018	Expenses Paid During Period <sup>1</sup>
Real Estate Index Portfolio			
Based on Actual Portfolio Return	\$1,000.00	\$1,007.02	\$1.34
Based on Hypothetical 5% Yearly Return	1,000.00	1,023.46	1.35

<sup>1</sup> 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 0.27%. 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 (181/365).



## Trustees Approve Advisory Arrangement

The board of trustees of Vanguard Variable Insurance Fund Real Estate Index Portfolio has renewed the portfolio's investment advisory arrangement with The Vanguard Group, Inc. (Vanguard), through its Equity Index Group. The board determined that continuing the portfolio's internalized management structure was in the best interests of the portfolio and its shareholders.

The board based its decision upon an evaluation of the advisor's investment staff, portfolio management process, and performance. This evaluation included information provided to the board by Vanguard's Portfolio Review Department, which is responsible for fund and advisor oversight and product management. The Portfolio Review Department met regularly with the advisor and made monthly presentations to the board during the fiscal year that directed the board's focus to relevant information and topics.

The board, or an investment committee made up of board members, also received information throughout the year during advisor presentations. For each advisor presentation, the board was provided with letters and reports that included information about, among other things, the advisory firm and the advisor's assessment of the investment environment, portfolio performance, and portfolio characteristics.

In addition, the board received monthly reports, which included a Market and Economic Report, a Fund Dashboard Monthly Summary, and a Fund Performance Report.

Prior to their meeting, the trustees were provided with a memo and materials that summarized the information they received over the course of the year. They also considered the factors discussed below, among others. However, no single factor determined whether the board approved the arrangement. Rather, it was the totality of the circumstances that drove the board's decision.

### **Nature, extent, and quality of services**

The board reviewed the quality of the portfolio's investment management services over both the short and long term and took into account the organizational depth and stability of the advisor. The board considered that Vanguard has been managing investments for more than four decades. The Equity Index Group adheres to a sound, disciplined investment management process; the team has considerable experience, stability, and depth.

The board concluded that Vanguard's experience, stability, depth, and performance, among other factors, warranted continuation of the advisory arrangement.

### **Investment performance**

The board considered the short- and long-term performance of the portfolio, including any periods of outperformance or underperformance compared with its target index and peer group. The board concluded that the performance was such that the advisory arrangement should continue. Information about the portfolio's most recent performance can be found in the Performance Summary section of this report.

### **Cost**

The board concluded that the portfolio's expense ratio was well below the average expense ratio charged by funds in its peer group and that the portfolio's advisory expenses were also well below the peer-group average. Information about the portfolio's expenses appears in the About Your Portfolio's Expenses section as well as in the Financial Statements section.

The board does not conduct a profitability analysis of Vanguard because of Vanguard's unique "at-cost" structure. Unlike most other mutual fund management companies, Vanguard is owned by the funds it oversees and produces "profits" only in the form of reduced expenses for fund shareholders.

### **The benefit of economies of scale**

The board concluded that the portfolio's at-cost arrangement with Vanguard ensures that the portfolio will realize economies of scale as it grows, with the cost to shareholders declining as portfolio assets increase.

The board will consider whether to renew the advisory arrangement again after a one-year period.

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.

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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 on an at-cost basis.

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 208 Vanguard funds.

Information for each trustee and executive officer of the fund appears below. 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](http://vanguard.com).

## Interested Trustees<sup>1</sup>

### F. William McNabb III

Born in 1957. Trustee since July 2009. Principal occupation(s) during the past five years and other experience: chairman of the board (January 2010–present) of Vanguard and of each of the investment companies served by Vanguard, trustee (2009–present) of each of the investment companies served by Vanguard, and director (2008–present) of Vanguard. Chief executive officer and president (2008–2017) of Vanguard and each of the investment companies served by Vanguard, managing director (1995–2008) of Vanguard, and director (1997–2018) of Vanguard Marketing Corporation. Director (2018–present) of UnitedHealth Group.

### Mortimer J. Buckley

Born in 1969. Trustee since January 2018. Principal occupation(s) during the past five years and other experience: chief executive officer (January 2018–present) of Vanguard; chief executive officer, president, and trustee (January 2018–present) of each of the investment companies served by Vanguard; president and director (2017–present) of Vanguard; and president (February 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. Chairman of the board (2011–2017) of the Children's Hospital of Philadelphia.

## Independent Trustees

### 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. Lead director of SPX FLOW, Inc. (multi-industry manufacturing). Director of the University of Rochester Medical Center, the Monroe Community College Foundation, the United Way of Rochester, North Carolina A&T University, and Roberts Wesleyan College. Trustee of the University of Rochester.

### Amy Gutmann

Born in 1949. Trustee since June 2006. Principal occupation(s) during the past five years and other experience: president (2004–present) of the University of Pennsylvania. Christopher H. Browne Distinguished Professor of Political Science, School of Arts and Sciences, and professor of communication, Annenberg School for Communication, with secondary faculty appointments in the Department of Philosophy, School of Arts and Sciences, and at the Graduate School of Education, University of Pennsylvania. Trustee of the National Constitution Center.

### JoAnn Heffernan Heisen

Born in 1950. Trustee since July 1998. Principal occupation(s) during the past five years and other experience: corporate vice president of Johnson & Johnson (pharmaceuticals/medical devices/consumer products) and member of its executive committee (1997–2008). Chief global diversity officer (retired 2008), vice president and chief information officer (1997–2006), controller (1995–1997), treasurer (1991–1995), and assistant treasurer (1989–1991) of Johnson & Johnson. Director of Skytop Lodge Corporation (hotels) and the Robert Wood Johnson Foundation. Member of the advisory board of the Institute for Women's Leadership at Rutgers University.

### 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), Oxfam America, and the Lumina Foundation for Education. Director of the V Foundation for Cancer Research. Member of the advisory council for the College of Arts and Letters and chair of the advisory board to the Kellogg Institute for International Studies, both at the University of Notre Dame.

### 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: chief investment officer (1989–present) and vice president (1996–present) of the University of Notre Dame. Assistant professor of finance at the Mendoza College of Business, University of Notre Dame, and member of the Notre Dame 403(b) Investment Committee. Chairman of the board of TIFF Advisory Services, Inc. Member of the board of Catholic Investment Services, Inc. (investment advisors), the board of advisors for Spruceview Capital Partners, and the board of superintendence of the Institute for the Works of Religion.

### Deanna Mulligan

Born in 1963. Trustee since January 2018. Principal occupation(s) during the past five years and other experience: president (2010–present) and chief executive officer (2011–present) 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 Guardian Life Insurance Company of America, the American Council of Life Insurers, the Partnership for New York City (business leadership), and the Committee Encouraging Corporate Philanthropy. Trustee of the Economic Club of New York and the Bruce Museum (arts and science). Member of the Advisory Council for the Stanford Graduate School of Business.

### 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 LLC (private investment firm). Overseer of the Museum of Fine Arts Boston.

### 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. Member of the board of directors (2012–2014) of Neighborhood Reinvestment Corporation. Director of i(x) Investments, LLC.

<sup>1</sup> Mr. McNabb and Mr. Buckley are considered "interested persons," as defined in the Investment Company Act of 1940, because they are officers 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). Chairman of the board of trustees of Colby-Sawyer College. Member of the Board of Hypertherm Inc. (industrial cutting systems, software, and consumables).

**Executive Officers****Glenn Booraem**

Born in 1967. Principal occupation(s) during the past five years and other experience: principal of Vanguard. Investment stewardship officer (2017–present), treasurer (2015–2017), controller (2010–2015), and assistant controller (2001–2010) of each of the investment companies served by Vanguard.

**Christine M. Buchanan**

Born in 1970. Principal occupation(s) during the past five years and other experience: principal of Vanguard and global head of Fund Administration at Vanguard. Treasurer (2017–present) of each of the investment companies served by Vanguard. Partner (2005–2017) at KPMG LLP (audit, tax, and advisory services).

**Brian Dvorak**

Born in 1973. Principal occupation(s) during the past five years and other experience: principal of Vanguard. Chief compliance officer (2017–present) of Vanguard and each of the investment companies served by Vanguard. Assistant vice president (2017–present) of Vanguard Marketing Corporation. Vice president and director of Enterprise Risk Management (2011–2013) at Oppenheimer Funds, Inc.

**Thomas J. Higgins**

Born in 1957. Principal occupation(s) during the past five years and other experience: principal of Vanguard. Chief financial officer (2008–present) and treasurer (1998–2008) of each of the investment companies served by Vanguard.

**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. Director and senior vice president (2016–2018) of Vanguard Marketing Corporation. Managing director and general counsel of Global Cards and Consumer Services (2014–2016) at Citigroup. Counsel (2003–2014) at American Express.

**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**

<b>Mortimer J. Buckley</b>	<b>James M. Norris</b>
<b>Gregory Davis</b>	<b>Thomas M. Rampulla</b>
<b>John James</b>	<b>Karin A. Risi</b>
<b>Martha G. King</b>	<b>Anne E. Robinson</b>
<b>John T. Marcante</b>	<b>Michael Rollings</b>
<b>Chris D. McIsaac</b>	

**Chairman Emeritus and Senior Advisor****John J. Brennan**

Chairman, 1996–2009  
Chief Executive Officer and President, 1996–2008

**Founder****John C. Bogle**

Chairman and Chief Executive Officer, 1974–1996



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Q692REIT 082018