

Annual Report | October 31, 2022

Vanguard Mid-Cap Growth Fund

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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.

Your Fund's Performance at a Glance

- The 12 months ended October 31, 2022, were a volatile, challenging period for financial markets. Vanguard Mid-Cap Growth Fund returned -32.22%, short of the -28.94% return of its benchmark, the Russell Mid-cap Growth Index.
- The economic backdrop deteriorated as inflation soared to multidecade highs, fueled in part by higher energy and food prices in the wake of Russia's invasion of Ukraine. Then price increases broadened to other categories of goods and services, adding to concerns that inflation would remain stubbornly high. That prompted aggressive tightening by the Federal Reserve to bring inflation back in check and increased fears of a recession.
- The broad U.S. stock market, as measured by the Russell 3000 Index, returned -16.52%. Value stocks outperformed growth, and large-capitalization stocks lost less ground than mid- and small-caps.
- Negative selection in information technology and health care, the fund's two largest sectors, weighed most on performance relative to the benchmark. An underweight allocation to the high-performing energy sector also hurt. Consumer discretionary was a net contributor despite double-digit declines.
- For the decade ended October 31, the fund's average annual return was 9.65%, trailing the 11.95% return of its benchmark.

Market Barometer

	Average Annual Total Returns Periods Ended October 31, 2022		
	One Year	Three Years	Five Years
Stocks			
Russell 1000 Index (Large-caps)	-16.38%	9.99%	10.19%
Russell 2000 Index (Small-caps)	-18.54	7.05	5.56
Russell 3000 Index (Broad U.S. market)	-16.52	9.79	9.87
FTSE All-World ex US Index (International)	-24.20	-1.16	-0.18
Bonds			
Bloomberg U.S. Aggregate Float Adjusted Index (Broad taxable market)	-15.69%	-3.73%	-0.50%
Bloomberg Municipal Bond Index (Broad tax-exempt market)	-11.98	-2.18	0.37
FTSE Three-Month U.S. Treasury Bill Index	0.88	0.59	1.15
CPI			
Consumer Price Index	7.75%	5.01%	3.85%

Advisors' Report

For the 12 months ended October 31, 2022, Vanguard Mid-Cap Growth Fund returned -32.22%. It trailed its benchmark, the Russell Midcap Growth Index, which returned -28.94%.

Your fund is managed by three independent advisors, a strategy that enhances its diversification by providing exposure to distinct yet complementary investment approaches. It's not uncommon for different advisors to have different views about individual securities or the broader investment environment.

The accompanying table lists the advisors, the amount and percentage of fund assets each manages, and brief descriptions of their investment strategies.

The advisors have provided the following assessment of the investment environment during the past 12 months and the notable successes and shortfalls in their portfolios. These comments were prepared on November 16, 2022.

Frontier Capital Management Co., LLC
Portfolio Managers:

Christopher J. Scarpa, Vice President

Ravi Dabas, Vice President

Equities fell sharply as the U.S. economy transitioned from a robust recovery to a steep slowdown, accelerated by rising interest rates and a screeching inventory adjustment.

We increased our energy weighting after Russia invaded Ukraine, and we

purchased companies with recurring-revenue business models in the industrial and information technology sectors after the significant market correction. Conversely, we reduced exposure to apparel and home-goods companies and lowered our interest rate risk by selling stocks whose earnings power was too distant.

Adverse sector allocation more than offset solid stock selection in our portion of the fund. Our underweight positions in energy and consumer staples, the top-performing sectors, accounted for most of the allocation challenges as investors reached for inflation hedge on the one hand and safety on the other.

Stock selection was the strongest in information technology, followed by consumer discretionary and health care. Network security provider Palo Alto Networks (+1%) benefited from a strong product cycle as it gained market share in an escalating cybersecurity environment. Engineering services provider KBR (+18%) outperformed as investors sought comfort in its recurring government-related work, while its clean-energy business gained from higher commodity prices. In consumer discretionary, toymaker Mattel (-13%) reported better-than-expected results, powered by increased distribution, inventory replenishment, and new product launches. Discount retailer Dollar General (+16%) exceeded sales expectations on improved affordability despite inflationary pressures. Signify Health (+82%) rose sharply as CVS Health agreed to buy the

value-based care provider for a 78% premium.

Together, these contributions overcame the headwinds from economically sensitive stocks such as SVB Financial Group, Caesars Entertainment, and Block, which underperformed in the rising rate environment.

Outlook

We feel that the benchmark's decline over the 12 months partly reflects the fears of a looming recession because of higher interest rates. Inflation is likely to moderate, as price declines are visible in categories ranging from rents and home values to commodities and autos. Also, the ongoing market correction places U.S. equities on firmer footing by driving out excess speculation and setting the stage for the next expansion. We remain confident in the portfolio's performance and in our ability to find companies with multiple ways to win and with unrecognized earnings potential that is not reflected in their stock prices.

Wellington Management Company LLP

Portfolio Manager:

Timothy N. Manning,
Senior Managing Director
and Equity Portfolio Manager

Over the 12 months, large-capitalization stocks outperformed their mid- and small-cap counterparts, as measured by their respective Russell indexes. Among mid-caps, value led growth by more than 18 percentage points.

In this environment, our portion of the fund underperformed the Russell Midcap Growth Index. Most notably, stock selection in the health care, consumer staples, and financial sectors detracted from relative performance; this was partly offset by positive selection in communication services and consumer discretionary. Sector allocation decisions were also a material headwind to relative performance, because of underweight positioning in energy and overweight positioning in communication services. At the individual stock level, the biggest relative detractors included Align Technology, a medical device company focused on dentistry and orthodontics; Synaptics, a diversified provider of semiconductors; and Match Group, a global leader in online dating apps.

Top relative contributors included Wingstop, a high-quality restaurant franchise; Gartner, an information technology research and advisory services company; and BWX Technologies, a nuclear components and fuel provider for the commercial nuclear power industry.

Relative to the benchmark, the portfolio now has the largest overweightings to communication services, health care, and financials, and it is most underweight in industrials and energy. Over the period, we added several new holdings, including Align Technology and Agilent Technologies, a provider of analytical instrumentation and consumable products used for research and quality assurance in the life sciences, diagnostics, and applied chemical markets. We also eliminated

several holdings, including KLA, a supplier of process controls and chip-inspection equipment for the semiconductor industry.

We seek to own the stocks of companies with strong secular growth characteristics and high and sustainable return on invested capital that are inexpensive on long-term earnings power. Although the portfolio trailed its benchmark for the period, we are excited by the opportunity set we are seeing today, believing that the volatile market environment has created more potential opportunities for active management to generate excess return. We expect that an increasingly challenging near-term macroeconomic backdrop, given the Federal Reserve's resolve to tame inflation at the cost of lower growth, will eventually yield to a healthy and balanced macro backdrop. Within our opportunity set, we continue to focus on strong secular growers with high returns on invested capital trading at reasonable prices.

RS Investments

Portfolio Managers:

D. Scott Tracy, CFA,
Chief Investment Officer

Stephen J. Bishop

Melissa Chadwick-Dunn

Christopher W. Clark, CFA

Paul Leung, CFA

The portfolio's negative absolute return was driven by the performance of mid-cap

growth companies in the information technology, consumer discretionary, health care, and industrial sectors. In terms of absolute performance, the only contribution came from holdings in the energy sector.

The largest driver of positive relative performance was consumer discretionary, driven in part by the performance of O'Reilly Automotive, a retailer and supplier of automotive aftermarket parts, tools, supplies, equipment, and accessories. We initially purchased the stock because of the large, fragmented, addressable market; an aging inventory of cars on the road that provides a tailwind for replacement-parts demand; and consistency that has driven growth for almost 30 years. The stock performed exceptionally well for the 12 months, beating expectations across the board and raising guidance despite a challenging macroeconomic environment. O'Reilly appears to be benefiting from inflation as car owners in this environment would prefer to maintain their older vehicles rather than buy a new or used one. The company's strong execution, resistance toward a potential recession, and buybacks make the story attractive for the foreseeable future.

The fund's largest area of underperformance was information technology, driven in part by RingCentral, a provider of software-as-a-service solutions for businesses to support modern communications. We initially purchased the stock in early 2014, given the thesis that RingCentral operates in a

huge—approximately \$50 billion—global market (with about \$15 billion in the United States alone) that was only 10% penetrated by cloud offerings. Although RingCentral exceeded reduced expectations for the better part of the year, the stock was severely challenged in part because the company further reduced guidance to be conservative given the macro environment and large customers' cautiousness.

Given the global impact of the COVID-19 pandemic and Russia's invasion of Ukraine on corporate fundamentals—fiscal and monetary response, global logistics, inflation, consumer behavior, and societal norms—we believe that investors should expect all companies to feel some direct and indirect effects over the next few quarters and years. As a result, global equity markets are likely to experience higher volatility (to both the upside and downside) and divergence as new companies emerge while others struggle

to retain leadership. We feel this will create an abundance of opportunities across sectors, industries, and markets as the economy and markets transition and recover.

The current opportunity set appears especially pronounced for secular growth companies, rather than those that are more cyclical in nature. This is because of the continued strength in underlying fundamentals and relative underperformance by secular growth companies since early November 2020, when market leadership abruptly shifted from companies with better long-term sustainable growth opportunities to areas that had been more challenged by COVID-19 or that could benefit from inflationary pressures. As a result, we believe we can now allocate to companies with clear paths of outsized growth with much improved relative valuations compared with fall 2020.

Vanguard Mid-Cap Growth Fund Investment Advisors

Investment Advisor	Fund Assets Managed		Investment Strategy
	%	\$ Million	
Frontier Capital Management Co., LLC	41	1,211	Frontier Capital employs a fundamental, bottom-up, research-intensive investment approach to select mid-cap growth stocks. It seeks companies with above-average mid-cap growth prospects and competitive advantages that will allow them to earn superior rates of return on capital over a business cycle. The approach attempts to balance growth prospects with reasonable valuation and is long-term in nature; investment time frames are typically three to five years.
Wellington Management Company LLP	38	1,129	Wellington Management uses traditional methods of stock selection—fundamental research and analysis—to identify companies that it believes have above-average growth prospects. It believes that a short-term bias in equity markets rewards near-term cyclical growth and creates opportunity for long-term growth. The team focuses on sustainable earnings power and develops bottom-up valuations based on return on investment capital forecasts, price-to-sales, and quantitative risk factors. It seeks to control risk by emphasizing larger positions in established growth stocks and smaller positions in emerging names.
RS Investments	19	552	RS Investments, a Victory Capital investment franchise, employs both fundamental analysis and quantitative screening in seeking to identify companies that the investment team believes will produce sustainable earnings growth over a multiyear horizon. Investment candidates typically exhibit some or all of the following criteria: strong organic revenue growth, expanding margins and profitability, innovative products or services, defensible competitive advantages, growing market share, and experienced management teams.
Cash Investments	2	64	These short-term reserves are invested by Vanguard in equity index products to simulate investment in stocks. Each advisor may also maintain a modest cash position.

About Your Fund's Expenses

As a shareholder of the fund, 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 fund's gross income, directly reduce the investment return of the fund.

A fund'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 fund 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 fund's costs in two ways:

- **Based on actual fund 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 fund'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 fund. 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 fund under the heading "Expenses Paid During Period."

- **Based on hypothetical 5% yearly return.** This section is intended to help you compare your fund's costs with those of other mutual funds. It assumes that the fund 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 fund'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 fund'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 fund for buying and selling securities. Further, the expenses do not include any purchase, redemption, or account service fees described in the fund prospectus. If such fees were applied to your account, your costs would be higher. Your fund does not carry a "sales load."

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 fund'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 fund's current prospectus.

Six Months Ended October 31, 2022

	Beginning Account Value 4/30/2022	Ending Account Value 10/31/2022	Expenses Paid During Period
Mid-Cap Growth Fund			
Based on Actual Fund Return	\$1,000.00	\$923.70	\$1.65
Based on Hypothetical 5% Yearly Return	1,000.00	1,023.49	1.73

The calculations are based on expenses incurred in the most recent six-month period. The fund's annualized six-month expense ratio for that period is 0.34%. 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).

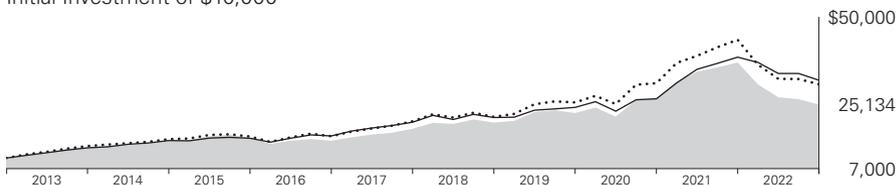
Mid-Cap Growth Fund

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 fund. (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 fund distributions or on the sale of fund shares.

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

Initial Investment of \$10,000



	Average Annual Total Returns Periods Ended October 31, 2022			Final Value of a \$10,000 Investment
	One Year	Five Years	Ten Years	
Mid-Cap Growth Fund	-32.22%	6.57%	9.65%	\$25,134
Russell Midcap Growth Index	-28.94	8.66	11.95	30,927
Dow Jones U.S. Total Stock Market Float Adjusted Index	-16.94	9.72	12.36	32,058

See Financial Highlights for dividend and capital gains information.

Fund Allocation

As of October 31, 2022

Communication Services	5.6%
Consumer Discretionary	15.3
Consumer Staples	1.9
Energy	3.9
Financials	9.0
Health Care	20.8
Industrials	12.4
Information Technology	29.6
Materials	1.1
Real Estate	0.4

The table reflects the fund'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.

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 October 31, 2022

The fund 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 fund's Form N-PORT reports are available on the SEC's website at www.sec.gov.

	Shares	Market Value* (\$'000)		Shares	Market Value* (\$'000)
Common Stocks (95.3%)			Constellation Brands Inc. Class A		
Communication Services (5.3%)				36,890	9,115
* ZoomInfo Technologies Inc. Class A	1,214,284	54,072	Energy (3.8%)		
Electronic Arts Inc.	389,513	49,063	Coterra Energy Inc.	1,516,069	47,195
* Live Nation Entertainment Inc.	269,291	21,438	Cheniere Energy Inc.	167,450	29,540
* Match Group Inc.	396,833	17,143	SM Energy Co.	275,126	12,375
* Take-Two Interactive Software Inc.	55,474	6,573	Diamondback Energy Inc.	61,171	9,611
* Pinterest Inc. Class A	254,170	6,253	Matador Resources Co.	101,080	6,717
* Roku Inc.	41,403	2,299	Range Resources Corp.	163,430	4,654
		156,841			110,092
Consumer Discretionary (14.6%)			Financials (8.6%)		
Hilton Worldwide Holdings Inc.	351,085	47,488	Ares Management Corp. Class A	645,365	48,938
* Mattel Inc.	2,441,284	46,287	Hamilton Lane Inc. Class A	710,149	42,481
Wingstop Inc.	253,784	40,197	Aon plc Class A (XNYS)	145,456	40,944
* Lululemon Athletica Inc.	109,585	36,058	LPL Financial Holdings Inc.	119,757	30,616
* O'Reilly Automotive Inc.	29,616	24,794	MSCI Inc. Class A	56,182	26,342
* Etsy Inc.	251,743	23,641	KKR & Co. Inc.	509,826	24,793
* Chipotle Mexican Grill Inc. Class A	15,669	23,477	* SVB Financial Group	57,690	13,324
* Caesars Entertainment Inc.	533,775	23,342	Apollo Global Management Inc.	185,124	10,248
Dollar General Corp.	81,756	20,852	Moody's Corp.	27,384	7,253
* Planet Fitness Inc. Class A	298,441	19,542	FactSet Research Systems Inc.	15,920	6,774
Advance Auto Parts Inc.	74,984	14,241	Kinsale Capital Group Inc.	9,200	2,900
* Ulta Beauty Inc.	29,380	12,321			254,613
Ross Stores Inc.	123,644	11,832	Health Care (19.8%)		
Darden Restaurants Inc.	74,558	10,672	Agilent Technologies Inc.	794,733	109,951
* Bright Horizons Family Solutions Inc.	158,163	10,331	* ICON plc	282,658	55,921
*.1 Leslie's Inc.	723,538	10,159	* Seagen Inc.	292,450	37,188
Churchill Downs Inc.	43,120	8,965	* DexCom Inc.	293,875	35,494
* Dollar Tree Inc.	54,890	8,700	* Omnicell Inc.	432,708	33,457
Tractor Supply Co.	39,460	8,672	* Veeva Systems Inc. Class A	155,031	26,036
* Burlington Stores Inc.	56,387	8,061	Humana Inc.	44,249	24,695
* Five Below Inc.	47,840	7,001	* Align Technology Inc.	120,704	23,453
*.1 Chewy Inc. Class A	163,471	6,331	* Signify Health Inc. Class A	770,650	22,526
* Floor & Decor Holdings Inc. Class A	71,157	5,221	* Insulet Corp.	86,391	22,359
Lithia Motors Inc. Class A	14,601	2,893	* Sarepta Therapeutics Inc.	156,683	17,865
		431,078	* Molina Healthcare Inc.	49,289	17,688
Consumer Staples (1.8%)			* ResMed Inc.	68,580	15,341
* Freshpet Inc.	595,963	35,132	* Hologic Inc.	185,488	12,576
Hershey Co.	40,100	9,574	Teleflex Inc.	57,629	12,365
			AmerisourceBergen Corp. Class A	76,652	12,051
			* IDEXX Laboratories Inc.	31,783	11,432
			* Jazz Pharmaceuticals plc	76,857	11,051
			Alcon Inc.	172,477	10,466

Mid-Cap Growth Fund

	Shares	Market Value* (\$'000)		Shares	Market Value* (\$'000)
* Amedisys Inc.	103,135	10,065	* Microchip Technology Inc.	299,890	18,515
* Horizon Therapeutics plc	133,350	8,310	* Synaptics Inc.	201,657	17,867
* Repligen Corp.	42,090	7,681	* Wolfspeed Inc.	226,882	17,867
* BioMarin Pharmaceutical Inc.	78,751	6,822	* Global Payments Inc.	149,852	17,122
* Inspire Medical Systems Inc.	32,462	6,329	* KLA Corp.	49,994	15,821
* Incyte Corp.	84,640	6,292	* Monolithic Power Systems Inc.	36,775	12,483
* Moderna Inc.	38,710	5,819	* Lattice Semiconductor Corp.	239,491	11,618
* Illumina Inc.	23,813	5,449	* Marvell Technology Inc.	291,356	11,561
* Tenet Healthcare Corp.	104,690	4,644	* Bill.com Holdings Inc.	83,927	11,192
* Novocure Ltd.	65,729	4,644	* Jack Henry & Associates Inc.	55,870	11,121
* Edwards Lifesciences Corp.	59,190	4,287	* Trade Desk Inc. Class A	203,553	10,837
* Exact Sciences Corp.	99,456	3,459	* Block Inc. (XNYS)	170,204	10,224
		585,716	* Dropbox Inc. Class A	443,954	9,656
Industrials (11.8%)			* Keysight Technologies Inc.	55,007	9,579
BVX Technologies Inc.	883,382	50,335	* Dlocal Ltd. Class A	418,993	9,344
Hexcel Corp.	729,854	40,653	* HubSpot Inc.	30,579	9,068
TransUnion	665,447	39,441	* Atlassian Corp.	44,368	8,995
Cintas Corp.	68,717	29,380	* Amphenol Corp. Class A	117,744	8,929
KBR Inc.	431,957	21,498	* Dynatrace Inc.	208,620	7,352
Waste Connections Inc. (XTSE)	152,630	20,133	* Autodesk Inc.	33,697	7,221
Quanta Services Inc.	131,328	18,654	* Entegris Inc.	89,417	7,094
* Chart Industries Inc.	75,686	16,869	* Okta Inc.	117,947	6,619
* Builders FirstSource Inc.	217,680	13,422	* Datadog Inc. Class A	74,890	6,029
* MasTec Inc.	156,455	12,060	* Lam Research Corp.	13,080	5,295
* Knight-Swift Transportation Holdings Inc.	214,855	10,319	* Zscaler Inc.	27,170	4,187
* Evoqua Water Technologies Corp.	236,060	9,249	* Sitime Corp.	42,048	3,776
Ritchie Bros Auctioneers Inc.	138,490	9,048	* Splunk Inc.	42,230	3,510
HEICO Corp. Class A	68,840	8,763	* Workday Inc. Class A	21,993	3,427
* Clean Harbors Inc.	64,540	7,904	* Coherent Corp.	96,478	3,243
Equifax Inc.	40,284	6,830	* Toast Inc. Class A	120,780	2,668
* Axon Enterprise Inc.	39,003	5,673	* Five9 Inc.	19,980	1,204
* XPO Logistics Inc.	105,460	5,456			833,876
Verisk Analytics Inc. Class A	29,720	5,434	Materials (1.0%)		
* Lyft Inc. Class A	306,849	4,492	Graphic Packaging Holding Co.	540,840	12,418
Advanced Drainage Systems Inc.	37,019	4,290	* Sherwin-Williams Co.	48,346	10,879
* WillScot Mobile Mini Holdings Corp.	82,190	3,495	CF Industries Holdings Inc.	59,740	6,348
* CoStar Group Inc.	40,570	3,356			29,645
Regal Rexnord Corp.	20,760	2,627	Real Estate (0.4%)		
		349,381	Extra Space Storage Inc.	32,770	5,815
Information Technology (28.2%)			* SBA Communications Corp. Class A	21,150	5,708
* Gartner Inc.	313,891	94,770			11,523
* Palo Alto Networks Inc.	402,296	69,030	Total Common Stocks		
CDW Corp.	337,785	58,373	(Cost \$2,790,973)		2,816,586
* Ceridian HCM Holding Inc.	811,781	53,732			
* Paycom Software Inc.	109,635	37,934			
* Shift4 Payments Inc. Class A	774,810	35,618			
* EPAM Systems Inc.	78,618	27,516			
* Varonis Systems Inc. Class B	922,244	24,688			
* MongoDB Inc. Class A	128,430	23,507			
* Fair Isaac Corp.	47,332	22,664			
* Synopsys Inc.	75,712	22,150			
* Arista Networks Inc.	178,852	21,616			
* ON Semiconductor Corp.	350,514	21,532			
* Enphase Energy Inc.	61,110	18,761			
Genpact Ltd.	382,691	18,561			

Mid-Cap Growth Fund

	Shares	Market Value* (\$000)
Temporary Cash Investments (4.9%)		
Money Market Fund (4.9%)		
2,3 Vanguard Market Liquidity Fund, 3.117% (Cost \$145,416)	1,454,572	145,428
Total Investments (100.2%) (Cost \$2,936,389)		2,962,014
Other Assets and Liabilities—Net (-0.2%)		(6,062)
Net Assets (100%)		2,955,952

Cost is in \$000.

• See Note A in Notes to Financial Statements.

* Non-income-producing security.

1 Includes partial security positions on loan to broker-dealers. The total value of securities on loan is \$5,204,000.

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

3 Collateral of \$5,522,000 was received for securities on loan.

Derivative Financial Instruments Outstanding as of Period End

Futures Contracts

	Expiration	Number of Long (Short) Contracts	Notional Amount	Value and Unrealized Appreciation (Depreciation)
				(\$000)
Long Futures Contracts				
E-mini S&P 500 Index	December 2022	329	63,875	(165)

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

Statement of Assets and Liabilities

As of October 31, 2022

(\$000s, except shares and per-share amounts)	Amount
Assets	
Investments in Securities, at Value ¹	
Unaffiliated Issuers (Cost \$2,790,973)	2,816,586
Affiliated Issuers (Cost \$145,416)	145,428
Total Investments in Securities	2,962,014
Investment in Vanguard	111
Cash	1
Cash Collateral Pledged—Futures Contracts	3,418
Receivables for Investment Securities Sold	18,260
Receivables for Accrued Income	501
Receivables for Capital Shares Issued	875
Total Assets	2,985,180
Liabilities	
Payables for Investment Securities Purchased	20,006
Collateral for Securities on Loan	5,522
Payables to Investment Advisor	1,012
Payables for Capital Shares Redeemed	1,946
Payables to Vanguard	250
Variation Margin Payable—Futures Contracts	483
Other Liabilities	9
Total Liabilities	29,228
Net Assets	2,955,952

¹ Includes \$5,204 of securities on loan.

At October 31, 2022, net assets consisted of:

Paid-in Capital	3,215,171
Total Distributable Earnings (Loss)	(259,219)
Net Assets	2,955,952
Net Assets	
Applicable to 153,597,985 outstanding \$.001 par value shares of beneficial interest (unlimited authorization)	2,955,952
Net Asset Value Per Share	\$19.24

Statement of Operations

Year Ended
October 31, 2022

	(\$000)
Investment Income	
Income	
Dividends ¹	16,614
Interest ²	1,265
Securities Lending—Net	13
Total Income	17,892
Expenses	
Investment Advisory Fees—Note B	
Basic Fee	7,443
Performance Adjustment	(1,892)
The Vanguard Group—Note C	
Management and Administrative	6,972
Marketing and Distribution	281
Custodian Fees	43
Auditing Fees	32
Shareholders' Reports	88
Trustees' Fees and Expenses	1
Other Expenses	16
Total Expenses	12,984
Expenses Paid Indirectly	(140)
Net Expenses	12,844
Net Investment Income	5,048
Realized Net Gain (Loss)	
Investment Securities Sold ²	(229,996)
Futures Contracts	(3,511)
Foreign Currencies	1
Realized Net Gain (Loss)	(233,506)
Change in Unrealized Appreciation (Depreciation)	
Investment Securities ²	(1,354,060)
Futures Contracts	(7,834)
Change in Unrealized Appreciation (Depreciation)	(1,361,894)
Net Increase (Decrease) in Net Assets Resulting from Operations	(1,590,352)

1 Dividends are net of foreign withholding taxes of \$27,000.

2 Interest income, realized net gain (loss), capital gain distributions received, and change in unrealized appreciation (depreciation) from an affiliated company of the fund were \$1,239,000, (\$17,000), \$2,000, and (\$13,000), respectively. Purchases and sales are for temporary cash investment purposes.

Statement of Changes in Net Assets

	Year Ended October 31,	
	2022 (\$000)	2021 (\$000)
Increase (Decrease) in Net Assets		
Operations		
Net Investment Income	5,048	(1,915)
Realized Net Gain (Loss)	(233,506)	1,291,603
Change in Unrealized Appreciation (Depreciation)	(1,361,894)	283,921
Net Increase (Decrease) in Net Assets Resulting from Operations	(1,590,352)	1,573,609
Distributions		
Total Distributions	(1,251,685)	(305,267)
Capital Share Transactions		
Issued	449,924	663,839
Issued in Lieu of Cash Distributions	1,179,383	290,788
Redeemed	(1,121,695)	(1,346,909)
Net Increase (Decrease) from Capital Share Transactions	507,612	(392,282)
Total Increase (Decrease)	(2,334,425)	876,060
Net Assets		
Beginning of Period	5,290,377	4,414,317
End of Period	2,955,952	5,290,377

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

Financial Highlights

For a Share Outstanding Throughout Each Period	Year Ended October 31,				
	2022	2021	2020	2019	2018
Net Asset Value, Beginning of Period	\$38.72	\$29.89	\$27.93	\$28.08	\$26.51
Investment Operations					
Net Investment Income (Loss) ¹	.031	(.013)	.068	.074	.114
Net Realized and Unrealized Gain (Loss) on Investments	(10.190)	10.957	4.680	3.027	2.379
Total from Investment Operations	(10.159)	10.944	4.748	3.101	2.493
Distributions					
Dividends from Net Investment Income	(.005)	(.051)	(.067)	(.099)	(.095)
Distributions from Realized Capital Gains	(9.316)	(2.063)	(2.721)	(3.152)	(.828)
Total Distributions	(9.321)	(2.114)	(2.788)	(3.251)	(.923)
Net Asset Value, End of Period	\$19.24	\$38.72	\$29.89	\$27.93	\$28.08
Total Return²	-32.22%	37.68%	18.33%	13.56%	9.61%

Ratios/Supplemental Data

Net Assets, End of Period (Millions)	\$2,956	\$5,290	\$4,414	\$4,536	\$4,161
Ratio of Total Expenses to Average Net Assets ³	0.35% ⁴	0.33%	0.34%	0.36%	0.36%
Ratio of Net Investment Income (Loss) to Average Net Assets	0.14%	(0.04)%	0.25%	0.27%	0.40%
Portfolio Turnover Rate	71%	98%	74%	111%	75%

1 Calculated based on average shares outstanding.

2 Total returns do not include account service fees that may have applied in the periods shown. Fund prospectuses provide information about any applicable account service fees.

3 Includes performance-based investment advisory fee increases (decreases) of (0.05%), (0.06%), (0.05%), (0.02%), and (0.04%).

4 The ratio of expenses to average net assets for the period net of reduction from broker commission abatement arrangements was 0.35%.

Notes to Financial Statements

Vanguard Mid-Cap Growth Fund is registered under the Investment Company Act of 1940 as an open-end investment company, or mutual fund. 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 fund's investments and fund performance.

A. The following significant accounting policies conform to generally accepted accounting principles for U.S. investment companies. The fund 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 fund'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. **Foreign Currency:** Securities and other assets and liabilities denominated in foreign currencies are translated into U.S. dollars using exchange rates obtained from an independent third party as of the fund's pricing time on the valuation date. Realized gains (losses) and unrealized appreciation (depreciation) on investment securities include the effects of changes in exchange rates since the securities were purchased, combined with the effects of changes in security prices. Fluctuations in the value of other assets and liabilities resulting from changes in exchange rates are recorded as unrealized foreign currency gains (losses) until the assets or liabilities are settled in cash, at which time they are recorded as realized foreign currency gains (losses).

3. **Futures Contracts:** The fund uses index futures contracts to a limited extent, with the objective of maintaining full exposure to the stock market while maintaining liquidity. The fund may purchase or sell futures contracts to achieve a desired level of investment, whether to accommodate portfolio turnover or cash flows from capital share transactions. The primary risks associated with the use of futures contracts are imperfect correlation between changes in market values of stocks held by the fund 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 fund 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 fund'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 October 31, 2022, the fund's average investments in long and short futures contracts represented 2% and 0% of net assets, respectively, based on the average of the notional amounts at each quarter-end during the period.

4. Federal Income Taxes: The fund intends to continue to qualify as a regulated investment company and distribute virtually all of its taxable income. The fund'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 fund'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 fund's financial statements.

5. 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.

6. Securities Lending: To earn additional income, the fund lends its securities to qualified institutional borrowers. Security loans are subject to termination by the fund 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 fund 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 fund 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 fund; however, such actions may be subject to legal proceedings. While collateral mitigates counterparty risk, in the event of a default, the fund may experience delays and costs in recovering the securities loaned. The fund 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 fund is entitled to all distributions made on or in respect of the loaned securities.

7. Credit Facilities and Interfund Lending Program: The fund 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 fund'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 fund's board of trustees and included in Management and Administrative expenses on the fund'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 fund and Vanguard.

In accordance with an exemptive order (the "Order") from the SEC, the fund 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 fund'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 October 31, 2022, the fund did not utilize the credit facilities or the Interfund Lending Program.

8. Other: Dividend income is recorded on the ex-dividend date. Non-cash dividends included in income, if any, are recorded at the fair value of the securities received. 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. The investment advisory firms Victory Capital Management Inc., through its RS Investments franchise, Frontier Capital Management Co., LLC, and Wellington Management Company LLP, each provide investment advisory services to a portion of the fund for a fee calculated at an annual percentage rate of average net assets managed by the advisor. The basic fees of Victory Capital Management Inc., Frontier Capital Management Co., LLC, and Wellington Management Company LLP, are subject to quarterly adjustments based on performance relative to the Russell Midcap Growth Index for the preceding 3 years.

Vanguard manages the cash reserves of the fund as described below.

For the year ended October 31, 2022, the aggregate investment advisory fee paid to all advisors represented an effective annual basic rate of 0.20% of the fund's average net assets, before a net decrease of \$1,892,000 (0.05%) based on performance.

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

Upon the request of Vanguard, the fund may invest up to 0.40% of its net assets as capital in Vanguard. At October 31, 2022, the fund had contributed to Vanguard capital in the amount of \$111,000, representing less than 0.01% of the fund's net assets and 0.04% of Vanguard's capital received pursuant to the FSA. The fund's trustees and officers are also directors and employees, respectively, of Vanguard.

D. The fund has asked its investment advisors to direct certain security trades, subject to obtaining the best price and execution, to brokers who have agreed to rebate to the fund part of

the commissions generated. Such rebates are used solely to reduce the fund’s management and administrative expenses. For the year ended October 31, 2022, these arrangements reduced the fund’s expenses by \$140,000 (an annual rate of less than 0.01% of average net assets).

E. Various inputs may be used to determine the value of the fund’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 fund’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.

At October 31, 2022, 100% of the market value of the fund’s investments and derivatives was determined based on Level 1 inputs.

F. 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. As of period end, permanent differences primarily attributable to the accounting for applicable foreign currency transactions were reclassified between the individual components of total distributable earnings (loss).

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; 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	4,152
Undistributed Long-Term Gains	—
Capital Loss Carryforwards	(227,754)
Qualified Late-Year Losses	—
Net Unrealized Gains (Losses)	(35,617)

Mid-Cap Growth Fund

The tax character of distributions paid was as follows:

	Year Ended October 31,	
	2022 Amount (\$000)	2021 Amount (\$000)
Ordinary Income*	319,558	7,351
Long-Term Capital Gains	932,127	297,916
Total	1,251,685	305,267

* Includes short-term capital gains, if any.

As of October 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	2,997,631
Gross Unrealized Appreciation	444,778
Gross Unrealized Depreciation	(480,395)
Net Unrealized Appreciation (Depreciation)	(35,617)

G. During the year ended October 31, 2022, the fund purchased \$2,550,326,000 of investment securities and sold \$3,191,547,000 of investment securities, other than temporary cash investments.

The fund 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 October 31, 2022, such purchases were \$373,000 and sales were \$0; these amounts, other than temporary cash investments, are included in the purchases and sales of investment securities noted above.

H. Capital shares issued and redeemed were:

	Year Ended October 31,	
	2022 Shares (000)	2021 Shares (000)
Issued	18,174	19,010
Issued in Lieu of Cash Distributions	46,070	8,647
Redeemed	(47,262)	(38,747)
Net Increase (Decrease) in Shares Outstanding	16,982	(11,090)

I. In December 2022, the Board of Trustees approved the termination of the fund's investment advisory agreement with RS Investments and the reallocation of the portion of the fund's assets RS Investments managed (approximately 20%) to Frontier Capital Management Co., LLC, an existing manager on the fund; these changes will take effect in December 2022 as well. Following the transition, Frontier will manage approximately 60% and Wellington Management Company LLP will continue to manage approximately 40% of the fund.

Report of Independent Registered Public Accounting Firm

To the Board of Trustees of Vanguard Whitehall Funds and Shareholders of Vanguard Mid-Cap Growth Fund

Opinion on the Financial Statements

We have audited the accompanying statement of assets and liabilities, including the schedule of investments, of Vanguard Mid-Cap Growth Fund (one of the funds constituting Vanguard Whitehall Funds, referred to hereafter as the "Fund") as of October 31, 2022, the related statement of operations for the year ended October 31, 2022, the statement of changes in net assets for each of the two years in the period ended October 31, 2022, including the related notes, and the financial highlights for each of the five years in the period ended October 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 Fund as of October 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 October 31, 2022 and the financial highlights for each of the five years in the period ended October 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 Fund's management. Our responsibility is to express an opinion on the Fund's financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Fund in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

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

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. Our procedures included confirmation of securities owned as of October 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
December 16, 2022

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

Tax information (unaudited)

For corporate shareholders, 100%, or if subsequently determined to be different, the maximum percentage allowable by law, of ordinary income (dividend income plus short-term gains, if any) for the fiscal year qualified for the dividends-received deduction.

The fund hereby designates \$12,817,000, or if subsequently determined to be different, the maximum amount allowable by law, as qualified dividend income for individual shareholders for the fiscal year.

The fund hereby designates \$124,000, 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.

For nonresident alien shareholders, 100% of short-term capital gain dividends distributed by the fund for the fiscal year are qualified short-term capital gains.

The fund distributed \$932,127,000 as capital gain dividends (20% rate gain distributions) to shareholders during the fiscal year.

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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.

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.

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

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

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.

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).

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

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–present) 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.

John E. Schadt

Born in 1972. Principal occupation(s) during the past five years and other experience: principal of Vanguard. Chief compliance officer (2019–present) of Vanguard and of each of the investment companies served by Vanguard. Assistant vice president (2019–present) of Vanguard Marketing Corporation.

Vanguard Senior Management Team

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Gregory Davis	Michael Rollings
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