



Vanguard Funds

Supplement Dated January 2, 2019 to the Statement of Additional Information

The boards of trustees of the Vanguard funds (the "board") have elected Mortimer J. Buckley as chairman of the board, effective January 1, 2019.

Effective December 31, 2018, F. William McNabb III retired as chairman of the board and trustee of the Vanguard funds. Also effective December 31, 2018, JoAnn Heffernan Heisen retired as trustee of the Vanguard funds.

PART B

VANGUARD® INDEX FUNDS

STATEMENT OF ADDITIONAL INFORMATION

April 25, 2018

This Statement of Additional Information is not a prospectus but should be read in conjunction with a Fund's current prospectus (dated April 25, 2018). To obtain, without charge, a prospectus or the most recent Annual Report to Shareholders, which contains the Fund's financial statements as hereby incorporated by reference, please contact The Vanguard Group, Inc. (Vanguard).

Phone: Investor Information Department at 800-662-7447
Online: vanguard.com

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DESCRIPTION OF THE TRUST

Vanguard Index Funds (the Trust) currently offers the following funds and share classes (identified by ticker symbol):

Fund ²	Share Classes ¹					
	Investor	Admiral	Institutional	Institutional Plus	Institutional Select	ETF
Vanguard Total Stock Market Index Fund	VTSMX	VTSAX	VITSX	VSMPX	VSTSX	VTI
Vanguard 500 Index Fund	VFINX	VFIAX	—	—	VFFSX	VOO
Vanguard Extended Market Index Fund	VEXMX	VEXAX	VIEIX	VEMPX	VSEMX	VXF
Vanguard Large-Cap Index Fund	VLACX	VLCAX	VLISX	—	—	VV
Vanguard Mid-Cap Index Fund	VIMSX	VIMAX	VMCIX	VMCPX	—	VO
Vanguard Small-Cap Index Fund	NAESX	VSMAX	VSCIX	VSCPX	—	VB
Vanguard Value Index Fund	VIVAX	VVIAX	VIVIX	—	—	VTV
Vanguard Mid-Cap Value Index Fund	VMVIX	VMVAX	—	—	—	VOE
Vanguard Small-Cap Value Index Fund	VISVX	VSIAX	VSIIX	—	—	VBR
Vanguard Growth Index Fund	VIGRX	VIGAX	VIGIX	—	—	VUG
Vanguard Mid-Cap Growth Index Fund	VMGIX	VMGMX	—	—	—	VOT
Vanguard Small-Cap Growth Index Fund	VISGX	VSGAX	VSGIX	—	—	VBK

1 Individually, a class; collectively, the classes.

2 Individually, a Fund; collectively, the Funds.

The Trust has the ability to offer additional funds or classes of shares. There is no limit on the number of full and fractional shares that may be issued for a single fund or class of shares.

Organization

The Trust was organized as a Pennsylvania business trust in 1975 and was reorganized as a Delaware statutory trust in 1998. The Trust is registered with the United States Securities and Exchange Commission (SEC) under the Investment Company Act of 1940 (the 1940 Act) as an open-end management investment company. All Funds within the Trust are classified as diversified within the meaning of the 1940 Act.

Service Providers

Custodians. JPMorgan Chase Bank, 383 Madison Avenue, New York, NY 10179 (for the Extended Market Index, Growth Index, Mid-Cap Index, Mid-Cap Growth Index, Mid-Cap Value Index, Small-Cap Index, Small-Cap Growth Index, Small-Cap Value Index, and Total Stock Market Index Funds), and Brown Brothers Harriman & Co., 50 Post Office Square, Boston, MA 02110 (for the 500 Index, Large-Cap Index, and Value Index Funds). The custodians are responsible for maintaining the Funds' assets, keeping all necessary accounts and records of the Funds' assets, and appointing any foreign sub-custodians or foreign securities depositories.

Independent Registered Public Accounting Firm. PricewaterhouseCoopers LLP, Two Commerce Square, Suite 1800, 2001 Market Street, Philadelphia, PA 19103-7042, serves as the Funds' independent registered public accounting firm. The independent registered public accounting firm audits the Funds' annual financial statements and provides other related services.

Transfer and Dividend-Paying Agent. The Funds' transfer agent and dividend-paying agent is Vanguard, P.O. Box 2600, Valley Forge, PA 19482.

Characteristics of the Funds' Shares

Restrictions on Holding or Disposing of Shares. There are no restrictions on the right of shareholders to retain or dispose of a Fund's shares, other than those described in the Fund's current prospectus and elsewhere in this Statement of Additional Information. Each Fund or class may be terminated by reorganization into another mutual fund or class or by liquidation and distribution of the assets of the Fund or class. Unless terminated by reorganization or liquidation, each Fund and share class will continue indefinitely.

Shareholder Liability. The Trust is organized under Delaware law, which provides that shareholders of a statutory trust are entitled to the same limitations of personal liability as shareholders of a corporation organized under Delaware law. This means that a shareholder of a Fund generally will not be personally liable for payment of the Fund's debts. Some state courts, however, may not apply Delaware law on this point. We believe that the possibility of such a situation arising is remote.

Dividend Rights. The shareholders of each class of a Fund are entitled to receive any dividends or other distributions declared by the Fund for each such class. No shares of a Fund have priority or preference over any other shares of the Fund with respect to distributions. Distributions will be made from the assets of the Fund and will be paid ratably to all shareholders of a particular class according to the number of shares of the class held by shareholders on the record date. The amount of dividends per share may vary between separate share classes of the Fund based upon differences in the net asset values of the different classes and differences in the way that expenses are allocated between share classes pursuant to a multiple class plan approved by the Fund's board of trustees.

Voting Rights. Shareholders are entitled to vote on a matter if (1) the matter concerns an amendment to the Declaration of Trust that would adversely affect to a material degree the rights and preferences of the shares of a Fund or any class; (2) the trustees determine that it is necessary or desirable to obtain a shareholder vote; (3) a merger or consolidation, share conversion, share exchange, or sale of assets is proposed and a shareholder vote is required by the 1940 Act to approve the transaction; or (4) a shareholder vote is required under the 1940 Act. The 1940 Act requires a shareholder vote under various circumstances, including to elect or remove trustees upon the written request of shareholders representing 10% or more of a Fund's net assets, to change any fundamental policy of a Fund (please see **Fundamental Policies**), and to enter into certain merger transactions. Unless otherwise required by applicable law, shareholders of a Fund receive one vote for each dollar of net asset value owned on the record date and a fractional vote for each fractional dollar of net asset value owned on the record date. However, only the shares of the Fund or class affected by a particular matter are entitled to vote on that matter. In addition, each class has exclusive voting rights on any matter submitted to shareholders that relates solely to that class, and each class has separate voting rights on any matter submitted to

shareholders in which the interests of one class differ from the interests of another. Voting rights are noncumulative and cannot be modified without a majority vote by the shareholders.

Liquidation Rights. In the event that a Fund is liquidated, shareholders will be entitled to receive a pro rata share of the Fund's net assets. In the event that a class of shares is liquidated, shareholders of that class will be entitled to receive a pro rata share of the Fund's net assets that are allocated to that class. Shareholders may receive cash, securities, or a combination of the two.

Preemptive Rights. There are no preemptive rights associated with each Fund's shares.

Conversion Rights. Fund shareholders may convert their shares to another class of shares of the same Fund upon the satisfaction of any then-applicable eligibility requirements, as described in the Fund's current prospectus. ETF Shares cannot be converted into conventional shares of a fund by a shareholder. For additional information about the conversion rights applicable to ETF Shares, please see **Information About the ETF Share Class**.

Redemption Provisions. Each Fund's redemption provisions are described in its current prospectus and elsewhere in this Statement of Additional Information.

Sinking Fund Provisions. The Funds have no sinking fund provisions.

Calls or Assessment. Each Fund's shares, when issued, are fully paid and non-assessable.

Tax Status of the Funds

Each Fund expects to qualify each year for treatment as a "regulated investment company" under Subchapter M of the Internal Revenue Code of 1986, as amended (the IRC). This special tax status means that the Fund will not be liable for federal tax on income and capital gains distributed to shareholders. In order to preserve its tax status, the Fund must comply with certain requirements relating to the source of its income and the diversification of its assets. If the Fund fails to meet these requirements in any taxable year, the Fund will, in some cases, be able to cure such failure, including by paying a fund-level tax, paying interest, making additional distributions, and/or disposing of certain assets. If the Fund is ineligible to or otherwise does not cure such failure for any year, it will be subject to tax on its taxable income at corporate rates, and all distributions from earnings and profits, including any distributions of net tax-exempt income and net long-term capital gains, will be taxable to shareholders as ordinary income. In addition, a Fund could be required to recognize unrealized gains, pay substantial taxes and interest, and make substantial distributions before regaining its tax status as a regulated investment company.

Dividends received and distributed by each Fund on shares of stock of domestic corporations (excluding Real Estate Investment Trusts (REITs)) and certain foreign corporations generally may be eligible to be reported by the Fund, and treated by individual shareholders, as "qualified dividend income" taxed at long-term capital gain rates instead of at higher ordinary income tax rates. Individuals must satisfy holding period and other requirements in order to be eligible for such treatment. Capital gains distributed by the Funds are not eligible for treatment as qualified dividend income.

Under recent tax legislation, individuals (and certain other noncorporate entities) are generally eligible for a 20% deduction with respect to taxable ordinary dividends from REITs and certain taxable income from publicly traded partnerships. Currently, there is not a regulatory mechanism for regulated investment companies to pass through the 20% deduction to shareholders. As a result, in comparison, investors investing directly in REITs or publicly traded partnerships would generally be eligible for the 20% deduction for such taxable income from these investments while investors investing in REITs or publicly traded partnerships indirectly through a Fund would not be eligible for the 20% deduction for their share of such taxable income.

Dividends received and distributed by each Fund on shares of stock of domestic corporations (excluding REITs) may be eligible for the dividends-received deduction applicable to corporate shareholders. Corporations must satisfy certain requirements in order to claim the deduction. Capital gains distributed by the Funds are not eligible for the dividends-received deduction.

Each Fund may declare a capital gain dividend consisting of the excess (if any) of net realized long-term capital gains over net realized short-term capital losses. Net capital gains for a fiscal year are computed by taking into account any capital loss carryforwards of the Fund. For Fund fiscal years beginning on or after December 22, 2010, capital losses may be carried forward indefinitely and retain their character as either short-term or long-term. Under prior law, net capital losses could be carried forward for eight tax years and were treated as short-term capital losses. A Fund is required to use

capital losses arising in fiscal years beginning on or after December 22, 2010, before using capital losses arising in fiscal years beginning prior to December 22, 2010.

FUNDAMENTAL POLICIES

Each Fund is subject to the following fundamental investment policies, which cannot be changed in any material way without the approval of the holders of a majority of the Fund's shares. For these purposes, a "majority" of shares means shares representing the lesser of (1) 67% or more of the Fund's net assets voted, so long as shares representing more than 50% of the Fund's net assets are present or represented by proxy or (2) more than 50% of the Fund's net assets.

Borrowing. Each Fund may borrow money only as permitted by the 1940 Act or other governing statute, by the Rules thereunder, or by the SEC or other regulatory agency with authority over the Fund.

Commodities. Each Fund may invest in commodities only as permitted by the 1940 Act or other governing statute, by the Rules thereunder, or by the SEC or other regulatory agency with authority over the Fund.

Diversification. With respect to 75% of its total assets, each Fund may not (1) purchase more than 10% of the outstanding voting securities of any one issuer or (2) purchase securities of any issuer if, as a result, more than 5% of the Fund's total assets would be invested in that issuer's securities. This limitation does not apply to obligations of the U.S. government or its agencies or instrumentalities.

Industry Concentration. Each Fund will not concentrate its investments in the securities of issuers whose principal business activities are in the same industry, except as may be necessary to approximate the composition of its target index.

Investment Objective. The investment objective of each Fund may not be materially changed without a shareholder vote.

Loans. Each Fund may make loans to another person only as permitted by the 1940 Act or other governing statute, by the Rules thereunder, or by the SEC or other regulatory agency with authority over the Fund.

Real Estate. Each Fund may not invest directly in real estate unless it is acquired as a result of ownership of securities or other instruments. This restriction shall not prevent the Fund from investing in securities or other instruments (1) issued by companies that invest, deal, or otherwise engage in transactions in real estate or (2) backed or secured by real estate or interests in real estate.

Senior Securities. Each Fund may not issue senior securities except as permitted by the 1940 Act or other governing statute, by the Rules thereunder, or by the SEC or other regulatory agency with authority over the Fund.

Underwriting. Each Fund may not act as an underwriter of another issuer's securities, except to the extent that the Fund may be deemed to be an underwriter within the meaning of the Securities Act of 1933 (the 1933 Act), in connection with the purchase and sale of portfolio securities.

Compliance with the fundamental policies previously described is generally measured at the time the securities are purchased. Unless otherwise required by the 1940 Act (as is the case with borrowing), if a percentage restriction is adhered to at the time the investment is made, a later change in percentage resulting from a change in the market value of assets will not constitute a violation of such restriction. All fundamental policies must comply with applicable regulatory requirements. For more details, see **Investment Strategies, Risks, and Nonfundamental Policies**.

None of these policies prevents the Funds from having an ownership interest in Vanguard. As a part owner of Vanguard, each Fund may own securities issued by Vanguard, make loans to Vanguard, and contribute to Vanguard's costs or other financial requirements. See **Management of the Funds** for more information.

INVESTMENT STRATEGIES, RISKS, AND NONFUNDAMENTAL POLICIES

Some of the investment strategies and policies described on the following pages and in each Fund's prospectus set forth percentage limitations on a Fund's investment in, or holdings of, certain securities or other assets. Unless otherwise required by law, compliance with these strategies and policies will be determined immediately after the acquisition of such securities or assets by the Fund. Subsequent changes in values, net assets, or other circumstances will not be considered when determining whether the investment complies with the Fund's investment strategies and policies.

The following investment strategies, risks, and policies supplement each Fund's investment strategies, risks, and policies set forth in the prospectus. With respect to the different investments discussed as follows, a Fund may acquire such investments to the extent consistent with its investment strategies and policies.

Borrowing. A fund's ability to borrow money is limited by its investment policies and limitations; by the 1940 Act; and by applicable exemptions, no-action letters, interpretations, and other pronouncements issued from time to time by the SEC and its staff or any other regulatory authority with jurisdiction. Under the 1940 Act, a fund is required to maintain continuous asset coverage (that is, total assets including borrowings, less liabilities exclusive of borrowings) of 300% of the amount borrowed, with an exception for borrowings not in excess of 5% of the fund's total assets made for temporary or emergency purposes. Any borrowings for temporary purposes in excess of 5% of the fund's total assets must maintain continuous asset coverage. If the 300% asset coverage should decline as a result of market fluctuations or for other reasons, a fund may be required to sell some of its portfolio holdings within three days (excluding Sundays and holidays) to reduce the debt and restore the 300% asset coverage, even though it may be disadvantageous from an investment standpoint to sell securities at that time.

Borrowing will tend to exaggerate the effect on net asset value of any increase or decrease in the market value of a fund's portfolio. Money borrowed will be subject to interest costs that may or may not be recovered by earnings on the securities purchased with the proceeds of such borrowing. A fund also may be required to maintain minimum average balances in connection with a borrowing or to pay a commitment or other fee to maintain a line of credit; either of these requirements would increase the cost of borrowing over the stated interest rate.

The SEC takes the position that transactions that have a leveraging effect on the capital structure of a fund or are economically equivalent to borrowing can be viewed as constituting a form of borrowing by the fund for purposes of the 1940 Act. These transactions can include entering into reverse repurchase agreements; engaging in mortgage-dollar-roll transactions; selling securities short (other than short sales "against-the-box"); buying and selling certain derivatives (such as futures contracts); selling (or writing) put and call options; engaging in sale-buybacks; entering into firm-commitment and standby-commitment agreements; engaging in when-issued, delayed-delivery, or forward-commitment transactions; and participating in other similar trading practices. (Additional discussion about a number of these transactions can be found on the following pages.) A borrowing transaction will not be considered to constitute the issuance, by a fund, of a "senior security," as that term is defined in Section 18(g) of the 1940 Act, and therefore such transaction will not be subject to the 300% asset coverage requirement otherwise applicable to borrowings by a fund, if the fund maintains an offsetting financial position; segregates liquid assets (with such liquidity determined by the advisor in accordance with procedures established by the board of trustees) equal (as determined on a daily mark-to-market basis) in value to the fund's potential economic exposure under the borrowing transaction; or otherwise "covers" the transaction in accordance with applicable SEC guidance (collectively, "covers" the transaction). A fund may have to buy or sell a security at a disadvantageous time or price in order to cover a borrowing transaction. In addition, segregated assets may not be available to satisfy redemptions or to fulfill other obligations.

Common Stock. Common stock represents an equity or ownership interest in an issuer. Common stock typically entitles the owner to vote on the election of directors and other important matters, as well as to receive dividends on such stock. In the event an issuer is liquidated or declares bankruptcy, the claims of owners of bonds, other debt holders, and owners of preferred stock take precedence over the claims of those who own common stock.

Convertible Securities. Convertible securities are hybrid securities that combine the investment characteristics of bonds and common stocks. Convertible securities typically consist of debt securities or preferred stock that may be converted (on a voluntary or mandatory basis) within a specified period of time (normally for the entire life of the security) into a certain amount of common stock or other equity security of the same or a different issuer at a predetermined price. Convertible securities also include debt securities with warrants or common stock attached and derivatives combining the features of debt securities and equity securities. Other convertible securities with features and risks not specifically referred to herein may become available in the future. Convertible securities involve risks similar to those of both fixed income and equity securities. In a corporation's capital structure, convertible securities are senior to common stock but are usually subordinated to senior debt obligations of the issuer.

The market value of a convertible security is a function of its "investment value" and its "conversion value." A security's "investment value" represents the value of the security without its conversion feature (i.e., a nonconvertible debt security). The investment value may be determined by reference to its credit quality and the current value of its yield to maturity or probable call date. At any given time, investment value is dependent upon such factors as the general level of interest rates, the yield of similar nonconvertible securities, the financial strength of the issuer, and the seniority of the security in the issuer's capital structure. A security's "conversion value" is determined by multiplying the number of shares the holder is entitled to receive upon conversion or exchange by the current price of the underlying security. If the conversion value of a convertible security is significantly below its investment value, the convertible security will trade

like nonconvertible debt or preferred stock and its market value will not be influenced greatly by fluctuations in the market price of the underlying security. In that circumstance, the convertible security takes on the characteristics of a bond, and its price moves in the opposite direction from interest rates. Conversely, if the conversion value of a convertible security is near or above its investment value, the market value of the convertible security will be more heavily influenced by fluctuations in the market price of the underlying security. In that case, the convertible security's price may be as volatile as that of common stock. Because both interest rates and market movements can influence its value, a convertible security generally is not as sensitive to interest rates as a similar debt security, nor is it as sensitive to changes in share price as its underlying equity security. Convertible securities are often rated below investment-grade or are not rated, and they are generally subject to a high degree of credit risk.

Although all markets are prone to change over time, the generally high rate at which convertible securities are retired (through mandatory or scheduled conversions by issuers or through voluntary redemptions by holders) and replaced with newly issued convertible securities may cause the convertible securities market to change more rapidly than other markets. For example, a concentration of available convertible securities in a few economic sectors could elevate the sensitivity of the convertible securities market to the volatility of the equity markets and to the specific risks of those sectors. Moreover, convertible securities with innovative structures, such as mandatory-conversion securities and equity-linked securities, have increased the sensitivity of the convertible securities market to the volatility of the equity markets and to the special risks of those innovations, which may include risks different from, and possibly greater than, those associated with traditional convertible securities. A convertible security may be subject to redemption at the option of the issuer at a price set in the governing instrument of the convertible security. If a convertible security held by a fund is subject to such redemption option and is called for redemption, the fund must allow the issuer to redeem the security, convert it into the underlying common stock, or sell the security to a third party.

Cybersecurity Risks. The increased use of technology to conduct business could subject a fund and its third-party service providers (including, but not limited to, investment advisors and custodians) to risks associated with cybersecurity. In general, a cybersecurity incident can occur as a result of a deliberate attack designed to gain unauthorized access to digital systems. If the attack is successful, an unauthorized person or persons could misappropriate assets or sensitive information, corrupt data, or cause operational disruption. A cybersecurity incident could also occur unintentionally if, for example, an authorized person inadvertently released proprietary or confidential information. Vanguard has developed robust technological safeguards and business continuity plans to prevent, or reduce the impact of, potential cybersecurity incidents. Additionally, Vanguard has a process for assessing the information security and/or cybersecurity programs implemented by a fund's third-party service providers, which helps minimize the risk of potential incidents. Despite these measures, a cybersecurity incident still has the potential to disrupt business operations, which could negatively impact a fund and/or its shareholders. Some examples of negative impacts that could occur as a result of a cybersecurity incident include, but are not limited to, the following: a fund may be unable to calculate its net asset value (NAV), a fund's shareholders may be unable to transact business, a fund may be unable to process transactions on behalf of its shareholders, or a fund may be unable to safeguard its data or the personal information of its shareholders.

Depository Receipts. Depository receipts (also sold as participatory notes) are securities that evidence ownership interests in a security or a pool of securities that have been deposited with a "depository." Depository receipts may be sponsored or unsponsored and include American Depositary Receipts (ADRs), European Depositary Receipts (EDRs), and Global Depositary Receipts (GDRs). For ADRs, the depository is typically a U.S. financial institution, and the underlying securities are issued by a foreign issuer. For other depository receipts, the depository may be a foreign or a U.S. entity, and the underlying securities may have a foreign or a U.S. issuer. Depository receipts will not necessarily be denominated in the same currency as their underlying securities. Generally, ADRs are issued in registered form, denominated in U.S. dollars, and designed for use in the U.S. securities markets. Other depository receipts, such as GDRs and EDRs, may be issued in bearer form and denominated in other currencies, and they are generally designed for use in securities markets outside the United States. Although the two types of depository receipt facilities (sponsored and unsponsored) are similar, there are differences regarding a holder's rights and obligations and the practices of market participants.

A depository may establish an unsponsored facility without participation by (or acquiescence of) the underlying issuer; typically, however, the depository requests a letter of nonobjection from the underlying issuer prior to establishing the facility. Holders of unsponsored depository receipts generally bear all the costs of the facility. The depository usually charges fees upon the deposit and withdrawal of the underlying securities, the conversion of dividends into U.S. dollars

or other currency, the disposition of noncash distributions, and the performance of other services. The depository of an unsponsored facility frequently is under no obligation to distribute shareholder communications received from the underlying issuer or to pass through voting rights to depository receipt holders with respect to the underlying securities.

Sponsored depository receipt facilities are created in generally the same manner as unsponsored facilities, except that sponsored depository receipts are established jointly by a depository and the underlying issuer through a deposit agreement. The deposit agreement sets out the rights and responsibilities of the underlying issuer, the depository, and the depository receipt holders. With sponsored facilities, the underlying issuer typically bears some of the costs of the depository receipts (such as dividend payment fees of the depository), although most sponsored depository receipt holders may bear costs such as deposit and withdrawal fees. Depositories of most sponsored depository receipts agree to distribute notices of shareholder meetings, voting instructions, and other shareholder communications and information to the depository receipt holders at the underlying issuer's request.

For purposes of a fund's investment policies, investments in depository receipts will be deemed to be investments in the underlying securities. Thus, a depository receipt representing ownership of common stock will be treated as common stock. Depository receipts do not eliminate all of the risks associated with directly investing in the securities of foreign issuers.

Derivatives. A derivative is a financial instrument that has a value based on—or “derived from”—the values of other assets, reference rates, or indexes. Derivatives may relate to a wide variety of underlying references, such as commodities, stocks, bonds, interest rates, currency exchange rates, and related indexes. Derivatives include futures contracts and options on futures contracts, certain forward-commitment transactions, options on securities, caps, floors, collars, swap agreements, and certain other financial instruments. Some derivatives, such as futures contracts and certain options, are traded on U.S. commodity and securities exchanges, while other derivatives, such as swap agreements, may be privately negotiated and entered into in the over-the-counter market (OTC Derivatives) or may be cleared through a clearinghouse (Cleared Derivatives) and traded on an exchange or swap execution facility. As a result of the Dodd-Frank Wall Street Reform and Consumer Protection Act (the Dodd-Frank Act), certain swap agreements, such as certain standardized credit default and interest rate swap agreements, must be cleared through a clearinghouse and traded on an exchange or swap execution facility. This could result in an increase in the overall costs of such transactions. While the intent of derivatives regulatory reform is to mitigate risks associated with derivatives markets, the new regulations could, among other things, increase liquidity and decrease pricing for more standardized products while decreasing liquidity and increasing pricing for less standardized products. The risks associated with the use of derivatives are different from, and possibly greater than, the risks associated with investing directly in the securities or assets on which the derivatives are based.

Derivatives may be used for a variety of purposes, including—but not limited to—hedging, managing risk, seeking to stay fully invested, seeking to reduce transaction costs, seeking to simulate an investment in equity or debt securities or other investments, and seeking to add value by using derivatives to more efficiently implement portfolio positions when derivatives are favorably priced relative to equity or debt securities or other investments. Some investors may use derivatives primarily for speculative purposes while other uses of derivatives may not constitute speculation. There is no assurance that any derivatives strategy used by a fund's advisor will succeed. The other parties to the funds' OTC Derivatives contracts (usually referred to as “counterparties”) will not be considered the issuers thereof for purposes of certain provisions of the 1940 Act and the IRC, although such OTC Derivatives may qualify as securities or investments under such laws. The funds' advisors, however, will monitor and adjust, as appropriate, the funds' credit risk exposure to OTC Derivative counterparties.

Derivative products are highly specialized instruments that require investment techniques and risk analyses different from those associated with stocks, bonds, and other traditional investments. The use of a derivative requires an understanding not only of the underlying instrument but also of the derivative itself, without the benefit of observing the performance of the derivative under all possible market conditions.

When the fund enters into a Cleared Derivative, an initial margin deposit with a Futures Commission Merchant (FCM) is required. Initial margin deposits are typically calculated as an amount equal to the volatility in market value of a Cleared Derivative over a fixed period. If the value of the fund's Cleared Derivatives declines, the fund will be required to make additional “variation margin” payments to the FCM to settle the change in value. If the value of the fund's Cleared Derivatives increases, the FCM will be required to make additional “variation margin” payments to the fund to settle the change in value. This process is known as “marking-to-market” and is calculated on a daily basis.

For OTC Derivatives, the fund is subject to the risk that a loss may be sustained as a result of the insolvency or bankruptcy of the counterparty or the failure of the counterparty to make required payments or otherwise comply with the terms of the contract. Additionally, the use of credit derivatives can result in losses if a fund's advisor does not correctly evaluate the creditworthiness of the issuer on which the credit derivative is based.

Derivatives may be subject to liquidity risk, which exists when a particular derivative is difficult to purchase or sell. If a derivative transaction is particularly large or if the relevant market is illiquid (as is the case with certain OTC Derivatives), it may not be possible to initiate a transaction or liquidate a position at an advantageous time or price.

Derivatives may be subject to pricing or "basis" risk, which exists when a particular derivative becomes extraordinarily expensive relative to historical prices or the prices of corresponding cash market instruments. Under certain market conditions, it may not be economically feasible to initiate a transaction or liquidate a position in time to avoid a loss or take advantage of an opportunity.

Because certain derivatives have a leverage component, adverse changes in the value or level of the underlying asset, reference rate, or index can result in a loss substantially greater than the amount invested in the derivative itself. Certain derivatives have the potential for unlimited loss, regardless of the size of the initial investment. A derivative transaction will not be considered to constitute the issuance, by a fund, of a "senior security," as that term is defined in Section 18(g) of the 1940 Act, and therefore such transaction will not be subject to the 300% asset coverage requirement otherwise applicable to borrowings by a fund, if the fund covers the transaction in accordance with the requirements described under the heading "*Borrowing*."

Like most other investments, derivative instruments are subject to the risk that the market value of the instrument will change in a way detrimental to a fund's interest. A fund bears the risk that its advisor will incorrectly forecast future market trends or the values of assets, reference rates, indexes, or other financial or economic factors in establishing derivative positions for the fund. If the advisor attempts to use a derivative as a hedge against, or as a substitute for, a portfolio investment, the fund will be exposed to the risk that the derivative will have or will develop imperfect or no correlation with the portfolio investment. This could cause substantial losses for the fund. Although hedging strategies involving derivative instruments can reduce the risk of loss, they can also reduce the opportunity for gain or even result in losses by offsetting favorable price movements in other fund investments. Many derivatives (in particular, OTC Derivatives) are complex and often valued subjectively. Improper valuations can result in increased cash payment requirements to counterparties or a loss of value to a fund.

Exchange-Traded Funds. A fund may purchase shares of exchange-traded funds (ETFs). Typically, a fund would purchase ETF shares for the same reason it would purchase (and as an alternative to purchasing) futures contracts: to obtain exposure to all or a portion of the stock or bond market. ETF shares enjoy several advantages over futures. Depending on the market, the holding period, and other factors, ETF shares can be less costly and more tax-efficient than futures. In addition, ETF shares can be purchased for smaller sums, offer exposure to market sectors and styles for which there is no suitable or liquid futures contract, and do not involve leverage.

An investment in an ETF generally presents the same principal risks as an investment in a conventional fund (i.e., one that is not exchange-traded) that has the same investment objective, strategies, and policies. The price of an ETF can fluctuate within a wide range, and a fund could lose money investing in an ETF if the prices of the securities owned by the ETF go down. In addition, ETFs are subject to the following risks that do not apply to conventional funds: (1) the market price of an ETF's shares may trade at a discount or a premium to their net asset value; (2) an active trading market for an ETF's shares may not develop or be maintained; and (3) trading of an ETF's shares may be halted by the activation of individual or marketwide trading halts (which halt trading for a specific period of time when the price of a particular security or overall market prices decline by a specified percentage). Trading of an ETF's shares may also be halted if the shares are delisted from the exchange without first being listed on another exchange or if the listing exchange's officials determine that such action is appropriate in the interest of a fair and orderly market or for the protection of investors.

Most ETFs are investment companies. Therefore, a fund's purchases of ETF shares generally are subject to the limitations on, and the risks of, a fund's investments in other investment companies, which are described under the heading "*Other Investment Companies*."

Vanguard ETF^{®*} Shares are exchange-traded shares that represent an interest in an investment portfolio held by Vanguard funds. A fund's investments in Vanguard ETF Shares are also generally subject to the descriptions, limitations, and risks described under the heading "*Other Investment Companies*," except as provided by an exemption granted by the SEC

that permits registered investment companies to invest in a Vanguard fund that issues ETF Shares beyond the limits of Section 12(d)(1) of the 1940 Act, subject to certain terms and conditions.

* U.S. Patent Nos. 6,879,964; 7,337,138; 7,720,749; 7,925,573; 8,090,646; and 8,417,623.

Foreign Securities. Typically, foreign securities are considered to be equity or debt securities issued by entities organized, domiciled, or with a principal executive office outside the United States, such as foreign corporations and governments. Securities issued by certain companies organized outside the United States may not be deemed to be foreign securities if the company's principal operations are conducted from the United States or when the company's equity securities trade principally on a U.S. stock exchange. Foreign securities may trade in U.S. or foreign securities markets. A fund may make foreign investments either directly by purchasing foreign securities or indirectly by purchasing depositary receipts or depositary shares of similar instruments (depositary receipts) for foreign securities. Direct investments in foreign securities may be made either on foreign securities exchanges or in the over-the-counter (OTC) markets. Investing in foreign securities involves certain special risk considerations that are not typically associated with investing in securities of U.S. companies or governments.

Because foreign issuers are not generally subject to uniform accounting, auditing, and financial reporting standards and practices comparable to those applicable to U.S. issuers, there may be less publicly available information about certain foreign issuers than about U.S. issuers. Evidence of securities ownership may be uncertain in many foreign countries. As a result, there are multiple risks that could result in a loss to the fund, including, but not limited to, the risk that a fund's trade details could be incorrectly or fraudulently entered at the time of a transaction. Securities of foreign issuers are generally more volatile and less liquid than securities of comparable U.S. issuers, and foreign investments may be effected through structures that may be complex or confusing. In certain countries, there is less government supervision and regulation of stock exchanges, brokers, and listed companies than in the United States. The risk that securities traded on foreign exchanges may be suspended, either by the issuers themselves, by an exchange, or by government authorities, is also heightened. In addition, with respect to certain foreign countries, there is the possibility of expropriation or confiscatory taxation, political or social instability, war, terrorism, nationalization, limitations on the removal of funds or other assets, or diplomatic developments that could affect U.S. investments in those countries. Additionally, economic or other sanctions imposed on the United States by a foreign country, or imposed on a foreign country or issuer by the United States, could impair a fund's ability to buy, sell, hold, receive, deliver, or otherwise transact in certain investment securities. Sanctions could also affect the value and/or liquidity of a foreign security.

Although an advisor will endeavor to achieve the most favorable execution costs for a fund's portfolio transactions in foreign securities under the circumstances, commissions and other transaction costs are generally higher than those on U.S. securities. In addition, it is expected that the custodian arrangement expenses for a fund that invests primarily in foreign securities will be somewhat greater than the expenses for a fund that invests primarily in domestic securities. Additionally, bankruptcy laws vary by jurisdiction and cash deposits may be subject to a custodian's creditors. Certain foreign governments levy withholding or other taxes against dividend and interest income from, capital gains on the sale of, or transactions in foreign securities. Although in some countries a portion of these taxes is recoverable by the fund, the nonrecovered portion of foreign withholding taxes will reduce the income received from such securities.

The value of the foreign securities held by a fund that are not U.S. dollar-denominated may be significantly affected by changes in currency exchange rates. The U.S. dollar value of a foreign security generally decreases when the value of the U.S. dollar rises against the foreign currency in which the security is denominated, and it tends to increase when the value of the U.S. dollar falls against such currency (as discussed under the heading "*Foreign Securities—Foreign Currency Transactions*," a fund may attempt to hedge its currency risks). In addition, the value of fund assets may be affected by losses and other expenses incurred from converting between various currencies in order to purchase and sell foreign securities, as well as by currency restrictions, exchange control regulations, currency devaluations, and political and economic developments.

Foreign Securities—Foreign Currency Transactions. The value in U.S. dollars of a fund's non-dollar-denominated foreign securities may be affected favorably or unfavorably by changes in foreign currency exchange rates and exchange control regulations, and the fund may incur costs in connection with conversions between various currencies. To seek to minimize the impact of such factors on net asset values, a fund may engage in foreign currency transactions in connection with its investments in foreign securities. A fund will enter into foreign currency transactions only to attempt to "hedge" the currency risk associated with investing in foreign securities. Although such transactions tend to minimize

the risk of loss that would result from a decline in the value of the hedged currency, they also may limit any potential gain that might result should the value of such currency increase.

Currency exchange transactions may be conducted either on a spot (i.e., cash) basis at the rate prevailing in the currency exchange market or through forward contracts to purchase or sell foreign currencies. A forward currency contract involves an obligation to purchase or sell a specific currency at a future date, which may be any fixed number of days from the date of the contract agreed upon by the parties, at a price set at the time of the contract. These contracts are entered into with large commercial banks or other currency traders who are participants in the interbank market. Currency exchange transactions also may be effected through the use of swap agreements or other derivatives.

Currency exchange transactions may be considered borrowings. A currency exchange transaction will not be considered to constitute the issuance, by a fund, of a "senior security," as that term is defined in Section 18(g) of the 1940 Act, and therefore such transaction will not be subject to the 300% asset coverage requirement otherwise applicable to borrowings by a fund, if the fund covers the transaction in accordance with the requirements described under the heading "*Borrowing*."

By entering into a forward contract for the purchase or sale of foreign currency involved in underlying security transactions, a fund may be able to protect itself against part or all of the possible loss between trade and settlement dates for that purchase or sale resulting from an adverse change in the relationship between the U.S. dollar and such foreign currency. This practice is sometimes referred to as "transaction hedging." In addition, when the advisor reasonably believes that a particular foreign currency may suffer a substantial decline against the U.S. dollar, a fund may enter into a forward contract to sell an amount of foreign currency approximating the value of some or all of its portfolio securities denominated in such foreign currency. This practice is sometimes referred to as "portfolio hedging." Similarly, when the advisor reasonably believes that the U.S. dollar may suffer a substantial decline against a foreign currency, a fund may enter into a forward contract to buy that foreign currency for a fixed dollar amount.

A fund may also attempt to hedge its foreign currency exchange rate risk by engaging in currency futures, options, and "cross-hedge" transactions. In cross-hedge transactions, a fund holding securities denominated in one foreign currency will enter into a forward currency contract to buy or sell a different foreign currency (one that the advisor reasonably believes generally tracks the currency being hedged with regard to price movements). The advisor may select the tracking (or substitute) currency rather than the currency in which the security is denominated for various reasons, including in order to take advantage of pricing or other opportunities presented by the tracking currency or to take advantage of a more liquid or more efficient market for the tracking currency. Such cross-hedges are expected to help protect a fund against an increase or decrease in the value of the U.S. dollar against certain foreign currencies.

A fund may hold a portion of its assets in bank deposits denominated in foreign currencies so as to facilitate investment in foreign securities as well as protect against currency fluctuations and the need to convert such assets into U.S. dollars (thereby also reducing transaction costs). To the extent these assets are converted back into U.S. dollars, the value of the assets so maintained will be affected favorably or unfavorably by changes in foreign currency exchange rates and exchange control regulations.

The forecasting of currency market movement is extremely difficult, and whether any hedging strategy will be successful is highly uncertain. Moreover, it is impossible to forecast with precision the market value of portfolio securities at the expiration of a forward currency contract. Accordingly, a fund may be required to buy or sell additional currency on the spot market (and bear the expense of such transaction) if its advisor's predictions regarding the movement of foreign currency or securities markets prove inaccurate. In addition, the use of cross-hedging transactions may involve special risks and may leave a fund in a less advantageous position than if such a hedge had not been established. Because forward currency contracts are privately negotiated transactions, there can be no assurance that a fund will have flexibility to roll over a forward currency contract upon its expiration if it desires to do so. Additionally, there can be no assurance that the other party to the contract will perform its services thereunder.

Foreign Securities—Foreign Investment Companies. Some of the countries in which a fund may invest may not permit, or may place economic restrictions on, direct investment by outside investors. Fund investments in such countries may be permitted only through foreign government-approved or authorized investment vehicles, which may include other investment companies. Such investments may be made through registered or unregistered closed-end investment companies that invest in foreign securities. Investing through such vehicles may involve layered fees or

expenses and may also be subject to the limitations on, and the risks of, a fund's investments in other investment companies, which are described under the heading "*Other Investment Companies*."

Futures Contracts and Options on Futures Contracts. Futures contracts and options on futures contracts are derivatives. A futures contract is a standardized agreement between two parties to buy or sell at a specific time in the future a specific quantity of a commodity at a specific price. The commodity may consist of an asset, a reference rate, or an index. A security futures contract relates to the sale of a specific quantity of shares of a single equity security or a narrow-based securities index. The value of a futures contract tends to increase and decrease in tandem with the value of the underlying commodity. The buyer of a futures contract enters into an agreement to purchase the underlying commodity on the settlement date and is said to be "long" the contract. The seller of a futures contract enters into an agreement to sell the underlying commodity on the settlement date and is said to be "short" the contract. The price at which a futures contract is entered into is established either in the electronic marketplace or by open outcry on the floor of an exchange between exchange members acting as traders or brokers. Open futures contracts can be liquidated or closed out by physical delivery of the underlying commodity or payment of the cash settlement amount on the settlement date, depending on the terms of the particular contract. Some financial futures contracts (such as security futures) provide for physical settlement at maturity. Other financial futures contracts (such as those relating to interest rates, foreign currencies, and broad-based securities indexes) generally provide for cash settlement at maturity. In the case of cash-settled futures contracts, the cash settlement amount is equal to the difference between the final settlement or market price for the relevant commodity on the last trading day of the contract and the price for the relevant commodity agreed upon at the outset of the contract. Most futures contracts, however, are not held until maturity but instead are "offset" before the settlement date through the establishment of an opposite and equal futures position.

The purchaser or seller of a futures contract is not required to deliver or pay for the underlying commodity unless the contract is held until the settlement date. However, both the purchaser and seller are required to deposit "initial margin" with a futures commission merchant (FCM) when the futures contract is entered into. Initial margin deposits are typically calculated as an amount equal to the volatility in market value of a contract over a fixed period. If the value of the fund's position declines, the fund will be required to make additional "variation margin" payments to the FCM to settle the change in value. If the value of the fund's position increases, the FCM will be required to make additional "variation margin" payments to the fund to settle the change in value. This process is known as "marking-to-market" and is calculated on a daily basis. A futures transaction will not be considered to constitute the issuance, by a fund, of a "senior security," as that term is defined in Section 18(g) of the 1940 Act, and therefore such transaction will not be subject to the 300% asset coverage requirement otherwise applicable to borrowings by a fund, if the fund covers the transaction in accordance with the requirements described under the heading "*Borrowing*."

An option on a futures contract (or futures option) conveys the right, but not the obligation, to purchase (in the case of a call option) or sell (in the case of a put option) a specific futures contract at a specific price (called the "exercise" or "strike" price) any time before the option expires. The seller of an option is called an option writer. The purchase price of an option is called the premium. The potential loss to an option buyer is limited to the amount of the premium plus transaction costs. This will be the case, for example, if the option is held and not exercised prior to its expiration date. Generally, an option writer sells options with the goal of obtaining the premium paid by the option buyer. If an option sold by an option writer expires without being exercised, the writer retains the full amount of the premium. The option writer, however, has unlimited economic risk because its potential loss, except to the extent offset by the premium received when the option was written, is equal to the amount the option is "in-the-money" at the expiration date. A call option is in-the-money if the value of the underlying futures contract exceeds the exercise price of the option. A put option is in-the-money if the exercise price of the option exceeds the value of the underlying futures contract. Generally, any profit realized by an option buyer represents a loss for the option writer.

A fund that takes the position of a writer of a futures option is required to deposit and maintain initial and variation margin with respect to the option, as previously described in the case of futures contracts. A futures option transaction will not be considered to constitute the issuance, by a fund, of a "senior security," as that term is defined in Section 18(g) of the 1940 Act, and therefore such transaction will not be subject to the 300% asset coverage requirement otherwise applicable to borrowings by a fund, if the fund covers the transaction in accordance with the requirements described under the heading "*Borrowing*."

Each Fund intends to comply with Rule 4.5 under the Commodity Exchange Act (CEA), under which a mutual fund may be excluded from the definition of the term Commodity Pool Operator (CPO) if the fund meets certain conditions such as limiting its investments in certain CEA-regulated instruments (e.g., futures, options, or swaps) and complying with

certain marketing restrictions. Accordingly, Vanguard is not subject to registration or regulation as a CPO with respect to each Fund under the CEA. A Fund will only enter into futures contracts and futures options that are traded on a U.S. or foreign exchange, board of trade, or similar entity or that are quoted on an automated quotation system.

Futures Contracts and Options on Futures Contracts—Risks. The risk of loss in trading futures contracts and in writing futures options can be substantial because of the low margin deposits required, the extremely high degree of leverage involved in futures and options pricing, and the potential high volatility of the futures markets. As a result, a relatively small price movement in a futures position may result in immediate and substantial loss (or gain) for the investor. For example, if at the time of purchase, 10% of the value of the futures contract is deposited as margin, a subsequent 10% decrease in the value of the futures contract would result in a total loss of the margin deposit, before any deduction for the transaction costs, if the account were then closed out. A 15% decrease would result in a loss equal to 150% of the original margin deposit if the contract were closed out. Thus, a purchase or sale of a futures contract, and the writing of a futures option, may result in losses in excess of the amount invested in the position. In the event of adverse price movements, a fund would continue to be required to make daily cash payments to maintain its required margin. In such situations, if the fund has insufficient cash, it may have to sell portfolio securities to meet daily margin requirements (and segregation requirements, if applicable) at a time when it may be disadvantageous to do so. In addition, on the settlement date, a fund may be required to make delivery of the instruments underlying the futures positions it holds.

A fund could suffer losses if it is unable to close out a futures contract or a futures option because of an illiquid secondary market. Futures contracts and futures options may be closed out only on an exchange that provides a secondary market for such products. However, there can be no assurance that a liquid secondary market will exist for any particular futures product at any specific time. Thus, it may not be possible to close a futures or option position. Moreover, most futures exchanges limit the amount of fluctuation permitted in futures contract prices during a single trading day. The daily limit establishes the maximum amount that the price of a futures contract may vary either up or down from the previous day's settlement price at the end of a trading session. Once the daily limit has been reached in a particular type of contract, no trades may be made on that day at a price beyond that limit. The daily limit governs only price movement during a particular trading day, and therefore does not limit potential losses because the limit may prevent the liquidation of unfavorable positions. Futures contract prices have occasionally moved to the daily limit for several consecutive trading days with little or no trading, thereby preventing prompt liquidation of future positions and subjecting some futures traders to substantial losses. The inability to close futures and options positions also could have an adverse impact on the ability to hedge a portfolio investment or to establish a substitute for a portfolio investment. U.S. Treasury futures are generally not subject to such daily limits.

A fund bears the risk that its advisor will incorrectly predict future market trends. If the advisor attempts to use a futures contract or a futures option as a hedge against, or as a substitute for, a portfolio investment, the fund will be exposed to the risk that the futures position will have or will develop imperfect or no correlation with the portfolio investment. This could cause substantial losses for the fund. Although hedging strategies involving futures products can reduce the risk of loss, they can also reduce the opportunity for gain or even result in losses by offsetting favorable price movements in other fund investments.

A fund could lose margin payments it has deposited with its FCM if, for example, the FCM breaches its agreement with the fund or becomes insolvent or goes into bankruptcy. In that event, the fund may be entitled to return of margin owed to it only in proportion to the amount received by the FCM's other customers, potentially resulting in losses to the fund.

Interfund Borrowing and Lending. The SEC has granted an exemption permitting registered open-end Vanguard funds to participate in Vanguard's interfund lending program. This program allows the Vanguard funds to borrow money from and lend money to each other for temporary or emergency purposes. The program is subject to a number of conditions, including, among other things, the requirements that (1) no fund may borrow or lend money through the program unless it receives a more favorable interest rate than is typically available from a bank for a comparable transaction, (2) no fund may lend money if the loan would cause its aggregate outstanding loans through the program to exceed 15% of its net assets at the time of the loan, and (3) a fund's interfund loans to any one fund shall not exceed 5% of the lending fund's net assets. In addition, a Vanguard fund may participate in the program only if and to the extent that such participation is consistent with the fund's investment objective and investment policies. The boards of trustees of the Vanguard funds are responsible for overseeing the interfund lending program. Any delay in repayment to a lending fund could result in a lost investment opportunity or additional borrowing costs.

Investing for Control. Each Vanguard fund invests in securities and other instruments for the sole purpose of achieving a specific investment objective. As such, a Vanguard fund does not seek to acquire, individually or collectively with any other Vanguard fund, enough of a company's outstanding voting stock to have control over management decisions. A Vanguard fund does not invest for the purpose of controlling a company's management.

Options. An option is a derivative. An option on a security (or index) is a contract that gives the holder of the option, in return for the payment of a "premium," the right, but not the obligation, to buy from (in the case of a call option) or sell to (in the case of a put option) the writer of the option the security underlying the option (or the cash value of the index) at a specified exercise price prior to the expiration date of the option. The writer of an option on a security has the obligation upon exercise of the option to deliver the underlying security upon payment of the exercise price (in the case of a call option) or to pay the exercise price upon delivery of the underlying security (in the case of a put option). The writer of an option on an index has the obligation upon exercise of the option to pay an amount equal to the cash value of the index minus the exercise price, multiplied by the specified multiplier for the index option. The multiplier for an index option determines the size of the investment position the option represents. Unlike exchange-traded options, which are standardized with respect to the underlying instrument, expiration date, contract size, and strike price, the terms of over-the-counter (OTC) options (options not traded on exchanges) generally are established through negotiation with the other party to the option contract. Although this type of arrangement allows the purchaser or writer greater flexibility to tailor an option to its needs, OTC options generally involve credit risk to the counterparty, whereas for exchange-traded, centrally cleared options, credit risk is mutualized through the involvement of the applicable clearing house.

The buyer (or holder) of an option is said to be "long" the option, while the seller (or writer) of an option is said to be "short" the option. A call option grants to the holder the right to buy (and obligates the writer to sell) the underlying security at the strike price, which is the predetermined price at which the option may be exercised. A put option grants to the holder the right to sell (and obligates the writer to buy) the underlying security at the strike price. The purchase price of an option is called the "premium." The potential loss to an option buyer is limited to the amount of the premium plus transaction costs. This will be the case if the option is held and not exercised prior to its expiration date. Generally, an option writer sells options with the goal of obtaining the premium paid by the option buyer, but that person could also seek to profit from an anticipated rise or decline in option prices. If an option sold by an option writer expires without being exercised, the writer retains the full amount of the premium. The option writer, however, has unlimited economic risk because its potential loss, except to the extent offset by the premium received when the option was written, is equal to the amount the option is "in-the-money" at the expiration date. A call option is in-the-money if the value of the underlying position exceeds the exercise price of the option. A put option is in-the-money if the exercise price of the option exceeds the value of the underlying position. Generally, any profit realized by an option buyer represents a loss for the option writer. The writing of an option will not be considered to constitute the issuance, by a fund, of a "senior security," as that term is defined in Section 18(g) of the 1940 Act, and therefore such transaction will not be subject to the 300% asset coverage requirement otherwise applicable to borrowings by a fund, if the fund covers the transaction in accordance with the requirements described under the heading "*Borrowing*."

If a trading market, in particular options, were to become unavailable, investors in those options (such as the funds) would be unable to close out their positions until trading resumes, and they may be faced with substantial losses if the value of the underlying instrument moves adversely during that time. Even if the market were to remain available, there may be times when options prices will not maintain their customary or anticipated relationships to the prices of the underlying instruments and related instruments. Lack of investor interest, changes in volatility, or other factors or conditions might adversely affect the liquidity, efficiency, continuity, or even the orderliness of the market for particular options.

A fund bears the risk that its advisor will not accurately predict future market trends. If the advisor attempts to use an option as a hedge against, or as a substitute for, a portfolio investment, the fund will be exposed to the risk that the option will have or will develop imperfect or no correlation with the portfolio investment, which could cause substantial losses for the fund. Although hedging strategies involving options can reduce the risk of loss, they can also reduce the opportunity for gain or even result in losses by offsetting favorable price movements in other fund investments. Many options, in particular OTC options, are complex and often valued based on subjective factors. Improper valuations can result in increased cash payment requirements to counterparties or a loss of value to a fund.

OTC Swap Agreements. An over-the-counter (OTC) swap agreement, which is a type of derivative, is an agreement between two parties (counterparties) to exchange payments at specified dates (periodic payment dates) on the basis of

a specified amount (notional amount) with the payments calculated with reference to a specified asset, reference rate, or index.

Examples of OTC swap agreements include, but are not limited to, interest rate swaps, credit default swaps, equity swaps, commodity swaps, foreign currency swaps, index swaps, excess return swaps, and total return swaps. Most OTC swap agreements provide that when the periodic payment dates for both parties are the same, payments are netted and only the net amount is paid to the counterparty entitled to receive the net payment. Consequently, a fund's current obligations (or rights) under an OTC swap agreement will generally be equal only to the net amount to be paid or received under the agreement, based on the relative values of the positions held by each counterparty. OTC swap agreements allow for a wide variety of transactions. For example, fixed rate payments may be exchanged for floating rate payments; U.S. dollar-denominated payments may be exchanged for payments denominated in a different currency; and payments tied to the price of one asset, reference rate, or index may be exchanged for payments tied to the price of another asset, reference rate, or index.

An OTC option on an OTC swap agreement, also called a "swaption," is an option that gives the buyer the right, but not the obligation, to enter into a swap on a future date in exchange for paying a market-based "premium." A receiver swaption gives the owner the right to receive the total return of a specified asset, reference rate, or index. A payer swaption gives the owner the right to pay the total return of a specified asset, reference rate, or index. Swaptions also include options that allow an existing swap to be terminated or extended by one of the counterparties.

The use of OTC swap agreements by a fund entails certain risks, which may be different from, or possibly greater than, the risks associated with investing directly in the securities and other investments that are the referenced asset for the swap agreement. OTC swaps are highly specialized instruments that require investment techniques, risk analyses, and tax planning different from those associated with stocks, bonds, and other traditional investments. The use of an OTC swap requires an understanding not only of the referenced asset, reference rate, or index but also of the swap itself, without the benefit of observing the performance of the swap under all possible market conditions.

OTC swap agreements may be subject to liquidity risk, which exists when a particular swap is difficult to purchase or sell. If an OTC swap transaction is particularly large or if the relevant market is illiquid (as is the case with many OTC swaps), it may not be possible to initiate a transaction or liquidate a position at an advantageous time or price, which may result in significant losses. In addition, OTC swap transactions may be subject to a fund's limitation on investments in illiquid securities.

OTC swap agreements may be subject to pricing risk, which exists when a particular swap becomes extraordinarily expensive or inexpensive relative to historical prices or the prices of corresponding cash market instruments. Under certain market conditions, it may not be economically feasible to initiate a transaction or liquidate a position in time to avoid a loss or take advantage of an opportunity or to realize the intrinsic value of the OTC swap agreement.

Because certain OTC swap agreements have a leverage component, adverse changes in the value or level of the underlying asset, reference rate, or index can result in a loss substantially greater than the amount invested in the swap itself. Certain OTC swaps have the potential for unlimited loss, regardless of the size of the initial investment. A leveraged OTC swap transaction will not be considered to constitute the issuance, by a fund, of a "senior security," as that term is defined in Section 18(g) of the 1940 Act, and therefore such transaction will not be subject to the 300% asset coverage requirement otherwise applicable to borrowings by a fund, if the fund covers the transaction in accordance with the requirements described under the heading "*Borrowing*."

Like most other investments, OTC swap agreements are subject to the risk that the market value of the instrument will change in a way detrimental to a fund's interest. A fund bears the risk that its advisor will not accurately forecast future market trends or the values of assets, reference rates, indexes, or other economic factors in establishing OTC swap positions for the fund. If the advisor attempts to use an OTC swap as a hedge against, or as a substitute for, a portfolio investment, the fund will be exposed to the risk that the OTC swap will have or will develop imperfect or no correlation with the portfolio investment. This could cause substantial losses for the fund. Although hedging strategies involving OTC swap instruments can reduce the risk of loss, they can also reduce the opportunity for gain or even result in losses by offsetting favorable price movements in other fund investments. Many OTC swaps are complex and often valued subjectively. Improper valuations can result in increased cash payment requirements to counterparties or a loss of value to a fund.

The use of an OTC swap agreement also involves the risk that a loss may be sustained as a result of the insolvency or bankruptcy of the counterparty or the failure of the counterparty to make required payments or otherwise comply with

the terms of the agreement. Additionally, the use of credit default swaps can result in losses if a fund's advisor does not correctly evaluate the creditworthiness of the issuer on which the credit swap is based.

The market for OTC swaps and swaptions is a relatively new market. It is possible that developments in the market could adversely affect a fund, including its ability to terminate existing OTC swap agreements or to realize amounts to be received under such agreements. As previously noted under the heading "*Derivatives*," under the Dodd-Frank Act, certain swaps that may be used by a fund may be cleared through a clearinghouse and traded on an exchange or swap execution facility.

Other Investment Companies. A fund may invest in other investment companies to the extent permitted by applicable law or SEC exemption. Under Section 12(d)(1) of the 1940 Act, a fund generally may invest up to 10% of its assets in shares of investment companies and up to 5% of its assets in any one investment company, as long as no investment represents more than 3% of the voting stock of an acquired investment company. In addition, no funds for which Vanguard acts as an advisor may, in the aggregate, own more than 10% of the voting stock of a closed-end investment company. The 1940 Act and related rules provide certain exemptions from these restrictions, for example, for funds that invest in other funds within the same group of investment companies. If a fund invests in other investment companies, shareholders will bear not only their proportionate share of the fund's expenses (including operating expenses and the fees of the advisor), but they also may indirectly bear similar expenses of the underlying investment companies. Certain investment companies, such as business development companies (BDCs), are more akin to operating companies and, as such, their expenses are not direct expenses paid by fund shareholders and are not used to calculate the fund's net asset value. SEC rules nevertheless require that any expenses incurred by a BDC be included in a fund's expense ratio as "Acquired Fund Fees and Expenses." The expense ratio of a fund that holds a BDC will thus overstate what the fund actually spends on portfolio management, administrative services, and other shareholder services by an amount equal to these Acquired Fund Fees and Expenses. The Acquired Fund Fees and Expenses are not included in a fund's financial statements, which provide a clearer picture of a fund's actual operating expenses. Shareholders would also be exposed to the risks associated not only with the investments of the fund but also with the portfolio investments of the underlying investment companies. Certain types of investment companies, such as closed-end investment companies, issue a fixed number of shares that typically trade on a stock exchange or over-the-counter at a premium or discount to their net asset value. Others are continuously offered at net asset value but also may be traded on the secondary market.

Preferred Stock. Preferred stock represents an equity or ownership interest in an issuer. Preferred stock normally pays dividends at a specified rate and has precedence over common stock in the event the issuer is liquidated or declares bankruptcy. However, in the event an issuer is liquidated or declares bankruptcy, the claims of owners of bonds take precedence over the claims of those who own preferred and common stock. Preferred stock, unlike common stock, often has a stated dividend rate payable from the corporation's earnings. Preferred stock dividends may be cumulative or noncumulative, participating, or auction rate. "Cumulative" dividend provisions require all or a portion of prior unpaid dividends to be paid before dividends can be paid to the issuer's common stock. "Participating" preferred stock may be entitled to a dividend exceeding the stated dividend in certain cases. If interest rates rise, the fixed dividend on preferred stocks may be less attractive, causing the price of such stocks to decline. Preferred stock may have mandatory sinking fund provisions, as well as provisions allowing the stock to be called or redeemed, which can limit the benefit of a decline in interest rates. Preferred stock is subject to many of the risks to which common stock and debt securities are subject. In addition, preferred stock may be subject to more abrupt or erratic price movements than common stock or debt securities because preferred stock may trade with less frequency and in more limited volume.

Real Estate Investment Trusts (REITs). An equity REIT owns real estate properties directly and generates income from rental and lease payments. Equity REITs also have the potential to generate capital gains as properties are sold at a profit. A mortgage REIT makes construction, development, and long-term mortgage loans to commercial real estate developers and earns interest income on these loans. A hybrid REIT holds both properties and mortgages. To avoid taxation at the corporate level, REITs must distribute most of their earnings to shareholders.

Investments in REITs are subject to many of the same risks as direct investments in real estate. In general, real estate values can be affected by a variety of factors, including, but not limited to, supply and demand for properties, general or local economic conditions, and the strength of specific industries that rent properties. Ultimately, a REIT's performance depends on the types and locations of the properties it owns and on how well the REIT manages its properties. For example, rental income could decline because of extended vacancies, increased competition from nearby properties,

tenants' failure to pay rent, regulatory limitations on rents, fluctuations in rental income, variations in market rental rates, or incompetent management. Property values could decrease because of overbuilding in the area, environmental liabilities, uninsured damages caused by natural disasters, a general decline in the neighborhood, losses because of casualty or condemnation, increases in property taxes, or changes in zoning laws.

The value of a REIT may also be affected by changes in interest rates. Rising interest rates generally increase the cost of financing for real estate projects, which could cause the value of an equity REIT to decline. During periods of declining interest rates, mortgagors may elect to prepay mortgages held by mortgage REITs, which could lower or diminish the yield on the REIT. REITs are also subject to heavy cash-flow dependency, default by borrowers, and changes in tax and regulatory requirements. In addition, a REIT may fail to meet the requirements for qualification and taxation as a REIT under the IRC and/or fail to maintain exemption from the 1940 Act.

Repurchase Agreements. A repurchase agreement is an agreement under which a fund acquires a debt security (generally a security issued by the U.S. government or an agency thereof, a banker's acceptance, or a certificate of deposit) from a bank, a broker, or a dealer and simultaneously agrees to resell such security to the seller at an agreed-upon price and date (normally, the next business day). Because the security purchased constitutes collateral for the repurchase obligation, a repurchase agreement may be considered a loan that is collateralized by the security purchased. The resale price reflects an agreed-upon interest rate effective for the period the instrument is held by a fund and is unrelated to the interest rate on the underlying instrument. In these transactions, the securities acquired by a fund (including accrued interest earned thereon) must have a total value in excess of the value of the repurchase agreement and be held by a custodian bank until repurchased. In addition, the investment advisor will monitor a fund's repurchase agreement transactions generally and will evaluate the creditworthiness of any bank, broker, or dealer party to a repurchase agreement relating to a fund. The aggregate amount of any such agreements is not limited, except to the extent required by law.

The use of repurchase agreements involves certain risks. One risk is the seller's ability to pay the agreed-upon repurchase price on the repurchase date. If the seller defaults, the fund may incur costs in disposing of the collateral, which would reduce the amount realized thereon. If the seller seeks relief under bankruptcy laws, the disposition of the collateral may be delayed or limited. For example, if the other party to the agreement becomes insolvent and subject to liquidation or reorganization under bankruptcy or other laws, a court may determine that the underlying security is collateral for a loan by the fund not within its control, and therefore the realization by the fund on such collateral may be automatically stayed. Finally, it is possible that the fund may not be able to substantiate its interest in the underlying security and may be deemed an unsecured creditor of the other party to the agreement.

Restricted and Illiquid Securities. Illiquid securities are securities that cannot be sold or disposed of within seven days in the ordinary course of business at approximately the price at which they are valued. The SEC generally limits aggregate holdings of illiquid securities by a mutual fund to 15% of its net assets (5% for money market funds). A fund may experience difficulty valuing and selling illiquid securities and, in some cases, may be unable to value or sell certain illiquid securities for an indefinite period of time. Illiquid securities may include a wide variety of investments, such as (1) repurchase agreements maturing in more than seven days (unless the agreements have demand/redemption features), (2) OTC options contracts and certain other derivatives (including certain swap agreements), (3) fixed time deposits that are not subject to prepayment or do not provide for withdrawal penalties upon prepayment (other than overnight deposits), (4) certain loan interests and other direct debt instruments, (5) certain municipal lease obligations, (6) private equity investments, (7) commercial paper issued pursuant to Section 4(a)(2) of the 1933 Act, and (8) securities whose disposition is restricted under the federal securities laws. Illiquid securities include restricted, privately placed securities that, under the federal securities laws, generally may be resold only to qualified institutional buyers. If a substantial market develops for a restricted security held by a fund, it may be treated as a liquid security in accordance with procedures and guidelines approved by the board of trustees. This generally includes securities that are unregistered, that can be sold to qualified institutional buyers in accordance with Rule 144A under the 1933 Act, or that are exempt from registration under the 1933 Act, such as commercial paper. Although a fund's advisor monitors the liquidity of restricted securities, the board of trustees oversees and retains ultimate responsibility for the advisor's liquidity determinations. Several factors that the trustees consider in monitoring these decisions include the valuation of a security; the availability of qualified institutional buyers, brokers, and dealers that trade in the security; and the availability of information about the security's issuer.

Reverse Repurchase Agreements. In a reverse repurchase agreement, a fund sells a security to another party, such as a bank or broker-dealer, in return for cash and agrees to repurchase that security at an agreed-upon price and time. Under a reverse repurchase agreement, the fund continues to receive any principal and interest payments on the underlying security during the term of the agreement. Reverse repurchase agreements involve the risk that the market value of securities retained by the fund may decline below the repurchase price of the securities sold by the fund that it is obligated to repurchase. In addition to the risk of such a loss, fees charged to the fund may exceed the return the fund earns from investing the proceeds received from the reverse repurchase agreement transaction. A reverse repurchase agreement may be considered a borrowing transaction for purposes of the 1940 Act. A reverse repurchase agreement transaction will not be considered to constitute the issuance, by a fund, of a “senior security,” as that term is defined in Section 18(g) of the 1940 Act, and therefore such transaction will not be subject to the 300% asset coverage requirement otherwise applicable to borrowings by a fund, if the fund covers the transaction in accordance with the requirements described under the heading “*Borrowing*.” A fund will enter into reverse repurchase agreements only with parties whose creditworthiness has been reviewed and found satisfactory by the advisor. If the buyer in a reverse repurchase agreement becomes insolvent or files for bankruptcy, a fund’s use of proceeds from the sale may be restricted while the other party or its trustee or receiver determines if it will honor the fund’s right to repurchase the securities. If the fund is unable to recover the securities it sold in a reverse repurchase agreement, it would realize a loss equal to the difference between the value of the securities and the payment it received for them.

Securities Lending. A fund may lend its investment securities to qualified institutional investors (typically brokers, dealers, banks, or other financial institutions) who may need to borrow securities in order to complete certain transactions, such as covering short sales, avoiding failures to deliver securities, or completing arbitrage operations. By lending its investment securities, a fund attempts to increase its net investment income through the receipt of interest on the securities lent. Any gain or loss in the market price of the securities lent that might occur during the term of the loan would be for the account of the fund. If the borrower defaults on its obligation to return the securities lent because of insolvency or other reasons, a fund could experience delays and costs in recovering the securities lent or in gaining access to the collateral. These delays and costs could be greater for foreign securities. If a fund is not able to recover the securities lent, the fund may sell the collateral and purchase a replacement investment in the market. The value of the collateral could decrease below the value of the replacement investment by the time the replacement investment is purchased. Cash received as collateral through loan transactions may be invested in other eligible securities. Investing this cash subjects that investment to market appreciation or depreciation. Currently, Vanguard funds that lend securities invest the cash collateral received in one or more Vanguard CMT Funds, which are low-cost money market funds.

The terms and the structure of the loan arrangements, as well as the aggregate amount of securities loans, must be consistent with the 1940 Act and the rules or interpretations of the SEC thereunder. These provisions limit the amount of securities a fund may lend to 33 1/3% of the fund’s total assets and require that (1) the borrower pledge and maintain with the fund collateral consisting of cash, an irrevocable letter of credit, or securities issued or guaranteed by the U.S. government having at all times not less than 100% of the value of the securities lent; (2) the borrower add to such collateral whenever the price of the securities lent rises (i.e., the borrower “marks to market” on a daily basis); (3) the loan be made subject to termination by the fund at any time; and (4) the fund receives reasonable interest on the loan (which may include the fund investing any cash collateral in interest-bearing short-term investments), any distribution on the lent securities, and any increase in their market value. Loan arrangements made by a fund will comply with all other applicable regulatory requirements, including the requirement to redeliver the securities within the standard settlement time applicable to the relevant trading market. The advisor will consider the creditworthiness of the borrower, among other things, in making decisions with respect to the lending of securities, subject to oversight by the board of trustees. At the present time, the SEC does not object if an investment company pays reasonable negotiated fees in connection with lent securities, so long as such fees are set forth in a written contract and approved by the investment company’s trustees. In addition, voting rights pass with the lent securities, but if a fund has knowledge that a material event will occur affecting securities on loan, and in respect to which the holder of the securities will be entitled to vote or consent, the lender must be entitled to call the loaned securities in time to vote or consent. A fund bears the risk that there may be a delay in the return of the securities, which may impair the fund’s ability to vote on such a matter.

Pursuant to Vanguard’s securities lending policy, Vanguard’s fixed income and money market funds are not permitted to, and do not, lend their investment securities.

Tax Matters—Federal Tax Discussion. Discussion herein of U.S. federal income tax matters summarizes some of the important, generally applicable U.S. federal tax considerations relevant to investment in a fund based on the IRC, U.S.

Treasury regulations, and other applicable authorities. These authorities are subject to change by legislative, administrative, or judicial action, possibly with retroactive effect. Each Fund has not requested and will not request an advance ruling from the Internal Revenue Service (IRS) as to the U.S. federal income tax matters discussed in this Statement of Additional Information. In some cases, a fund's tax position may be uncertain under current tax law and an adverse determination or future guidance by the IRS with respect to such a position could adversely affect the fund and its shareholders, including the fund's ability to continue to qualify as a regulated investment company or to continue to pursue its current investment strategy. A shareholder should consult his or her tax professional for information regarding the particular situation and the possible application of U.S. federal, state, local, foreign, and other taxes.

Tax Matters—Federal Tax Treatment of Derivatives, Hedging, and Related Transactions. A fund's transactions in derivative instruments (including, but not limited to, options, futures, forward contracts, and swap agreements), as well as any of the fund's hedging, short sale, securities loan, or similar transactions, may be subject to one or more special tax rules that accelerate income to the fund, defer losses to the fund, cause adjustments in the holding periods of the fund's securities, convert long-term capital gains into short-term capital gains, or convert short-term capital losses into long-term capital losses. These rules could therefore affect the amount, timing, and character of distributions to shareholders.

Because these and other tax rules applicable to these types of transactions are in some cases uncertain under current law, an adverse determination or future guidance by the IRS with respect to these rules (which determination or guidance could be retroactive) may affect whether a fund has made sufficient distributions, and otherwise satisfied the relevant requirements, to maintain its qualification as a regulated investment company and avoid a fund-level tax.

Tax Matters—Federal Tax Treatment of Futures Contracts. For federal income tax purposes, a fund generally must recognize, as of the end of each taxable year, any net unrealized gains and losses on certain futures contracts, as well as any gains and losses actually realized during the year. In these cases, any gain or loss recognized with respect to a futures contract is considered to be 60% long-term capital gain or loss and 40% short-term capital gain or loss, without regard to the holding period of the contract. Gains and losses on certain other futures contracts (primarily non-U.S. futures contracts) are not recognized until the contracts are closed and are treated as long-term or short-term, depending on the holding period of the contract. Sales of futures contracts that are intended to hedge against a change in the value of securities held by a fund may affect the holding period of such securities and, consequently, the nature of the gain or loss on such securities upon disposition. A fund may be required to defer the recognition of losses on one position, such as futures contracts, to the extent of any unrecognized gains on a related offsetting position held by the fund.

A fund will distribute to shareholders annually any net capital gains that have been recognized for federal income tax purposes on futures transactions. Such distributions will be combined with distributions of capital gains realized on the fund's other investments, and shareholders will be advised on the nature of the distributions.

Tax Matters—Federal Tax Treatment of Non-U.S. Currency Transactions. Special rules generally govern the federal income tax treatment of a fund's transactions in the following: non-U.S. currencies; non-U.S. currency-denominated debt obligations; and certain non-U.S. currency options, futures contracts, forward contracts, and similar instruments. Accordingly, if a fund engages in these types of transactions it may have ordinary income or loss to the extent that such income or loss results from fluctuations in the value of the non-U.S. currency concerned. Such ordinary income could accelerate fund distributions to shareholders and increase the distributions taxed to shareholders as ordinary income. Any ordinary loss so created will generally reduce ordinary income distributions and, in some cases, could require the recharacterization of prior ordinary income distributions. Net ordinary losses cannot be carried forward by the fund to offset income or gains realized in subsequent taxable years.

Any gain or loss attributable to the non-U.S. currency component of a transaction engaged in by a fund that is not subject to these special currency rules (such as foreign equity investments other than certain preferred stocks) will generally be treated as a capital gain or loss and will not be segregated from the gain or loss on the underlying transaction.

To the extent a fund engages in non-U.S. currency hedging, the fund may elect or be required to apply other rules that could affect the character, timing, or amount of the fund's gains and losses. For more information, see "*Tax Matters—Federal Tax Treatment of Derivatives, Hedging, and Related Transactions.*"

Tax Matters—Foreign Tax Credit. Foreign governments may withhold taxes on dividends and interest paid with respect to foreign securities held by a fund. Foreign governments may also impose taxes on other payments or gains with respect to foreign securities. If, at the close of its fiscal year, more than 50% of a fund's total assets are invested in securities of foreign issuers, the fund may elect to pass through to shareholders the ability to deduct or, if they meet

certain holding period requirements, take a credit for foreign taxes paid by the fund. Similarly, if at the close of each quarter of a fund's taxable year, at least 50% of its total assets consist of interests in other regulated investment companies, the fund is permitted to elect to pass through to its shareholders the foreign income taxes paid by the fund in connection with foreign securities held directly by the fund or held by a regulated investment company in which the fund invests that has elected to pass through such taxes to shareholders.

Tax Matters—Passive Foreign Investment Companies. Each Fund may invest in passive foreign investment companies (PFICs). A foreign company is generally a PFIC if 75% or more of its gross income is passive or if 50% or more of its assets produce passive income. Capital gains on the sale of an interest in a PFIC will be deemed ordinary income regardless of how long the Fund held it. Also, the Fund may be subject to corporate income tax and an interest charge on certain dividends and capital gains earned in respect to PFIC interests, whether or not such amounts are distributed to shareholders. To avoid such tax and interest, a Fund may elect to “mark to market” its PFIC interests, that is, to treat such interests as sold on the last day of the Fund's fiscal year, and to recognize any unrealized gains (or losses, to the extent of previously recognized gains) as ordinary income each year. Distributions from the Fund that are attributable to income or gains earned in respect to PFIC interests are characterized as ordinary income.

Tax Matters—Real Estate Mortgage Investment Conduits. If a fund invests directly or indirectly, including through a REIT or other pass-through entity, in residual interests in real estate mortgage investment conduits (REMICs) or equity interests in taxable mortgage pools (TMPs), a portion of the fund's income that is attributable to a residual interest in a REMIC or an equity interest in a TMP (such portion referred to in the IRC as an “excess inclusion”) will be subject to U.S. federal income tax in all events—including potentially at the fund level—under a notice issued by the IRS in October 2006 and U.S. Treasury regulations that have yet to be issued but may apply retroactively. This notice also provides, and the regulations are expected to provide, that excess inclusion income of a registered investment company will be allocated to shareholders of the registered investment company in proportion to the dividends received by such shareholders, with the same consequences as if the shareholders held the related interest directly. In general, excess inclusion income allocated to shareholders (1) cannot be offset by net operation losses (subject to a limited exception for certain thrift institutions); (2) will constitute unrelated business taxable income (UBTI) to entities (including a qualified pension plan, an individual retirement account, a 401(k) plan, a Keogh plan, or other tax-exempt entity) subject to tax on UBTI, thereby potentially requiring such an entity, which otherwise might not be required, to file a tax return and pay tax on such income; and (3) in the case of a non-U.S. investor, will not qualify for any reduction in U.S. federal withholding tax. A shareholder will be subject to U.S. federal income tax on such inclusions notwithstanding any exemption from such income tax otherwise available under the IRC. As a result, a fund investing in such interests may not be suitable for charitable remainder trusts. See “Tax Matters—Tax-Exempt Investors.”

Tax Matters—Tax Considerations for Non-U.S. Investors. U.S. withholding and estate taxes and certain U.S. tax reporting requirements may apply to any investments made by non-U.S. investors in Vanguard funds. Certain properly reported distributions of qualifying interest income or short-term capital gain made by a fund to its non-U.S. investors are exempt from U.S. withholding taxes, provided the investors furnish valid tax documentation (i.e., IRS Form W-8) certifying as to their non-U.S. status.

A fund is permitted, but is not required, to report any of its distributions as eligible for such relief, and some distributions (e.g., distributions of interest a fund receives from non-U.S. issuers) are not eligible for this relief. For some funds, Vanguard has chosen to report qualifying distributions and apply the withholding exemption to those distributions when made to non-U.S. shareholders who invest directly with Vanguard. For other funds, Vanguard may choose not to apply the withholding exemption to qualifying fund distributions made to direct shareholders, but may provide the reporting to such shareholders. In these cases, a shareholder may be able to reclaim such withholding tax directly from the IRS.

If shareholders hold fund shares (including ETF shares) through a broker or intermediary, their broker or intermediary may apply this relief to properly reported qualifying distributions made to shareholders with respect to those shares. If a shareholder's broker or intermediary instead collects withholding tax where the fund has provided the proper reporting, the shareholder may be able to reclaim such withholding tax from the IRS. Please consult your broker or intermediary regarding the application of these rules.

This relief does not apply to any withholding required under the Foreign Account Tax Compliance Act (FATCA), which generally requires a fund to obtain information sufficient to identify the status of each of its shareholders. If a shareholder fails to provide this information or otherwise fails to comply with FATCA, a fund may be required to withhold under FATCA at a rate of 30% with respect to that shareholder on fund distributions and on the proceeds of

the sale, redemption, or exchange of fund shares. Please consult your tax advisor for more information about these rules.

Tax Matters—Tax-Exempt Investors. Income of a fund that would be UBTI if earned directly by a tax-exempt entity will not generally be attributed as UBTI to a tax-exempt shareholder of the fund. Notwithstanding this “blocking” effect, a tax-exempt shareholder could realize UBTI by virtue of its investment in a fund if shares in the fund constitute debt-financed property in the hands of the tax-exempt shareholder within the meaning of IRC Section 514(b).

A tax-exempt shareholder may also recognize UBTI if a fund recognizes “excess inclusion income” derived from direct or indirect investments in residual interests in REMICs or equity interests in TMPs. See “*Tax Matters—Real Estate Mortgage Investment Conduits.*”

In addition, special tax consequences apply to charitable remainder trusts that invest in a fund that invests directly or indirectly in residual interests in REMICs or equity interests in TMPs. Charitable remainder trusts and other tax-exempt investors are urged to consult their tax advisors concerning the consequences of investing in a fund.

Time Deposits. Time deposits are subject to the same risks that pertain to domestic issuers of money market instruments, most notably credit risk (and, to a lesser extent, income risk, market risk, and liquidity risk). Additionally, time deposits of foreign branches of U.S. banks and foreign branches of foreign banks may be subject to certain sovereign risks. One such risk is the possibility that a sovereign country might prevent capital, in the form of U.S. dollars, from flowing across its borders. Other risks include adverse political and economic developments, the extent and quality of government regulation of financial markets and institutions, the imposition of foreign withholding taxes, and expropriation or nationalization of foreign issuers. However, time deposits of such issuers will undergo the same type of credit analysis as domestic issuers in which a Vanguard fund invests and will have at least the same financial strength as the domestic issuers approved for the fund.

Warrants. Warrants are instruments that give the holder the right, but not the obligation, to buy an equity security at a specific price for a specific period of time. Changes in the value of a warrant do not necessarily correspond to changes in the value of its underlying security. The price of a warrant may be more volatile than the price of its underlying security, and a warrant may offer greater potential for capital appreciation as well as capital loss. Warrants do not entitle a holder to dividends or voting rights with respect to the underlying security and do not represent any rights in the assets of the issuing company. A warrant ceases to have value if it is not exercised prior to its expiration date. These factors can make warrants more speculative than other types of investments.

When-Issued, Delayed-Delivery, and Forward-Commitment Transactions. When-issued, delayed-delivery, and forward-commitment transactions involve a commitment to purchase or sell specific securities at a predetermined price or yield in which payment and delivery take place after the customary settlement period for that type of security. Typically, no interest accrues to the purchaser until the security is delivered. When purchasing securities pursuant to one of these transactions, payment for the securities is not required until the delivery date. However, the purchaser assumes the rights and risks of ownership, including the risks of price and yield fluctuations and the risk that the security will not be issued as anticipated. When a fund has sold a security pursuant to one of these transactions, the fund does not participate in further gains or losses with respect to the security. If the other party to a delayed-delivery transaction fails to deliver or pay for the securities, the fund could miss a favorable price or yield opportunity or suffer a loss. A fund may renegotiate a when-issued or forward-commitment transaction and may sell the underlying securities before delivery, which may result in capital gains or losses for the fund. When-issued, delayed-delivery, and forward-commitment transactions will not be considered to constitute the issuance, by a fund, of a “senior security,” as that term is defined in Section 18(g) of the 1940 Act, and therefore such transaction will not be subject to the 300% asset coverage requirement otherwise applicable to borrowings by the fund, if the fund covers the transaction in accordance with the requirements described under the heading “*Borrowing.*”

Sale of Investor Shares of Vanguard Small-Cap Index and Total Stock Market Index Funds in Japan. In connection with the offering of the Investor Shares of the Small-Cap Index and Total Stock Market Index Funds in Japan, the Funds have undertaken to the Japanese Securities Dealers Association that each Fund may not (1) borrow money, except for temporary or emergency purposes in an amount not exceeding 10% of the Fund’s net assets; (2) together with other mutual funds managed by Vanguard, acquire more than 50% of the outstanding voting securities of any issuer; (3) invest more than 15% of its net assets in illiquid securities (which include securities restricted as to resale unless they are determined to be readily marketable in accordance with procedures established by the board of trustees); and (4) sell securities short at any time in excess of its net asset value.

If the undertaking is violated, the Fund will, promptly after discovery, take such action as may be necessary to cause the violation to cease, which shall be the only obligation of the Fund and the only remedy in respect to the violation. This undertaking will remain in effect as long as (1) shares of the Fund are qualified for offer or sale in Japan and (2) the undertaking is required by “Standards of Selection of Foreign Investment Fund Securities” established under the Rules of Foreign Securities Transactions by the Japanese Securities Dealers Association.

SHARE PRICE

Multiple-class funds do not have a single share price. Rather, each class has a share price, called its net asset value, or NAV, that is calculated each business day as of the close of regular trading on the New York Stock Exchange (the Exchange), generally 4 p.m., Eastern time. NAV per share is computed by dividing the total assets, minus liabilities, allocated to the share class by the number of Fund shares outstanding for that class. On U.S. holidays or other days when the Exchange is closed, the NAV is not calculated, and the Funds do not sell or redeem shares. However, on those days the value of a Fund’s assets may be affected to the extent that the Fund holds securities that change in value on those days (such as foreign securities that trade on foreign markets that are open).

The Exchange typically observes the following holidays: New Year’s Day; Martin Luther King, Jr., Day; Presidents’ Day (Washington’s Birthday); Good Friday; Memorial Day; Independence Day; Labor Day; Thanksgiving Day; and Christmas Day. Although each Fund expects the same holidays to be observed in the future, the Exchange may modify its holiday schedule or hours of operation at any time.

PURCHASE AND REDEMPTION OF SHARES

Purchase of Shares (Other than ETF Shares)

The purchase price of shares of each Fund is the NAV per share next determined after the purchase request is received in good order, as defined in the Fund’s prospectus.

Exchange of Securities for Shares of a Fund. Shares of a Fund may be purchased “in kind” (i.e., in exchange for securities, rather than for cash) at the discretion of the Fund’s portfolio manager. Such securities must not be restricted as to transfer and must have a value that is readily ascertainable. Securities accepted by the Fund will be valued, as set forth in the Fund’s prospectus, as of the time of the next determination of NAV after such acceptance. All dividend, subscription, or other rights that are reflected in the market price of accepted securities at the time of valuation become the property of the Fund and must be delivered to the Fund by the investor upon receipt from the issuer. A gain or loss for federal income tax purposes, depending upon the cost of the securities tendered, would be realized by the investor upon the exchange. Investors interested in purchasing fund shares in kind should contact Vanguard.

Redemption of Shares (Other than ETF Shares)

The redemption price of shares of each Fund is the NAV per share next determined after the redemption request is received in good order, as defined in the Fund’s prospectus.

Each Fund can postpone payment of redemption proceeds for up to seven calendar days. In addition, each Fund can suspend redemptions and/or postpone payments of redemption proceeds beyond seven calendar days (1) during any period that the Exchange is closed or trading on the Exchange is restricted as determined by the SEC; (2) during any period when an emergency exists, as defined by the SEC, as a result of which it is not reasonably practicable for the Fund to dispose of securities it owns or to fairly determine the value of its assets; or (3) for such other periods as the SEC may permit.

The Trust has filed a notice of election with the SEC to pay in cash all redemptions requested by any shareholder of record limited in amount during any 90-day period to the lesser of \$250,000 or 1% of the net assets of a Fund at the beginning of such period.

If Vanguard determines that it would be detrimental to the best interests of the remaining shareholders of a Fund to make payment wholly or partly in cash, the Fund may pay the redemption price in whole or in part by a distribution in kind of readily marketable securities held by the Fund in lieu of cash in conformity with applicable rules of the SEC. Investors may incur brokerage charges on the sale of such securities received in payment of redemptions.

The Funds do not charge redemption fees. Shares redeemed may be worth more or less than what was paid for them, depending on the market value of the securities held by the Fund.

Right to Change Policies

Vanguard reserves the right, without notice, to (1) alter, add, or discontinue any conditions of purchase (including eligibility requirements), redemption, exchange, conversion, service, or privilege at any time; (2) accept initial purchases by telephone; (3) freeze any account and/or suspend account services if Vanguard has received reasonable notice of a dispute regarding the assets in an account, including notice of a dispute between the registered or beneficial account owners, or if Vanguard reasonably believes a fraudulent transaction may occur or has occurred; (4) temporarily freeze any account and/or suspend account services upon initial notification to Vanguard of the death of the shareholder until Vanguard receives required documentation in good order; (5) alter, impose, discontinue, or waive any purchase fee, redemption fee, account service fee, or other fees charged to a shareholder or a group of shareholders; and (6) redeem an account or suspend account privileges, without the owner's permission to do so, in cases of threatening conduct or activity Vanguard believes to be suspicious, fraudulent, or illegal. Changes may affect any or all investors. These actions will be taken when, at the sole discretion of Vanguard management, Vanguard reasonably believes they are in the best interest of a fund.

Investing With Vanguard Through Other Firms

Each Fund has authorized certain agents to accept on its behalf purchase and redemption orders, and those agents are authorized to designate other intermediaries to accept purchase and redemption orders on the Fund's behalf (collectively, Authorized Agents). The Fund will be deemed to have received a purchase or redemption order when an Authorized Agent accepts the order in accordance with the Fund's instructions. In most instances, a customer order that is properly transmitted to an Authorized Agent will be priced at the NAV per share next determined after the order is received by the Authorized Agent.

MANAGEMENT OF THE FUNDS

Vanguard

Each Fund is part of the Vanguard group of investment companies, which consists of over 200 funds. Each fund is a series of a Delaware statutory trust, and through the trusts' jointly owned subsidiary, Vanguard, the funds obtain at cost virtually all of their corporate management, administrative, and distribution services. Vanguard also provides investment advisory services on an at-cost basis to certain Vanguard funds.

Vanguard employs a supporting staff of management and administrative personnel needed to provide the requisite services to the funds and also furnishes the funds with necessary office space, furnishings, and equipment. Each fund (other than a fund of funds) pays its share of Vanguard's total expenses, which are allocated among the funds under methods approved by the board of trustees of each fund. In addition, each fund bears its own direct expenses, such as legal, auditing, and custodial fees.

The funds' officers are also employees of Vanguard.

Vanguard, Vanguard Marketing Corporation (VMC), the funds, and the funds' advisors have adopted codes of ethics designed to prevent employees who may have access to nonpublic information about the trading activities of the funds (access persons) from profiting from that information. The codes of ethics permit access persons to invest in securities for their own accounts, including securities that may be held by a fund, but place substantive and procedural restrictions on the trading activities of access persons. For example, the codes of ethics require that access persons receive advance approval for most securities trades to ensure that there is no conflict with the trading activities of the funds.

Vanguard was established and operates under an Amended and Restated Funds' Service Agreement. The Amended and Restated Funds' Service Agreement provides that each Vanguard fund may be called upon to invest up to 0.40% of its net assets in Vanguard. The amounts that each fund has invested are adjusted from time to time in order to maintain the proportionate relationship between each fund's relative net assets and its contribution to Vanguard's capital.

As of December 31, 2017, each Fund had contributed capital to Vanguard as follows:

Vanguard Fund	Capital Contribution to Vanguard	Percentage of Fund's Average Net Assets	Percent of Vanguard's Capitalization
Total Stock Market Index Fund	\$36,381,000	0.01%	14.55%
500 Index Fund	21,207,000	0.01	8.48
Extended Market Index Fund	3,466,000	0.01	1.39
Large-Cap Index Fund	1,019,000	0.01	0.41
Mid-Cap Index Fund	5,190,000	0.01	2.08
Small-Cap Index Fund	4,637,000	0.01	1.85
Value Index Fund	3,524,000	0.01	1.41
Mid-Cap Value Index Fund	928,000	0.01	0.37
Small-Cap Value Index Fund	1,629,000	0.01	0.65
Growth Index Fund	4,023,000	0.01	1.61
Mid-Cap Growth Index Fund	626,000	0.01	0.25
Small-Cap Growth Index Fund	1,171,000	0.01	0.47

Management. Corporate management and administrative services include (1) executive staff, (2) accounting and financial, (3) legal and regulatory, (4) shareholder account maintenance, (5) monitoring and control of custodian relationships, (6) shareholder reporting, and (7) review and evaluation of advisory and other services provided to the funds by third parties.

Distribution. Vanguard Marketing Corporation, 100 Vanguard Boulevard, Malvern, PA 19355, a wholly owned subsidiary of Vanguard, is the principal underwriter for the funds and in that capacity performs and finances marketing, promotional, and distribution activities (collectively, marketing and distribution activities) that are primarily intended to result in the sale of the funds' shares. VMC offers shares of each fund for sale on a continuous basis and will use all reasonable efforts in connection with the distribution of shares of the funds. VMC performs marketing and distribution activities at cost in accordance with the conditions of a 1981 SEC exemptive order that permits the Vanguard funds to internalize and jointly finance the marketing, promotion, and distribution of their shares. The funds' trustees review and approve the marketing and distribution expenses incurred by the funds, including the nature and cost of the activities and the desirability of each fund's continued participation in the joint arrangement.

To ensure that each fund's participation in the joint arrangement falls within a reasonable range of fairness, each fund contributes to VMC's marketing and distribution expenses in accordance with an SEC-approved formula. Under that formula, one half of the marketing and distribution expenses are allocated among the funds based upon their relative net assets. The remaining half of those expenses are allocated among the funds based upon each fund's sales for the preceding 24 months relative to the total sales of the funds as a group, provided, however, that no fund's aggregate quarterly rate of contribution for marketing and distribution expenses shall exceed 125% of the average marketing and distribution expense rate for Vanguard and that no fund shall incur annual marketing and distribution expenses in excess of 0.20% of its average month-end net assets. Each fund's contribution to these marketing and distribution expenses helps to maintain and enhance the attractiveness and viability of the Vanguard complex as a whole, which benefits all of the funds and their shareholders.

VMC's principal marketing and distribution expenses are for advertising, promotional materials, and marketing personnel. Other marketing and distribution activities of an administrative nature that VMC undertakes on behalf of the funds may include, but are not limited to:

- Conducting or publishing Vanguard-generated research and analysis concerning the funds, other investments, the financial markets, or the economy.
- Providing views, opinions, advice, or commentary concerning the funds, other investments, the financial markets, or the economy.
- Providing analytical, statistical, performance, or other information concerning the funds, other investments, the financial markets, or the economy.
- Providing administrative services in connection with investments in the funds or other investments, including, but not limited to, shareholder services, recordkeeping services, and educational services.

- Providing products or services that assist investors or financial service providers (as defined below) in the investment decision-making process.
- Providing promotional discounts, commission-free trading, fee waivers, and other benefits to clients of Vanguard Brokerage Services® who maintain qualifying investments in the funds.
- Sponsoring, jointly sponsoring, financially supporting, or participating in conferences, programs, seminars, presentations, meetings, or other events involving fund shareholders, financial service providers, or others concerning the funds, other investments, the financial markets, or the economy, such as industry conferences, prospecting trips, due diligence visits, training or education meetings, and sales presentations.

VMC performs most marketing and distribution activities itself. Some activities may be conducted by third parties pursuant to shared marketing arrangements under which VMC agrees to share the costs and performance of marketing and distribution activities in concert with a financial service provider. Financial service providers include, but are not limited to, investment advisors, broker-dealers, financial planners, financial consultants, banks, and insurance companies. Under these cost- and performance-sharing arrangements, VMC may pay or reimburse a financial service provider (or a third party it retains) for marketing and distribution activities that VMC would otherwise perform. VMC's cost- and performance-sharing arrangements may be established in connection with Vanguard investment products or services offered or provided to or through the financial service providers. VMC's arrangements for shared marketing and distribution activities may vary among financial service providers, and its payments or reimbursements to financial service providers in connection with shared marketing and distribution activities may be significant. VMC participates in an offshore arrangement established with a third party to provide marketing, promotional, and other services to qualifying Vanguard funds that are distributed in certain foreign countries on a private-placement basis to government-sponsored and other institutional investors. In exchange for such services, the third party receives an annual base (fixed) fee and may also receive discretionary fees or performance adjustments.

In connection with its marketing and distribution activities, VMC may give financial service providers (or their representatives) (1) promotional items of nominal value that display Vanguard's logo, such as golf balls, shirts, towels, pens, and mouse pads; (2) gifts that do not exceed \$100 per person annually and are not preconditioned on achievement of a sales target; (3) an occasional meal, a ticket to a sporting event or the theater, or comparable entertainment that is neither so frequent nor so extensive as to raise any question of propriety and is not preconditioned on achievement of a sales target; and (4) reasonable travel and lodging accommodations to facilitate participation in marketing and distribution activities.

VMC, as a matter of policy, does not pay asset-based fees, sales-based fees, or account-based fees to financial service providers in connection with its marketing and distribution activities for the Vanguard funds. VMC policy also prohibits marketing and distribution activities that are intended, designed, or likely to compromise suitability determinations by, or the fulfillment of any fiduciary duties or other obligations that apply to, financial service providers. Nonetheless, VMC's marketing and distribution activities are primarily intended to result in the sale of the funds' shares, and as such, its activities, including shared marketing and distribution activities, may influence participating financial service providers (or their representatives) to recommend, promote, include, or invest in a Vanguard fund or share class. In addition, Vanguard or any of its subsidiaries may retain a financial service provider to provide consulting or other services, and that financial service provider also may provide services to investors. Investors should consider the possibility that any of these activities or relationships may influence a financial service provider's (or its representatives') decision to recommend, promote, include, or invest in a Vanguard fund or share class. Each financial service provider should consider its suitability determinations, fiduciary duties, and other legal obligations (or those of its representatives) in connection with any decision to consider, recommend, promote, include, or invest in a Vanguard fund or share class.

The following table describes the expenses of Vanguard and VMC that are incurred by the Funds on an at-cost basis. Amounts captioned "Management and Administrative Expenses" include a Fund's allocated share of expenses associated with the management, administrative, and transfer agency services Vanguard provides to the Vanguard funds. Amounts captioned "Marketing and Distribution Expenses" include a Fund's allocated share of expenses associated with the marketing and distribution activities that VMC conducts on behalf of the Vanguard funds.

As is the case with all mutual funds, transaction costs incurred by the Funds for buying and selling securities are not reflected in the table. Annual Shared Fund Operating Expenses are based on expenses incurred in the fiscal years ended December 31, 2015, 2016, and 2017, and are presented as a percentage of each Fund's average month-end net assets.

**Annual Shared Fund Operating Expenses
(Shared Expenses Deducted From Fund Assets)**

Vanguard Fund	2015	2016	2017
Total Stock Market Index Fund			
Management and Administrative Expenses	0.06%	0.05%	0.05%
Marketing and Distribution Expenses	0.01	0.01	0.01
500 Index Fund			
Management and Administrative Expenses	0.05%	0.04%	0.04%
Marketing and Distribution Expenses	0.01	0.01	0.01
Extended Market Index Fund			
Management and Administrative Expenses	0.06%	0.06%	0.06%
Marketing and Distribution Expenses	0.01	0.01	less than 0.01
Large-Cap Index Fund			
Management and Administrative Expenses	0.07%	0.05%	0.04%
Marketing and Distribution Expenses	0.01	0.01	0.01
Mid-Cap Index Fund			
Management and Administrative Expenses	0.07%	0.05%	0.04%
Marketing and Distribution Expenses	0.01	0.01	0.01
Small-Cap Index Fund			
Management and Administrative Expenses	0.07%	0.05%	0.04%
Marketing and Distribution Expenses	0.01	0.01	0.01
Value Index Fund			
Management and Administrative Expenses	0.07%	0.05%	0.04%
Marketing and Distribution Expenses	0.01	0.01	0.01
Mid-Cap Value Index Fund			
Management and Administrative Expenses	0.07%	0.06%	0.06%
Marketing and Distribution Expenses	0.01	0.01	0.01
Small-Cap Value Index Fund			
Management and Administrative Expenses	0.07%	0.07%	0.06%
Marketing and Distribution Expenses	0.01	0.01	0.01
Growth Index Fund			
Management and Administrative Expenses	0.07%	0.05%	0.04%
Marketing and Distribution Expenses	0.01	0.01	0.01
Mid-Cap Growth Index Fund			
Management and Administrative Expenses	0.07%	0.06%	0.06%
Marketing and Distribution Expenses	0.01	0.01	0.01
Small-Cap Growth Index Fund			
Management and Administrative Expenses	0.07%	0.07%	0.06%
Marketing and Distribution Expenses	0.01	0.01	0.01

Officers and Trustees

Each Vanguard fund is governed by the board of trustees of its trust and a single set of officers. Consistent with the board's corporate governance principles, the trustees believe that their primary responsibility is oversight of the management of each fund for the benefit of its shareholders, not day-to-day management. The trustees set broad policies for the funds; select investment advisors; monitor fund operations, regulatory compliance, performance, and costs; nominate and select new trustees; and elect fund officers. Vanguard manages the day-to-day operations of the funds under the direction of the board of trustees.

The trustees play an active role, as a full board and at the committee level, in overseeing risk management for the funds. The trustees delegate the day-to-day risk management of the funds to various groups, including portfolio review, investment management, risk management, compliance, legal, fund accounting, and fund financial services. These groups provide the trustees with regular reports regarding investment, valuation, liquidity, and compliance, as well as the risks associated with each. The trustees also oversee risk management for the funds through regular interactions with the funds' internal and external auditors.

The full board participates in the funds' risk oversight, in part, through the Vanguard funds' compliance program, which covers the following broad areas of compliance: investment and other operations; recordkeeping; valuation and pricing; communications and disclosure; reporting and accounting; oversight of service providers; fund governance; and codes of ethics, insider trading controls, and protection of nonpublic information. The program seeks to identify and assess risk through various methods, including through regular interdisciplinary communications between compliance professionals and business personnel who participate on a daily basis in risk management on behalf of the funds. The funds' chief compliance officer regularly provides reports to the board in writing and in person.

The audit committee of the board, which is composed of JoAnn Heffernan Heisen, F. Joseph Loughrey, Mark Loughridge, Sarah Bloom Raskin, and Peter F. Volanakis, each of whom is an independent trustee, oversees management of financial risks and controls. The audit committee serves as the channel of communication between the independent auditors of the funds and the board with respect to financial statements and financial reporting processes, systems of internal control, and the audit process. Vanguard's head of internal audit reports directly to the audit committee and provides reports to the committee in writing and in person on a regular basis. Although the audit committee is responsible for overseeing the management of financial risks, the entire board is regularly informed of these risks through committee reports.

All of the trustees bring to each fund's board a wealth of executive leadership experience derived from their service as executives (in many cases chief executive officers), board members, and leaders of diverse public operating companies, academic institutions, and other organizations. In determining whether an individual is qualified to serve as a trustee of the funds, the board considers a wide variety of information about the trustee, and multiple factors contribute to the board's decision. Each trustee is determined to have the experience, skills, and attributes necessary to serve the funds and their shareholders because each trustee demonstrates an exceptional ability to consider complex business and financial matters, evaluate the relative importance and priority of issues, make decisions, and contribute effectively to the deliberations of the board. The board also considers the individual experience of each trustee and determines that the trustee's professional experience, education, and background contribute to the diversity of perspectives on the board. The business acumen, experience, and objective thinking of the trustees are considered invaluable assets for Vanguard management and, ultimately, the Vanguard funds' shareholders. The specific roles and experience of each board member that factor into this determination are presented on the following pages. The mailing address of the trustees and officers is P.O. Box 876, Valley Forge, PA 19482.

Name, Year of Birth	Position(s) Held With Funds	Vanguard Funds' Trustee/ Officer Since	Principal Occupation(s) During the Past Five Years, Outside Directorships, and Other Experience	Number of Vanguard Funds Overseen by Trustee/Officer
Interested Trustees¹				
F. William McNabb III (1957)	Chairman of the Board	July 2009	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 of 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.	208

Name, Year of Birth	Position(s) Held With Funds	Vanguard Funds' Trustee/ Officer Since	Principal Occupation(s) During the Past Five Years, Outside Directorships, and Other Experience	Number of Vanguard Funds Overseen by Trustee/Officer
Mortimer J. Buckley (1969)	Chief Executive Officer and President	January 2018	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.	208

1 Mr. McNabb and Mr. Buckley are considered "interested persons," as defined in the 1940 Act, because they are officers of the Trust.

Independent Trustees

Emerson U. Fullwood (1948)	Trustee	January 2008	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.	208
Amy Gutmann (1949)	Trustee	June 2006	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.	208
JoAnn Heffernan Heisen (1950)	Trustee	July 1998	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.	208

Name, Year of Birth	Position(s) Held With Funds	Vanguard Funds' Trustee/ Officer Since	Principal Occupation(s) During the Past Five Years, Outside Directorships, and Other Experience	Number of Vanguard Funds Overseen by Trustee/Officer
F. Joseph Loughrey (1949)	Trustee	October 2009	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.	208
Mark Loughridge (1953)	Lead Independent Trustee	March 2012	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.	208
Scott C. Malpass (1962)	Trustee	March 2012	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.	208
Deanna Mulligan (1963)	Trustee	January 2018	President (2010–present) and chief executive officer (2011–present) of The Guardian Life Insurance Company of America. ² 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.	208
André F. Perold (1952)	Trustee	December 2004	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.	208

Name, Year of Birth	Position(s) Held With Funds	Vanguard Funds' Trustee/ Officer Since	Principal Occupation(s) During the Past Five Years, Outside Directorships, and Other Experience	Number of Vanguard Funds Overseen by Trustee/Officer
Sarah Bloom Raskin (1961)	Trustee	January 2018	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.	208
Peter F. Volanakis (1955)	Trustee	July 2009	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).	208

2 Guardian Life provides group insurance and administrative services for employee benefits such as group life, dental, vision, and disability coverage to two advisors, each of which manages one or more of the Vanguard funds. Amounts paid by these advisors to Guardian Life for such insurance and services were less than 0.006% of Guardian Life's premium revenues in each of 2015 and 2016. Park Avenue Securities (PAS) is an indirect, wholly owned subsidiary of Guardian Life and a dually registered broker-dealer and investment advisor. From time to time, PAS receives payments related to the sale of certain non-Vanguard mutual funds advised by firms that also advise certain Vanguard funds. In 2016, these payments amounted to less than 0.15% of PAS' revenues and PAS' earnings comprised less than 1% of Guardian Life's pre-tax earnings. Deanna Mulligan is not an officer or director of PAS.

Executive Officers

Glenn Booraem (1967)	Investment Stewardship Officer	February 2001	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.	208
Christine M. Buchanan (1970)	Treasurer	November 2017	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).	208
Brian Dvorak (1973)	Chief Compliance Officer	June 2017	Principal of Vanguard. Chief compliance officer (2017–present) of Vanguard and of 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.	208
Thomas J. Higgins (1957)	Chief Financial Officer	July 1998	Principal of Vanguard. Chief financial officer (2008–present) and treasurer (1998–2008) of each of the investment companies served by Vanguard.	208
Peter Mahoney (1974)	Controller	May 2015	Principal of Vanguard. Controller (2015–present) of each of the investment companies served by Vanguard. Head of International Fund Services (2008–2014) at Vanguard.	208

Name, Year of Birth	Position(s) Held With Funds	Vanguard Funds' Trustee/ Officer Since	Principal Occupation(s) During the Past Five Years, Outside Directorships, and Other Experience	Number of Vanguard Funds Overseen by Trustee/Officer
Anne E. Robinson (1970)	Secretary	September 2016	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.	208
Michael Rollings (1963)	Finance Director	February 2017	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.	208

All but two of the trustees are independent. The independent trustees designate a lead independent trustee and appoint the chairman of the board. The lead independent trustee is a spokesperson and principal point of contact for the independent trustees and is responsible for coordinating the activities of the independent trustees, including calling regular executive sessions of the independent trustees; developing the agenda of each meeting together with the chairman; and chairing the meetings of the independent trustees. The lead independent trustee also chairs the meetings of the audit, compensation, and nominating committees. The board also has two investment committees, which consist of independent trustees and the interested trustees.

Board Committees: The Trust's board has the following committees:

- **Audit Committee:** This committee oversees the accounting and financial reporting policies, the systems of internal controls, and the independent audits of each fund. The following independent trustees serve as members of the committee: Ms. Heisen, Mr. Loughrey, Mr. Loughridge, Ms. Raskin, and Mr. Volanakis. The committee held six meetings during the Funds' fiscal year ended December 31, 2017.
- **Compensation Committee:** This committee oversees the compensation programs established by each fund for the benefit of its trustees. All independent trustees serve as members of the committee. The committee held one meeting during the Funds' fiscal year ended December 31, 2017.
- **Investment Committees:** These committees assist the board in its oversight of investment advisors to the funds and in the review and evaluation of materials relating to the board's consideration of investment advisory agreements with the funds. Each trustee serves on one of two investment committees. Each investment committee held four meetings during the Funds' fiscal year ended December 31, 2017.
- **Nominating Committee:** This committee nominates candidates for election to the board of trustees of each fund. The committee also has the authority to recommend the removal of any trustee. All independent trustees serve as members of the committee. The committee held three meetings during the Funds' fiscal year ended December 31, 2017.

The Nominating Committee will consider shareholder recommendations for trustee nominees. Shareholders may send recommendations to Mr. Loughridge, chairman of the committee.

Trustee Compensation

The same individuals serve as trustees of all Vanguard funds and each fund pays a proportionate share of the trustees' compensation. Vanguard funds also employ their officers on a shared basis; however, officers are compensated by Vanguard, not the funds.

Independent Trustees. The funds compensate their independent trustees (i.e., the ones who are not also officers of the funds) in three ways:

- The independent trustees receive an annual fee for their service to the funds, which is subject to reduction based on absences from scheduled board meetings.
- The independent trustees are reimbursed for the travel and other expenses that they incur in attending board meetings.
- Upon retirement (after attaining age 65 and completing five years of service), the independent trustees who began their service prior to January 1, 2001, receive a retirement benefit under a separate account arrangement. As of January 1, 2001, the opening balance of each eligible trustee's separate account was generally equal to the net present value of the benefits he or she had accrued under the trustees' former retirement plan. Each eligible trustee's separate account will be credited annually with interest at a rate of 7.5% until the trustee receives his or her final distribution. Those independent trustees who began their service on or after January 1, 2001, are not eligible to participate in the plan.

"Interested" Trustees. Mr. McNabb and Mr. Buckley serve as trustees, but are not paid in this capacity. They are, however, paid in their roles as officers of Vanguard.

Compensation Table. The following table provides compensation details for each of the trustees. We list the amounts paid as compensation and accrued as retirement benefits by the Funds for each trustee. In addition, the table shows the total amount of benefits that we expect each trustee to receive from all Vanguard funds upon retirement and the total amount of compensation paid to each trustee by all Vanguard funds.

VANGUARD INDEX FUNDS TRUSTEES' COMPENSATION TABLE

Trustee	Aggregate Compensation From the Funds ¹	Pension or Retirement Benefits Accrued as Part of the Funds' Expenses ¹	Accrued Annual Retirement Benefit at January 1, 2018 ²	Total Compensation From All Vanguard Funds Paid to Trustees ³
F. William McNabb III	—	—	—	—
Mortimer J. Buckley ⁴	—	—	—	—
Emerson U. Fullwood	\$95,075	—	—	\$244,000
Rajiv L. Gupta ⁵	102,284	—	—	262,500
Amy Gutmann	95,075	—	—	244,000
JoAnn Heffernan Heisen	102,868	\$1,402	\$8,073	264,000
F. Joseph Loughrey	102,868	—	—	264,000
Mark Loughridge	115,340	—	—	296,000
Scott C. Malpass	92,359	—	—	237,030
Deanna Mulligan ⁴	—	—	—	—
André F. Perold	95,075	—	—	244,000
Sarah Bloom Raskin ⁴	—	—	—	—
Peter F. Volanakis	102,868	—	—	264,000

1 The amounts shown in this column are based on the Trust's fiscal year ended December 31, 2017. Each Fund within the Trust is responsible for a proportionate share of these amounts.

2 Each trustee is eligible to receive retirement benefits only after completing at least 5 years (60 consecutive months) of service as a trustee for the Vanguard funds. The annual retirement benefit will be paid in monthly installments, beginning with the month following the trustee's retirement from service, and will cease after 10 years of payments (120 monthly installments). Trustees who began their service on or after January 1, 2001, are not eligible to participate in the retirement benefit plan.

3 The amounts reported in this column reflect the total compensation paid to each trustee for his or her service as trustee of 201 Vanguard funds for the 2017 calendar year.

4 Mr. Buckley, Ms. Mulligan, and Ms. Raskin became members of the Funds' board effective January 1, 2018.

5 Mr. Gupta retired from the Funds' board effective December 31, 2017.

Ownership of Fund Shares

All current trustees (including Mr. Buckley, Ms. Mulligan, and Ms. Raskin, who began service as trustees effective January 1, 2018) allocate their investments among the various Vanguard funds based on their own investment needs. The following table shows each trustee's ownership of shares of each Fund and of all Vanguard funds served by the trustee as of December 31, 2017.

Vanguard Fund	Trustee	Dollar Range of Fund Shares Owned by Trustee	Aggregate Dollar Range of Vanguard Fund Shares Owned by Trustee
Total Stock Market Index Fund	Mortimer J. Buckley	Over \$100,000	Over \$100,000
	Emerson U. Fullwood	Over \$100,000	Over \$100,000
	Amy Gutmann	Over \$100,000	Over \$100,000
	JoAnn Heffernan Heisen	Over \$100,000	Over \$100,000
	F. Joseph Loughrey	Over \$100,000	Over \$100,000
	Mark Loughridge	Over \$100,000	Over \$100,000
	Scott C. Malpass	Over \$100,000	Over \$100,000
	F. William McNabb III	Over \$100,000	Over \$100,000
	Deanna Mulligan	—	Over \$100,000
	André F. Perold	—	Over \$100,000
	Sarah Bloom Raskin	—	Over \$100,000
	Peter F. Volanakis	Over \$100,000	Over \$100,000
	500 Index Fund	Mortimer J. Buckley	—
Emerson U. Fullwood		Over \$100,000	Over \$100,000
Amy Gutmann		Over \$100,000	Over \$100,000
JoAnn Heffernan Heisen		Over \$100,000	Over \$100,000
F. Joseph Loughrey		—	Over \$100,000
Mark Loughridge		—	Over \$100,000
Scott C. Malpass		—	Over \$100,000
F. William McNabb III		—	Over \$100,000
Deanna Mulligan		—	Over \$100,000
André F. Perold		—	Over \$100,000
Sarah Bloom Raskin		—	Over \$100,000
Peter F. Volanakis		—	Over \$100,000
Extended Market Index Fund		Mortimer J. Buckley	—
	Emerson U. Fullwood	Over \$100,000	Over \$100,000
	Amy Gutmann	Over \$100,000	Over \$100,000
	JoAnn Heffernan Heisen	—	Over \$100,000
	F. Joseph Loughrey	Over \$100,000	Over \$100,000
	Mark Loughridge	—	Over \$100,000
	Scott C. Malpass	Over \$100,000	Over \$100,000
	F. William McNabb III	—	Over \$100,000
	Deanna Mulligan	—	Over \$100,000
	André F. Perold	—	Over \$100,000
	Sarah Bloom Raskin	—	Over \$100,000
	Peter F. Volanakis	—	Over \$100,000

Vanguard Fund	Trustee	Dollar Range of Fund Shares Owned by Trustee	Aggregate Dollar Range of Vanguard Fund Shares Owned by Trustee
Large-Cap Index Fund	Mortimer J. Buckley	—	Over \$100,000
	Emerson U. Fullwood	—	Over \$100,000
	Amy Gutmann	—	Over \$100,000
	JoAnn Heffernan Heisen	—	Over \$100,000
	F. Joseph Loughrey	—	Over \$100,000
	Mark Loughridge	—	Over \$100,000
	Scott C. Malpass	Over \$100,000	Over \$100,000
	F. William McNabb III	—	Over \$100,000
	Deanna Mulligan	—	Over \$100,000
	André F. Perold	—	Over \$100,000
	Sarah Bloom Raskin	\$10,001–\$50,000	Over \$100,000
	Peter F. Volanakis	—	Over \$100,000
Mid-Cap Index Fund	Mortimer J. Buckley	—	Over \$100,000
	Emerson U. Fullwood	—	Over \$100,000
	Amy Gutmann	—	Over \$100,000
	JoAnn Heffernan Heisen	—	Over \$100,000
	F. Joseph Loughrey	—	Over \$100,000
	Mark Loughridge	—	Over \$100,000
	Scott C. Malpass	—	Over \$100,000
	F. William McNabb III	—	Over \$100,000
	Deanna Mulligan	Over \$100,000	Over \$100,000
	André F. Perold	—	Over \$100,000
	Sarah Bloom Raskin	Over \$100,000	Over \$100,000
	Peter F. Volanakis	—	Over \$100,000
Small-Cap Index Fund	Mortimer J. Buckley	Over \$100,000	Over \$100,000
	Emerson U. Fullwood	Over \$100,000	Over \$100,000
	Amy Gutmann	—	Over \$100,000
	JoAnn Heffernan Heisen	Over \$100,000	Over \$100,000
	F. Joseph Loughrey	—	Over \$100,000
	Mark Loughridge	—	Over \$100,000
	Scott C. Malpass	—	Over \$100,000
	F. William McNabb III	Over \$100,000	Over \$100,000
	Deanna Mulligan	—	Over \$100,000
	André F. Perold	—	Over \$100,000
	Sarah Bloom Raskin	Over \$100,000	Over \$100,000
	Peter F. Volanakis	—	Over \$100,000
Value Index Fund	Mortimer J. Buckley	—	Over \$100,000
	Emerson U. Fullwood	—	Over \$100,000
	Amy Gutmann	Over \$100,000	Over \$100,000
	JoAnn Heffernan Heisen	—	Over \$100,000
	F. Joseph Loughrey	—	Over \$100,000
	Mark Loughridge	—	Over \$100,000
	Scott C. Malpass	—	Over \$100,000
	F. William McNabb III	—	Over \$100,000
	Deanna Mulligan	—	Over \$100,000
	André F. Perold	—	Over \$100,000
	Sarah Bloom Raskin	\$10,001–\$50,000	Over \$100,000
	Peter F. Volanakis	—	Over \$100,000

Vanguard Fund	Trustee	Dollar Range of Fund Shares Owned by Trustee	Aggregate Dollar Range of Vanguard Fund Shares Owned by Trustee
Mid-Cap Value Index Fund	Mortimer J. Buckley	—	Over \$100,000
	Emerson U. Fullwood	—	Over \$100,000
	Amy Gutmann	—	Over \$100,000
	JoAnn Heffernan Heisen	—	Over \$100,000
	F. Joseph Loughrey	—	Over \$100,000
	Mark Loughridge	—	Over \$100,000
	Scott C. Malpass	—	Over \$100,000
	F. William McNabb III	—	Over \$100,000
	Deanna Mulligan	—	Over \$100,000
	André F. Perold	—	Over \$100,000
	Sarah Bloom Raskin	—	Over \$100,000
Peter F. Volanakis	—	Over \$100,000	
Small-Cap Value Index Fund	Mortimer J. Buckley	—	Over \$100,000
	Emerson U. Fullwood	—	Over \$100,000
	Amy Gutmann	—	Over \$100,000
	JoAnn Heffernan Heisen	—	Over \$100,000
	F. Joseph Loughrey	—	Over \$100,000
	Mark Loughridge	—	Over \$100,000
	Scott C. Malpass	—	Over \$100,000
	F. William McNabb III	—	Over \$100,000
	Deanna Mulligan	—	Over \$100,000
	André F. Perold	—	Over \$100,000
	Sarah Bloom Raskin	—	Over \$100,000
Peter F. Volanakis	—	Over \$100,000	
Growth Index Fund	Mortimer J. Buckley	—	Over \$100,000
	Emerson U. Fullwood	—	Over \$100,000
	Amy Gutmann	Over \$100,000	Over \$100,000
	JoAnn Heffernan Heisen	—	Over \$100,000
	F. Joseph Loughrey	—	Over \$100,000
	Mark Loughridge	—	Over \$100,000
	Scott C. Malpass	—	Over \$100,000
	F. William McNabb III	—	Over \$100,000
	Deanna Mulligan	—	Over \$100,000
	André F. Perold	—	Over \$100,000
	Sarah Bloom Raskin	\$50,001–\$100,000	Over \$100,000
Peter F. Volanakis	Over \$100,000	Over \$100,000	
Mid-Cap Growth Index Fund	Mortimer J. Buckley	—	Over \$100,000
	Emerson U. Fullwood	—	Over \$100,000
	Amy Gutmann	—	Over \$100,000
	JoAnn Heffernan Heisen	Over \$100,000	Over \$100,000
	F. Joseph Loughrey	—	Over \$100,000
	Mark Loughridge	—	Over \$100,000
	Scott C. Malpass	—	Over \$100,000
	F. William McNabb III	—	Over \$100,000
	Deanna Mulligan	—	Over \$100,000
	André F. Perold	—	Over \$100,000
	Sarah Bloom Raskin	—	Over \$100,000
Peter F. Volanakis	—	Over \$100,000	

Vanguard Fund	Trustee	Dollar Range of Fund Shares Owned by Trustee	Aggregate Dollar Range of Vanguard Fund Shares Owned by Trustee
Small-Cap Growth Index Fund	Mortimer J. Buckley	—	Over \$100,000
	Emerson U. Fullwood	\$10,001–\$50,000	Over \$100,000
	Amy Gutmann	—	Over \$100,000
	JoAnn Heffernan Heisen	—	Over \$100,000
	F. Joseph Loughrey	—	Over \$100,000
	Mark Loughridge	—	Over \$100,000
	Scott C. Malpass	—	Over \$100,000
	F. William McNabb III	—	Over \$100,000
	Deanna Mulligan	—	Over \$100,000
	André F. Perold	—	Over \$100,000
	Sarah Bloom Raskin	—	Over \$100,000
	Peter F. Volanakis	Over \$100,000	Over \$100,000

As of March 31, 2018, the trustees and officers of the funds owned, in the aggregate, less than 1% of each class of each fund's outstanding shares.

As of March 31, 2018, the following owned of record 5% or more of the outstanding shares of each class (other than ETF Shares):

Vanguard Total Stock Market Index Fund—Investor Shares: Vanguard Target Retirement 2035 Fund, Valley Forge, PA (11.82%), Vanguard Target Retirement 2025 Fund, Valley Forge, PA (11.73%), Vanguard Target Retirement 2030 Fund, Valley Forge, PA (11.11%), Vanguard Target Retirement 2040 Fund, Valley Forge, PA (9.82%), Vanguard Target Retirement 2045 Fund, Valley Forge, PA (9.47%), Vanguard Target Retirement 2020 Fund, Valley Forge, PA (8.21%), Vanguard Target Retirement 2050 Fund, Valley Forge, PA (6.40%), Vanguard LifeStrategy Growth Fund, Valley Forge, PA (5.45%); Vanguard Total Stock Market Index Fund—Institutional Shares: Vanguard Institutional Target Retirement 2035 Fund, Valley Forge, PA (8.50%), Vanguard Institutional Target Retirement 2030 Fund, Valley Forge, PA (8.38%), Vanguard Institutional Target Retirement 2025 Fund, Valley Forge, PA (8.28%), Vanguard Institutional Target Retirement 2040 Fund, Valley Forge, PA (7.98%), Vanguard Institutional Target Retirement 2045 Fund, Valley Forge, PA (6.88%), Vanguard Institutional Target Retirement 2020 Fund, Valley Forge, PA (5.69%); Vanguard Total Stock Market Index Fund—Institutional Plus Shares: Vanguard Target Retirement 2035 Trust, Valley Forge, PA (12.40%), Vanguard Target Retirement 2030 Trust, Valley Forge, PA (12.22%), Vanguard Target Retirement 2025 Trust, Valley Forge, PA (11.73%), Vanguard Target Retirement 2040 Trust, Valley Forge, PA (11.09%), Vanguard Target Retirement 2045 Trust, Valley Forge, PA (10.22%), Vanguard Target Retirement 2020 Trust, Valley Forge, PA (7.41%), Vanguard Target Retirement 2050 Trust, Valley Forge, PA (7.24%); Vanguard Total Stock Market Index Fund—Institutional Select Shares: Vanguard Institutional Total Stock Market Index Trust, Valley Forge, PA (99.99%); Vanguard 500 Index Fund—Investor Shares: Charles Schwab & Co., Inc., San Francisco, CA (17.27%), National Financial Services LLC, Jersey City, NJ (13.13%); Vanguard 500 Index Fund—Admiral Shares: Charles Schwab & Co., Inc., San Francisco, CA (5.90%); Vanguard 500 Index Fund—Institutional Select Shares: Institutional 500 Index Trust, Valley Forge, PA (99.94%); Vanguard Extended Market Index Fund—Investor Shares: Charles Schwab & Co., Inc., San Francisco, CA (12.87%), National Financial Services LLC, Jersey City, NJ (11.07%); Vanguard Extended Market Index Fund—Institutional Shares: Fidelity Investments Institutional Operations Company, Inc. (FIIOC), Covington, KY (21.71%), TIAA FSB, Saint Louis, MO (9.25%), Charles Schwab & Co., Inc., San Francisco, CA (7.41%); Vanguard Extended Market Index Fund—Institutional Plus Shares: Fidelity Investments Institutional Operations Company, Inc. (FIIOC), Covington, KY (19.53%), TIAA FSB, Saint Louis, MO (6.67%), MAC & Co. A/C 717018 Medtronic Defined Contribution Plan Master Trust, Pittsburgh, PA (7.61%), Mitra & Co., Green Bay, WI (5.04%); Vanguard Extended Market Index Fund—Institutional Select Shares: Vanguard Institutional Extended Market Index Trust, Valley Forge, PA (99.99%); Vanguard Large-Cap Index Fund—Investor Shares: Charles Schwab & Co., Inc., San Francisco, CA (17.00%), National Financial Services LLC, Jersey City, NJ (13.73%); Vanguard Large-Cap Index Fund—Admiral Shares: Charles Schwab & Co., Inc., San Francisco, CA (10.37%), National Financial Services LLC, Jersey City, NJ (6.76%); Vanguard Large-Cap Index Fund—Institutional Shares: Mac & Co. A/C 866757, Pittsburgh, PA (13.05%), Prudential Investment Management Svcs LLC TR Plumbers Local Union No. 1 Joint Plumbing Industry Board, Long Island City, NY (8.17%), Merrill Lynch, Pierce Fenner & Smith Inc., Jacksonville, FL (7.82%), National Financial Services LLC, Jersey City, NJ (6.65%), Mac & Co. A/C 867257, Pittsburgh, PA (6.36%), SEI Private Trust Company, Oaks, PA

(5.92%), Charles Schwab & Co., Inc., San Francisco, CA (5.11%), Pershing LLC, Jersey City, NJ (5.28%); Vanguard Mid-Cap Index Fund—Investor Shares: Charles Schwab & Co., Inc., San Francisco, CA (14.35%), National Financial Services LLC, Jersey City, NJ (11.78%); Vanguard Mid-Cap Index Fund—Admiral Shares: Charles Schwab & Co., Inc., San Francisco, CA (7.98%); Vanguard Mid-Cap Index Fund—Institutional Shares: Fidelity Investments Institutional Operations Company, Inc. (FIIOC), Covington, KY (14.05%), Charles Schwab & Co., Inc., San Francisco, CA (6.55%); Vanguard Mid-Cap Index Fund—Institutional Plus Shares: Fidelity Investments Institutional Operations Company, Inc. (FIIOC), Covington, KY (21.67%), NY College Savings Program, Newton, MA (9.15%), Northern Trust Co FBO Accenture-DV, Chicago, IL (6.41%), Mac & Co. A/C 286811, Pittsburgh, PA (6.09%), State Street Corporation, Boston, MA (5.23%); Vanguard Small-Cap Index Fund—Investor Shares: Charles Schwab & Co., Inc., San Francisco, CA (17.91%), National Financial Services LLC, Jersey City, NJ (12.17%); Vanguard Small-Cap Index Fund—Admiral Shares: Charles Schwab & Co., Inc., San Francisco, CA (7.32%); Vanguard Small-Cap Index Fund—Institutional Shares: Fidelity Investments Institutional Operations Company, Inc. (FIIOC), Covington, KY (19.31%), Charles Schwab & Co., Inc., San Francisco, CA (6.33%), National Financial Services LLC, Jersey City, NJ (6.06%), Transamerica Retirement Solutions, Harrison, NY (5.02%); Vanguard Small-Cap Index Fund—Institutional Plus Shares: Fidelity Investments Institutional Operations Company, Inc. (FIIOC), Covington, KY (21.40%), NY College Savings Program, Newton, MA (9.70%), The Regents of the University of California, Oakland, CA (7.52%), State Street Bank FBO Transamerica Retirement Solutions Corporation, Harrison, NY (6.80%), College Savings Plan of Nevada, Boston, MA (5.52%); Vanguard Value Index Fund—Investor Shares: Charles Schwab & Co., Inc., San Francisco, CA (15.51%), National Financial Services LLC, Jersey City, NJ (13.75%); Vanguard Managed Payout Fund, Valley Forge, PA (6.58%); Vanguard Value Index Fund—Admiral Shares: Charles Schwab & Co., Inc., San Francisco, CA (7.45%); Vanguard Value Index Fund—Institutional Shares: NY College Savings Program, Newton, MA (11.52%), Fidelity Investments Institutional Operations Company, Inc. (FIIOC), Covington, KY (9.70%), Charles Schwab & Co., Inc., San Francisco, CA (6.96%), Cox Enterprises, Inc. Savings and Investment Plan, Atlanta, GA (5.28%); Vanguard Mid-Cap Value Index Fund—Investor Shares: National Financial Services LLC, Jersey City, NJ (15.70%), Charles Schwab & Co., Inc., San Francisco, CA (11.91%), Ascensus Trust Company, FBO Vanguard House Account, Fargo, ND (6.25%); Vanguard Mid-Cap Value Index Fund—Admiral Shares: Charles Schwab & Co., Inc., San Francisco, CA (11.14%), National Financial Services LLC, Jersey City, NJ (5.48%), Fidelity Investments Institutional Operations Company, Inc. (FIIOC), Covington, KY (5.38%); Vanguard Small-Cap Value Index Fund—Investor Shares: National Financial Services LLC, Jersey City, NJ (13.33%), Charles Schwab & Co., Inc., San Francisco, CA (13.30%); Vanguard Small-Cap Value Index Fund—Admiral Shares: Charles Schwab & Co., Inc., San Francisco, CA (6.54%); Vanguard Small-Cap Value Index Fund—Institutional Shares: Charles Schwab & Co., Inc., San Francisco, CA (12.62%), Fidelity Investments Institutional Operations Company, Inc. (FIIOC), Covington, KY (10.49%), JPMorgan Chase Bank, N.A., FBO TIAA Separate Account VA, New York, NY (7.61%), TIAA FSB, Saint Louis, MO (5.35%), National Financial Services LLC, Jersey City, NJ (5.06%); Vanguard Growth Index Fund—Investor Shares: Charles Schwab & Co., Inc., San Francisco, CA (16.17%), National Financial Services LLC, Jersey City, NJ (13.76%); Vanguard Growth Index Fund—Admiral Shares: Charles Schwab & Co., Inc., San Francisco, CA (6.44%); Vanguard Growth Index Fund—Institutional Shares: Fidelity Investments Institutional Operations Company, Inc. (FIIOC), Covington, KY (11.23%), NY College Savings Plan, Newton, MA (9.82%), Charles Schwab & Co., Inc., San Francisco, CA (6.29%); Vanguard Mid-Cap Growth Index Fund—Investor Shares: Ascensus Trust Company, FBO Vanguard House Account, Fargo, ND (8.77%), National Financial Services LLC, Jersey City, NJ (7.87%), Charles Schwab & Co., Inc., San Francisco, CA (7.08%), Nationwide Trust Company FSB, Columbus, OH (7.11%), Mid-Atlantic Trust Company, Pittsburgh, PA (5.34%); Vanguard Mid-Cap Growth Index Fund—Admiral Shares: Charles Schwab & Co., Inc., San Francisco, CA (8.94%), National Financial Services LLC, Jersey City, NJ (6.18%); Vanguard Small-Cap Growth Index Fund—Investor Shares: Charles Schwab & Co., Inc., San Francisco, CA (14.49%), National Financial Services LLC, Jersey City, NJ (13.21%); Vanguard Small-Cap Growth Index Fund—Admiral Shares: Charles Schwab & Co., Inc., San Francisco, CA (9.00%), John Hancock Life Insurance Co. USA, Boston, MA (5.35%); Vanguard Small-Cap Growth Index Fund—Institutional Shares: Fidelity Investments Institutional Operations Company, Inc. (FIIOC), Covington, KY (18.54%), Charles Schwab & Co., Inc., San Francisco, CA (8.37%).

Although the Funds do not have information concerning the beneficial ownership of shares held in the names of Depository Trust Company (DTC) participants, as of March 31, 2018, the name and percentage ownership of each DTC participant that owned of record 5% or more of the outstanding ETF Shares of a Fund were as follows:

Vanguard Total Stock Market Index Fund—ETF Shares: Charles Schwab & Co., Inc. (16.60%), National Financial Services LLC (14.32%), Vanguard Marketing Corporation (12.94%), TD Ameritrade Clearing, Inc. (8.21%); Vanguard 500 Index Fund—ETF Shares: National Financial Services LLC (9.16%), The Bank of New York Mellon (8.92%), Charles Schwab & Co., Inc. (8.79%), Vanguard Marketing Corporation (7.48%), The Northern Trust Company (6.02%), JPMorgan Chase

Bank, N.A. (5.08%); Vanguard Extended Market Index Fund—ETF Shares: National Financial Services LLC (18.03%), Charles Schwab & Co., Inc. (12.41%), Vanguard Marketing Corporation (10.61%), Morgan Stanley DW Inc. (8.26%), RBC Capital Markets Corporation (6.04%), TD Ameritrade Clearing, Inc. (5.64%), Pershing LLC, (5.18%); Vanguard Large-Cap Index Fund—ETF Shares: Edward D. Jones & Co. (18.39%), Charles Schwab & Co., Inc. (14.91%), National Financial Services LLC (10.66%), TD Ameritrade Clearing, Inc. (7.58%), Vanguard Marketing Corporation (5.42%); Vanguard Mid-Cap Index Fund—ETF Shares: TD Ameritrade Clearing, Inc. (13.05%), Charles Schwab & Co., Inc. (11.54%), National Financial Services LLC (8.66%), UBS Financial Services LLC (7.10%), Morgan Stanley DW Inc. (5.54%), Vanguard Marketing Corporation (5.01%); Vanguard Small-Cap Index Fund—ETF Shares: Charles Schwab & Co., Inc. (14.50%), National Financial Services LLC (9.49%), Edward D. Jones & Co. (8.38%), TD Ameritrade Clearing, Inc. (7.10%), Morgan Stanley DW Inc. (6.25%), Vanguard Marketing Corporation (5.41%); Vanguard Value Index Fund—ETF Shares: Merrill Lynch, Pierce Fenner & Smith (20.99%), National Financial Services LLC (11.23%), Edward D. Jones & Co. (9.71%), Charles Schwab & Co., Inc. (7.92%), Morgan Stanley DW Inc. (6.73%), TD Ameritrade Clearing, Inc. (5.80%); Vanguard Mid-Cap Value Index Fund—ETF Shares: Charles Schwab & Co., Inc. (14.41%), National Financial Services LLC (14.24%), TD Ameritrade Clearing, Inc. (11.03%), Morgan Stanley DW Inc. (8.15%), Ridge Clearing & Outsourcing Solutions, Inc., (7.43%), Vanguard Marketing Corporation (5.43%); Vanguard Small-Cap Value Index Fund—ETF Shares: Charles Schwab & Co., Inc. (15.81%), National Financial Services LLC (14.00%), Merrill Lynch, Pierce Fenner & Smith (9.68%), TD Ameritrade Clearing, Inc. (9.63%), Edward D. Jones & Co. (9.18%), Vanguard Marketing Corporation (6.48%); Vanguard Growth Index Fund—ETF Shares: Merrill Lynch, Pierce Fenner & Smith (15.89%), TD Ameritrade Clearing, Inc. (14.20%), National Financial Services LLC (12.46%), Charles Schwab & Co., Inc. (10.00%), Morgan Stanley DW Inc. (8.03%), UBS Financial Services LLC (5.46%); Vanguard Mid-Cap Growth Index Fund—ETF Shares: National Financial Services LLC (20.88%), Charles Schwab & Co., Inc. (11.57%), Morgan Stanley DW Inc. (11.26%), TD Ameritrade Clearing, Inc. (7.70%), Vanguard Marketing Corporation (6.05%); Vanguard Small-Cap Growth Index Fund—ETF Shares: Charles Schwab & Co., Inc. (18.16%), National Financial Services LLC (13.21%), Merrill Lynch, Pierce Fenner & Smith (11.88%), Edward D. Jones & Co. (10.30%), Morgan Stanley DW Inc. (7.09%), TD Ameritrade Clearing, Inc. (7.08%), Vanguard Marketing Corporation (6.93%).

Portfolio Holdings Disclosure Policies and Procedures

Introduction

Vanguard and the boards of trustees of the Vanguard funds (Boards) have adopted Portfolio Holdings Disclosure Policies and Procedures (Policies and Procedures) to govern the disclosure of the portfolio holdings of each Vanguard fund. Vanguard and the Boards considered each of the circumstances under which Vanguard fund portfolio holdings may be disclosed to different categories of persons under the Policies and Procedures. Vanguard and the Boards also considered actual and potential material conflicts that could arise in such circumstances between the interests of Vanguard fund shareholders, on the one hand, and those of the fund's investment advisor, distributor, or any affiliated person of the fund, its investment advisor, or its distributor, on the other. After giving due consideration to such matters and after the exercise of their fiduciary duties and reasonable business judgment, Vanguard and the Boards determined that the Vanguard funds have a legitimate business purpose for disclosing portfolio holdings to the persons described in each of the circumstances set forth in the Policies and Procedures and that the Policies and Procedures are reasonably designed to ensure that disclosure of portfolio holdings and information about portfolio holdings is in the best interests of fund shareholders and appropriately addresses the potential for material conflicts of interest.

The Boards exercise continuing oversight of the disclosure of Vanguard fund portfolio holdings by (1) overseeing the implementation and enforcement of the Policies and Procedures, the Code of Ethics, and the Policies and Procedures Designed to Prevent the Misuse of Inside Information (collectively, the portfolio holdings governing policies) by the chief compliance officer of Vanguard and the Vanguard funds; (2) considering reports and recommendations by the chief compliance officer concerning any material compliance matters (as defined in Rule 38a-1 under the 1940 Act and Rule 206(4)-7 under the Investment Advisers Act of 1940) that may arise in connection with any portfolio holdings governing policies; and (3) considering whether to approve or ratify any amendment to any portfolio holdings governing policies. Vanguard and the Boards reserve the right to amend the Policies and Procedures at any time and from time to time without prior notice at their sole discretion. For purposes of the Policies and Procedures, the term "portfolio holdings" means the equity and debt securities (e.g., stocks and bonds) held by a Vanguard fund and does not mean the cash investments, derivatives, and other investment positions (collectively, other investment positions) held by the fund.

Online Disclosure of Ten Largest Stock Holdings

Each actively managed Vanguard fund generally will seek to disclose the fund's ten largest stock portfolio holdings and the percentage of the fund's total assets that each of these holdings represents as of the end of the most recent calendar quarter (quarter-end ten largest stock holdings with weightings) online at *vanguard.com*, in the "Portfolio" section of the fund's Portfolio & Management page, 15 calendar days after the end of the calendar quarter. Each Vanguard index fund generally will seek to disclose the fund's ten largest stock portfolio holdings and the percentage of the fund's total assets that each of these holdings represents as of the end of the most recent month (month-end ten largest stock holdings with weightings) online at *vanguard.com*, in the "Portfolio" section of the fund's Portfolio & Management page, 15 calendar days after the end of the month. In addition, Vanguard funds generally will seek to disclose the fund's ten largest stock portfolio holdings and the aggregate percentage of the fund's total assets (and, for balanced funds, the aggregate percentage of the fund's equity securities) that these holdings represent as of the end of the most recent month (month-end ten largest stock holdings) online at *vanguard.com*, in the "Portfolio" section of the fund's Portfolio & Management page, 10 business days after the end of the month. Together, the quarter-end and month-end ten largest stock holdings are referred to as the ten largest stock holdings. Online disclosure of the ten largest stock holdings is made to all categories of persons, including individual investors, institutional investors, intermediaries, third-party service providers, rating and ranking organizations, affiliated persons of a Vanguard fund, and all other persons.

Online Disclosure of Complete Portfolio Holdings

Each actively managed Vanguard fund, unless otherwise stated, generally will seek to disclose the fund's complete portfolio holdings as of the end of the most recent calendar quarter online at *vanguard.com*, in the "Portfolio" section of the fund's Portfolio & Management page, 30 calendar days after the end of the calendar quarter. Each Vanguard fund relying on exemptive relief from the Securities and Exchange Commission (SEC) permitting the operation of actively-managed ETFs generally will seek to disclose complete portfolio holdings, including other investment positions, at the beginning of each business day. These portfolio holdings, including other investment positions, will be disclosed online at *vanguard.com* in the "Portfolio" section of the fund's Portfolio & Management page. In accordance with Rule 2a-7 under the 1940 Act, each of the Vanguard money market funds will disclose the fund's complete portfolio holdings as of the last business day of the prior month online at *vanguard.com*, in the "Portfolio" section of the fund's Portfolio & Management page, no later than the fifth business day of the current month. The complete portfolio holdings information for money market funds will remain available online for at least six months after the initial posting. Vanguard Market Neutral Fund and Vanguard Alternative Strategies Fund generally will seek to disclose the Fund's complete portfolio holdings as of the end of the most recent calendar quarter online at *vanguard.com*, in the "Portfolio" section of the Fund's Portfolio & Management page, 60 calendar days after the end of the calendar quarter. Each Vanguard index fund generally will seek to disclose the fund's complete portfolio holdings as of the end of the most recent month online at *vanguard.com*, in the "Portfolio" section of the fund's Portfolio & Management page, 15 calendar days after the end of the month. Online disclosure of complete portfolio holdings is made to all categories of persons, including individual investors, institutional investors, intermediaries, third-party service providers, rating and ranking organizations, affiliated persons of a Vanguard fund, and all other persons. Vanguard will review complete portfolio holdings before disclosure is made and, except with respect to the complete portfolio holdings of the Vanguard money market funds, may withhold any portion of the fund's complete portfolio holdings from disclosure when deemed to be in the best interests of the fund after consultation with a Vanguard fund's investment advisor.

Disclosure of Complete Portfolio Holdings to Service Providers Subject to Confidentiality and Trading Restrictions

Vanguard, for legitimate business purposes, may disclose Vanguard fund complete portfolio holdings at times it deems necessary and appropriate to rating and ranking organizations; financial printers; proxy voting service providers; pricing information vendors; issuers of guaranteed investment contracts for stable value portfolios; third parties that deliver analytical, statistical, or consulting services; and other third parties that provide services (collectively, Service Providers) to Vanguard, Vanguard subsidiaries, and/or the Vanguard funds. Disclosure of complete portfolio holdings to a Service Provider is conditioned on the Service Provider being subject to a written agreement imposing a duty of confidentiality, including a duty not to trade on the basis of any material nonpublic information.

The frequency with which complete portfolio holdings may be disclosed to a Service Provider, and the length of the lag, if any, between the date of the information and the date on which the information is disclosed to the Service Provider, is determined based on the facts and circumstances, including, without limitation, the nature of the portfolio holdings

information to be disclosed, the risk of harm to the funds and their shareholders, and the legitimate business purposes served by such disclosure. The frequency of disclosure to a Service Provider varies and may be as frequent as daily, with no lag. Disclosure of Vanguard fund complete portfolio holdings by Vanguard to a Service Provider must be authorized by a Vanguard fund officer or a Principal in Vanguard's Portfolio Review Department or Legal and Compliance Division. Any disclosure of Vanguard fund complete portfolio holdings to a Service Provider as previously described may also include a list of the other investment positions that make up the fund, such as cash investments and derivatives.

Currently, Vanguard fund complete portfolio holdings are disclosed to the following Service Providers as part of ongoing arrangements that serve legitimate business purposes: Abel/Noser Corporation; Advisor Software, Inc.; Alcom Printing Group Inc.; Apple Press, L.C.; Bloomberg L.P.; Brilliant Graphics, Inc.; Broadridge Financial Solutions, Inc.; Brown Brothers Harriman & Co.; Canon Business Process Services; FactSet Research Systems Inc.; Innovation Printing & Communications; Institutional Shareholder Services, Inc.; Intelligencer Printing Company; Investment Technology Group, Inc.; Lipper, Inc.; Markit WSO Corporation; McMunn Associates Inc.; Reuters America Inc.; R.R. Donnelley, Inc.; State Street Bank and Trust Company; Trade Informatics LLC; Triune Color Corporation; and Tursack Printing Inc.

Disclosure of Complete Portfolio Holdings to Vanguard Affiliates and Certain Fiduciaries Subject to Confidentiality and Trading Restrictions

Vanguard fund complete portfolio holdings may be disclosed between and among the following persons (collectively, Affiliates and Fiduciaries) for legitimate business purposes within the scope of their official duties and responsibilities, subject to such persons' continuing legal duty of confidentiality and legal duty not to trade on the basis of any material nonpublic information, as such duties are imposed under the Code of Ethics, the Policies and Procedures Designed to Prevent the Misuse of Inside Information, by agreement, or under applicable laws, rules, and regulations: (1) persons who are subject to the Code of Ethics or the Policies and Procedures Designed to Prevent the Misuse of Inside Information; (2) an investment advisor, distributor, administrator, transfer agent, or custodian to a Vanguard fund; (3) an accounting firm, an auditing firm, or outside legal counsel retained by Vanguard, a Vanguard subsidiary, or a Vanguard fund; (4) an investment advisor to whom complete portfolio holdings are disclosed for due diligence purposes when the advisor is in merger or acquisition talks with a Vanguard fund's current advisor; and (5) a newly hired investment advisor or sub-advisor to whom complete portfolio holdings are disclosed prior to the time it commences its duties.

The frequency with which complete portfolio holdings may be disclosed between and among Affiliates and Fiduciaries, and the length of the lag, if any, between the date of the information and the date on which the information is disclosed between and among the Affiliates and Fiduciaries, is determined by such Affiliates and Fiduciaries based on the facts and circumstances, including, without limitation, the nature of the portfolio holdings information to be disclosed, the risk of harm to the funds and their shareholders, and the legitimate business purposes served by such disclosure. The frequency of disclosure between and among Affiliates and Fiduciaries varies and may be as frequent as daily, with no lag. Any disclosure of Vanguard fund complete portfolio holdings to any Affiliates and Fiduciaries as previously described may also include a list of the other investment positions that make up the fund, such as cash investments and derivatives. Disclosure of Vanguard fund complete portfolio holdings or other investment positions by Vanguard, Vanguard Marketing Corporation, or a Vanguard fund to Affiliates and Fiduciaries must be authorized by a Vanguard fund officer or a Principal of Vanguard.

Currently, Vanguard fund complete portfolio holdings are disclosed to the following Affiliates and Fiduciaries as part of ongoing arrangements that serve legitimate business purposes: Vanguard and each investment advisor, custodian, and independent registered public accounting firm identified in each fund's Statement of Additional Information.

Disclosure of Portfolio Holdings to Broker-Dealers in the Normal Course of Managing a Fund's Assets

An investment advisor, administrator, or custodian for a Vanguard fund may, for legitimate business purposes within the scope of its official duties and responsibilities, disclose portfolio holdings (whether partial portfolio holdings or complete portfolio holdings) and other investment positions that make up the fund to one or more broker-dealers during the course of, or in connection with, normal day-to-day securities and derivatives transactions with or through such broker-dealers subject to the broker-dealer's legal obligation not to use or disclose material nonpublic information concerning the fund's portfolio holdings, other investment positions, securities transactions, or derivatives transactions without the consent of the fund or its agents. The Vanguard funds have not given their consent to any such use or disclosure and no person or agent of Vanguard is authorized to give such consent except as approved in writing by the Boards of the Vanguard funds.

Disclosure of portfolio holdings or other investment positions by Vanguard to broker-dealers must be authorized by a Vanguard fund officer or a Principal of Vanguard.

Disclosure of Nonmaterial Information

The Policies and Procedures permit Vanguard fund officers, Vanguard fund portfolio managers, and other Vanguard representatives (collectively, Approved Vanguard Representatives) to disclose any views, opinions, judgments, advice, or commentary, or any analytical, statistical, performance, or other information, in connection with or relating to a Vanguard fund or its portfolio holdings and/or other investment positions (collectively, commentary and analysis) or any changes in the portfolio holdings of a Vanguard fund that occurred after the end of the most recent calendar quarter (recent portfolio changes) to any person if (1) such disclosure serves a legitimate business purpose, (2) such disclosure does not effectively result in the disclosure of the complete portfolio holdings of any Vanguard fund (which can be disclosed only in accordance with the Policies and Procedures), and (3) such information does not constitute material nonpublic information. Disclosure of commentary and analysis or recent portfolio changes by Vanguard, Vanguard Marketing Corporation, or a Vanguard fund must be authorized by a Vanguard fund officer or a Principal of Vanguard.

An Approved Vanguard Representative must make a good faith determination whether the information constitutes material nonpublic information, which involves an assessment of the particular facts and circumstances. Vanguard believes that in most cases recent portfolio changes that involve a few or even several securities in a diversified portfolio or commentary and analysis would be immaterial and would not convey any advantage to a recipient in making an investment decision concerning a Vanguard fund. Nonexclusive examples of commentary and analysis about a Vanguard fund include (1) the allocation of the fund's portfolio holdings and other investment positions among various asset classes, sectors, industries, and countries; (2) the characteristics of the stock and bond components of the fund's portfolio holdings and other investment positions; (3) the attribution of fund returns by asset class, sector, industry, and country; and (4) the volatility characteristics of the fund. Approved Vanguard Representatives may, at their sole discretion, deny any request for information made by any person, and may do so for any reason or for no reason. Approved Vanguard Representatives include, for purposes of the Policies and Procedures, persons employed by or associated with Vanguard or a subsidiary of Vanguard who have been authorized by Vanguard's Portfolio Review Department to disclose recent portfolio changes and/or commentary and analysis in accordance with the Policies and Procedures.

Disclosure of Portfolio Holdings, Including Other Investment Positions, in Accordance with SEC Exemptive Orders

Vanguard's Fund Financial Services unit may disclose to the National Securities Clearing Corporation (NSCC), Authorized Participants, and other market makers the daily portfolio composition files (PCFs) that identify a basket of specified securities that may overlap with the actual or expected portfolio holdings of the Vanguard funds that offer a class of shares known as Vanguard ETF Shares (ETF Funds). Each Vanguard fund relying on exemptive relief from the SEC permitting the operation of actively-managed ETFs generally will seek to disclose complete portfolio holdings, including other investment positions, at the beginning of each business day. These portfolio holdings, including other investment positions, will be disclosed online at *vanguard.com* in the "Portfolio" section of the fund's Portfolio & Management page. The disclosure of PCFs and portfolio holdings, including other investment positions, will be in accordance with the terms and conditions of related exemptive orders (Vanguard ETF Exemptive Orders) issued by the SEC, as described in this section.

Unlike the conventional classes of shares issued by ETF Funds, the ETF Shares are listed for trading on a national securities exchange. Each ETF Fund issues and redeems ETF Shares in large blocks, known as "Creation Units." To purchase or redeem a Creation Unit, an investor must be an "Authorized Participant" or the investor must purchase or redeem through a broker-dealer that is an Authorized Participant. An Authorized Participant is a participant in the Depository Trust Company (DTC) that has executed a "Participant Agreement" with Vanguard Marketing Corporation. Each ETF Fund issues Creation Units in exchange for a "portfolio deposit" consisting of a basket of specified securities (Deposit Securities) and a cash payment (Balancing Amount). Each ETF Fund also redeems Creation Units in kind; an investor who tenders a Creation Unit will receive, as redemption proceeds, a basket of specified securities together with a Balancing Amount.

In connection with the creation and redemption process, and in accordance with the terms and conditions of the Vanguard ETF Exemptive Orders, Vanguard makes available to the NSCC (a clearing agency registered with the SEC and affiliated with the DTC), for dissemination to NSCC participants on each business day prior to the opening of trading on

the listing exchange, a PCF containing a list of the names and the required number of shares of each Deposit Security for each ETF Fund. In addition, the listing exchange disseminates (1) continuously throughout the trading day, through the facilities of the Consolidated Tape Association, the market value of an ETF Share; and (2) every 15 seconds throughout the trading day, a calculation of the estimated NAV of an ETF Share (expected to be accurate to within a few basis points). Comparing these two figures allows an investor to determine whether, and to what extent, ETF Shares are selling at a premium or at a discount to NAV. ETF Shares are listed on the exchange and traded on the secondary market in the same manner as other equity securities. The price of ETF Shares trading on the secondary market is based on a current bid/offer market.

In addition to making PCFs available to the NSCC, as previously described, Vanguard's Fund Financial Services unit may disclose the PCF for any ETF Fund to any person, or online at *vanguard.com* to all categories of persons, if (1) such disclosure serves a legitimate business purpose and (2) such disclosure does not constitute material nonpublic information. Vanguard's Fund Financial Services unit must make a good faith determination whether the PCF for any ETF Fund constitutes material nonpublic information, which involves an assessment of the particular facts and circumstances. Vanguard believes that in most cases the PCF for any ETF Fund would be immaterial and would not convey any advantage to the recipient in making an investment decision concerning the ETF Fund, if sufficient time has passed between the date of the PCF and the date on which the PCF is disclosed. Vanguard's Fund Financial Services unit may, at its sole discretion, determine whether to deny any request for the PCF for any ETF Fund made by any person, and may do so for any reason or for no reason. Disclosure of a PCF must be authorized by a Vanguard fund officer or a Principal in Vanguard's Fund Financial Services unit.

Disclosure of Portfolio Holdings Related Information to the Issuer of a Security for Legitimate Business Purposes

Vanguard, at its sole discretion, may disclose portfolio holdings information concerning a security held by one or more Vanguard funds to the issuer of such security if the issuer presents, to the satisfaction of Vanguard's Fund Financial Services unit, convincing evidence that the issuer has a legitimate business purpose for such information. Disclosure of this information to an issuer is conditioned on the issuer being subject to a written agreement imposing a duty of confidentiality, including a duty not to trade on the basis of any material nonpublic information. The frequency with which portfolio holdings information concerning a security may be disclosed to the issuer of such security, and the length of the lag, if any, between the date of the information and the date on which the information is disclosed to the issuer, is determined based on the facts and circumstances, including, without limitation, the nature of the portfolio holdings information to be disclosed, the risk of harm to the funds and their shareholders, and the legitimate business purposes served by such disclosure. The frequency of disclosure to an issuer cannot be determined in advance of a specific request and will vary based upon the particular facts and circumstances and the legitimate business purposes, but in unusual situations could be as frequent as daily, with no lag. Disclosure of portfolio holdings information concerning a security held by one or more Vanguard funds to the issuer of such security must be authorized by a Vanguard fund officer or a Principal in Vanguard's Portfolio Review Department or Legal and Compliance Division.

Disclosure of Portfolio Holdings as Required by Applicable Law

Vanguard fund portfolio holdings (whether partial portfolio holdings or complete portfolio holdings) and other investment positions that make up a fund shall be disclosed to any person as required by applicable laws, rules, and regulations. Examples of such required disclosure include, but are not limited to, disclosure of Vanguard fund portfolio holdings (1) in a filing or submission with the SEC or another regulatory body, (2) in connection with seeking recovery on defaulted bonds in a federal bankruptcy case, (3) in connection with a lawsuit, or (4) as required by court order. Disclosure of portfolio holdings or other investment positions by Vanguard, Vanguard Marketing Corporation, or a Vanguard fund as required by applicable laws, rules, and regulations must be authorized by a Vanguard fund officer or a Principal of Vanguard.

Prohibitions on Disclosure of Portfolio Holdings

No person is authorized to disclose Vanguard fund portfolio holdings or other investment positions (whether online at *vanguard.com*, in writing, by fax, by e-mail, orally, or by other means) except in accordance with the Policies and Procedures. In addition, no person is authorized to make disclosure pursuant to the Policies and Procedures if such disclosure is otherwise unlawful under the antifraud provisions of the federal securities laws (as defined in Rule 38a-1 under the 1940 Act). Furthermore, Vanguard's management, at its sole discretion, may determine not to disclose

portfolio holdings or other investment positions that make up a Vanguard fund to any person who would otherwise be eligible to receive such information under the Policies and Procedures, or may determine to make such disclosures publicly as provided by the Policies and Procedures.

Prohibitions on Receipt of Compensation or Other Consideration

The Policies and Procedures prohibit a Vanguard fund, its investment advisor, and any other person or entity from paying or receiving any compensation or other consideration of any type for the purpose of obtaining disclosure of Vanguard fund portfolio holdings or other investment positions. "Consideration" includes any agreement to maintain assets in the fund or in other investment companies or accounts managed by the investment advisor or by any affiliated person of the investment advisor.

INVESTMENT ADVISORY AND OTHER SERVICES

The Funds receive all investment advisory services from Vanguard, through its Equity Index Group. These services are provided on an at-cost basis by an experienced advisory staff employed directly by Vanguard. The compensation and other expenses of the advisory staff are allocated among the funds utilizing these services.

During the fiscal years ended December 31, 2015, 2016, and 2017, the Funds incurred the following approximate advisory expenses:

Vanguard Fund	2015	2016	2017
Total Stock Market Index Fund	\$22,376,000	\$22,563,000	\$19,506,000
500 Index Fund	11,148,000	13,308,000	11,985,000
Extended Market Index Fund	3,228,000	4,306,000	3,916,000
Large-Cap Index Fund	1,503,000	1,746,000	2,675,000
Mid-Cap Index Fund	4,152,000	5,210,000	4,792,000
Small-Cap Index Fund	3,698,000	4,715,000	4,514,000
Value Index Fund	2,921,000	4,275,000	3,927,000
Mid-Cap Value Index Fund	1,250,000	1,528,000	2,661,000
Small-Cap Value Index Fund	1,819,000	2,416,000	3,025,000
Growth Index Fund	3,424,000	4,332,000	4,101,000
Mid-Cap Growth Index Fund	1,107,000	1,084,000	2,369,000
Small-Cap Growth Index Fund	1,775,000	2,029,000	2,773,000

1. Other Accounts Managed

Donald M. Butler and Michelle Louie co-manage Vanguard 500 Index Fund; as of December 31, 2017, the Fund held assets of \$391 billion. As of December 31, 2017, Mr. Butler also co-managed all or a portion of 15 other registered investment companies with total assets of \$450 billion and managed 2 other pooled investment vehicles with total assets of \$9.3 billion (none of which had advisory fees based on account performance). As of December 31, 2017, Ms. Louie also co-managed 8 other registered investment companies with total assets of \$263 billion (none of which had advisory fees based on account performance).

Donald M. Butler and William Coleman co-manage Vanguard Extended Market Index Fund; as of December 31, 2017, the Fund held assets of \$63 billion. As of December 31, 2017, Mr. Butler also co-managed all or a portion of 15 other registered investment companies with total assets of \$778 billion and managed 2 other pooled investment vehicles with total assets of \$9.3 billion (none of which had advisory fees based on account performance). As of December 31, 2017, Mr. Coleman also co-managed 56 other registered investment companies with total assets of \$699 billion, managed 1 other pooled investment vehicle with total assets of \$5.3 billion, and managed 1 other account with total assets of \$6.4 billion (none of which had advisory fees based on account performance).

William Coleman and Gerard C. O'Reilly co-manage Vanguard Small-Cap Index Fund, Vanguard Small-Cap Value Index Fund, and Vanguard Small-Cap Growth Index Fund; as of December 31, 2017, the Funds collectively held assets of \$135 billion. As of December 31, 2017, Mr. Coleman also co-managed 54 other registered investment companies with total assets of \$627 billion, managed 1 other pooled investment vehicle with total assets of \$5.3 billion, and managed 1 other account with total assets of \$6.4 billion (none of which had advisory fees based on account performance). As of

December 31, 2017, Mr. O'Reilly also co-managed all or a portion of 14 other registered investment companies with total assets of \$1 trillion and managed 1 other pooled investment vehicle with total assets of \$570 million (none of which had advisory fees based on account performance).

Donald M. Butler and Michael A. Johnson co-manage Vanguard Mid-Cap Index Fund, Vanguard Mid-Cap Value Index Fund, and Vanguard Mid-Cap Growth Index Fund; as of December 31, 2017, the Funds collectively held assets of \$123 billion. As of December 31, 2017, Mr. Butler also co-managed 13 other registered investment companies with total assets of \$718 billion and managed 2 other pooled investment vehicles with total assets of \$9.3 billion (none of which had advisory fees based on account performance). As of December 31, 2017, Mr. Johnson also co-managed 16 other registered investment companies with total assets of \$86 billion, managed 2 other pooled investment vehicles with total assets of \$5.3 billion, and 1 other account with total assets of \$3.3 billion (none of which had advisory fees based on account performance).

Michael A. Johnson and Walter Nejman co-manage Vanguard Large-Cap Index Fund; as of December 31, 2017, the Fund held assets of \$18.6 billion. As of December 31, 2017, Mr. Johnson also co-managed 18 other registered investment companies with total assets of \$190 billion, managed 2 other pooled investment vehicles with total assets of \$5.3 billion, and managed 1 other account with total assets of \$3.3 billion (none of which had advisory fees based on account performance). As of December 31, 2017, Mr. Nejman also co-managed 52 other registered investment companies with total assets of \$1.7 trillion and 2 other pooled investment vehicles with total assets of \$5.3 billion (none of which had advisory fees based on account performance).

Gerard C. O'Reilly and Walter Nejman co-manage Vanguard Growth Index Fund, Vanguard Total Stock Market Index Fund, and Vanguard Value Index Fund; as of December 31, 2017, the Funds collectively held assets of \$801 billion. As of December 31, 2017, Mr. O'Reilly also co-managed all or a portion of 15 other registered investment companies with total assets of \$352 billion and managed 1 other pooled investment vehicle with total assets of \$570 million (none of which had advisory fees based on account performance). As of December 31, 2017, Mr. Nejman also co-managed 50 other registered investment companies with total assets of \$894 billion and managed 2 other pooled investment vehicles with total assets of \$5.3 billion (none of which had advisory fees based on account performance).

2. Material Conflicts of Interest

At Vanguard, individual portfolio managers may manage multiple accounts for multiple clients. In addition to mutual funds, these accounts may include separate accounts, collective trusts, and offshore funds. Managing multiple funds or accounts may give rise to potential conflicts of interest, including, for example, conflicts among investment strategies and conflicts in the allocation of investment opportunities. Vanguard manages potential conflicts between funds or accounts through allocation policies and procedures, internal review processes, and oversight by trustees and independent third parties. Vanguard has developed trade allocation procedures and controls to ensure that no one client, regardless of type, is intentionally favored at the expense of another. Allocation policies are designed to address potential conflicts in situations where two or more funds or accounts participate in investment decisions involving the same securities.

3. Description of Compensation

All Vanguard portfolio managers are Vanguard employees. This section describes the compensation of the Vanguard employees who manage Vanguard mutual funds. As of December 31, 2017, a Vanguard portfolio manager's compensation generally consists of base salary, bonus, and payments under Vanguard's long-term incentive compensation program. In addition, portfolio managers are eligible for the standard retirement benefits and health and welfare benefits available to all Vanguard employees. Also, certain portfolio managers may be eligible for additional retirement benefits under several supplemental retirement plans that Vanguard adopted in the 1980s to restore dollar-for-dollar the benefits of management employees that had been cut back solely as a result of tax law changes. These plans are structured to provide the same retirement benefits as the standard retirement plans.

In the case of portfolio managers responsible for managing multiple Vanguard funds or accounts, the method used to determine their compensation is the same for all funds and investment accounts. A portfolio manager's base salary is determined by the manager's experience and performance in the role, taking into account the ongoing compensation benchmark analyses performed by Vanguard's Human Resources Department. A portfolio manager's base salary is

generally a fixed amount that may change as a result of an annual review, upon assumption of new duties, or when a market adjustment of the position occurs.

A portfolio manager's bonus is determined by a number of factors. One factor is gross, pre-tax performance of a fund relative to expectations for how the fund should have performed, given the fund's investment objective, policies, strategies, and limitations, and the market environment during the measurement period. This performance factor is not based on the amount of assets held in the fund's portfolio. For each Fund, the performance factor depends on how closely the portfolio manager tracks the Fund's benchmark index over a one-year period. Additional factors include the portfolio manager's contributions to the investment management functions within the sub-asset class, contributions to the development of other investment professionals and supporting staff, and overall contributions to strategic planning and decisions for the investment group. The target bonus is expressed as a percentage of base salary. The actual bonus paid may be more or less than the target bonus, based on how well the manager satisfies the objectives previously described. The bonus is paid on an annual basis.

Under the long-term incentive compensation program, all full-time employees receive a payment from Vanguard's long-term incentive compensation plan based on their years of service, job level, and, if applicable, management responsibilities. Each year, Vanguard's independent directors determine the amount of the long-term incentive compensation award for that year based on the investment performance of the Vanguard funds relative to competitors and Vanguard's operating efficiencies in providing services to the Vanguard funds.

4. Ownership of Securities

Vanguard employees, including portfolio managers, allocate their investments among the various Vanguard funds or collective investment trusts that may invest in Vanguard funds based on their own individual investment needs and goals. Vanguard employees, as a group, invest a sizable portion of their personal assets in Vanguard funds. As of December 31, 2017, Vanguard employees collectively invested more than \$6.4 billion in Vanguard funds or collective investment trusts that may invest in Vanguard funds.

As of December 31, 2017, Mr. O'Reilly owned shares of Vanguard Total Stock Market Index Fund within the \$10,001–\$50,000 range, and Mr. Coleman owned shares of Vanguard Extended Market Index Fund within the \$10,001–\$50,000 range. As of the same date, none of the other named portfolio managers owned any shares of the Funds they managed.

Duration and Termination of Investment Advisory Agreement

Vanguard provides at-cost investment advisory services to the Funds pursuant to the terms of the Fifth Amended and Restated Funds' Service Agreement. This agreement will continue in full force and effect until terminated or amended by mutual agreement of the Vanguard funds and Vanguard.

Securities Lending

The following table describes the securities lending activities of each Fund during the fiscal year ended December 31, 2017:

Vanguard Fund	Securities Lending Activities
Total Stock Market Index Fund	
<i>Gross income from securities lending activities</i>	\$118,979,803
Fees paid to securities lending agent from a revenue split	\$0
Fees paid for any cash collateral management service (including fees deducted from a pooled cash collateral reinvestment vehicle) that are not included in the revenue split	\$124,699
Administrative fees not included in revenue split	\$1,892,495
Indemnification fee not included in revenue split	\$0
Rebate (paid to borrower)	\$7,192,371
Other fees not included in revenue split (specify)	\$0
Aggregate fees/compensation for securities lending activities	\$9,209,565
<i>Net income from securities lending activities</i>	\$109,770,238

Vanguard Fund	Securities Lending Activities
500 Index Fund	
<i>Gross income from securities lending activities</i>	\$5,516,981
Fees paid to securities lending agent from a revenue split	\$0
Fees paid for any cash collateral management service (including fees deducted from a pooled cash collateral reinvestment vehicle) that are not included in the revenue split	\$13,302
Administrative fees not included in revenue split	\$70,773
Indemnification fee not included in revenue split	\$0
Rebate (paid to borrower)	\$1,201,629
Other fees not included in revenue split (specify)	\$0
Aggregate fees/compensation for securities lending activities	\$1,285,704
<i>Net income from securities lending activities</i>	\$4,231,277
Extended Market Index Fund	
<i>Gross income from securities lending activities</i>	\$59,728,210
Fees paid to securities lending agent from a revenue split	\$0
Fees paid for any cash collateral management service (including fees deducted from a pooled cash collateral reinvestment vehicle) that are not included in the revenue split	\$55,086
Administrative fees not included in revenue split	\$992,487
Indemnification fee not included in revenue split	\$0
Rebate (paid to borrower)	\$2,433,386
Other fees not included in revenue split (specify)	\$0
Aggregate fees/compensation for securities lending activities	\$3,480,959
<i>Net income from securities lending activities</i>	\$56,247,251
Large-Cap Index Fund	
<i>Gross income from securities lending activities</i>	\$663,444
Fees paid to securities lending agent from a revenue split	\$0
Fees paid for any cash collateral management service (including fees deducted from a pooled cash collateral reinvestment vehicle) that are not included in the revenue split	\$863
Administrative fees not included in revenue split	\$10,157
Indemnification fee not included in revenue split	\$0
Rebate (paid to borrower)	\$28,712
Other fees not included in revenue split (specify)	\$0
Aggregate fees/compensation for securities lending activities	\$39,732
<i>Net income from securities lending activities</i>	\$623,712
Mid-Cap Index Fund	
<i>Gross income from securities lending activities</i>	\$5,724,012
Fees paid to securities lending agent from a revenue split	\$0
Fees paid for any cash collateral management service (including fees deducted from a pooled cash collateral reinvestment vehicle) that are not included in the revenue split	\$11,826
Administrative fees not included in revenue split	\$81,088
Indemnification fee not included in revenue split	\$0
Rebate (paid to borrower)	\$1,070,941
Other fees not included in revenue split (specify)	\$0
Aggregate fees/compensation for securities lending activities	\$1,163,855
<i>Net income from securities lending activities</i>	\$4,560,157

Vanguard Fund	Securities Lending Activities
Small-Cap Index Fund	
<i>Gross income from securities lending activities</i>	\$44,937,788
Fees paid to securities lending agent from a revenue split	\$0
Fees paid for any cash collateral management service (including fees deducted from a pooled cash collateral reinvestment vehicle) that are not included in the revenue split	\$53,188
Administrative fees not included in revenue split	\$726,545
Indemnification fee not included in revenue split	\$0
Rebate (paid to borrower)	\$3,441,501
Other fees not included in revenue split (specify)	\$0
Aggregate fees/compensation for securities lending activities	\$4,221,234
<i>Net income from securities lending activities</i>	\$40,716,554
Value Index Fund	
<i>Gross income from securities lending activities</i>	\$406,239
Fees paid to securities lending agent from a revenue split	\$0
Fees paid for any cash collateral management service (including fees deducted from a pooled cash collateral reinvestment vehicle) that are not included in the revenue split	\$1,654
Administrative fees not included in revenue split	\$4,308
Indemnification fee not included in revenue split	\$0
Rebate (paid to borrower)	\$156,616
Other fees not included in revenue split (specify)	\$0
Aggregate fees/compensation for securities lending activities	\$162,578
<i>Net income from securities lending activities</i>	\$243,661
Mid-Cap Value Index Fund	
<i>Gross income from securities lending activities</i>	\$354,552
Fees paid to securities lending agent from a revenue split	\$0
Fees paid for any cash collateral management service (including fees deducted from a pooled cash collateral reinvestment vehicle) that are not included in the revenue split	\$921
Administrative fees not included in revenue split	\$4,279
Indemnification fee not included in revenue split	\$0
Rebate (paid to borrower)	\$100,545
Other fees not included in revenue split (specify)	\$0
Aggregate fees/compensation for securities lending activities	\$105,745
<i>Net income from securities lending activities</i>	\$248,807
Small-Cap Value Index Fund	
<i>Gross income from securities lending activities</i>	\$10,890,941
Fees paid to securities lending agent from a revenue split	\$0
Fees paid for any cash collateral management service (including fees deducted from a pooled cash collateral reinvestment vehicle) that are not included in the revenue split	\$10,964
Administrative fees not included in revenue split	\$176,133
Indemnification fee not included in revenue split	\$0
Rebate (paid to borrower)	\$546,694
Other fees not included in revenue split (specify)	\$0
Aggregate fees/compensation for securities lending activities	\$733,791
<i>Net income from securities lending activities</i>	\$10,157,150

Vanguard Fund	Securities Lending Activities
Growth Index Fund	
<i>Gross income from securities lending activities</i>	\$6,405,874
Fees paid to securities lending agent from a revenue split	\$0
Fees paid for any cash collateral management service (including fees deducted from a pooled cash collateral reinvestment vehicle) that are not included in the revenue split	\$10,325
Administrative fees not included in revenue split	\$95,091
Indemnification fee not included in revenue split	\$0
Rebate (paid to borrower)	\$539,891
Other fees not included in revenue split (specify)	\$0
Aggregate fees/compensation for securities lending activities	\$645,307
<i>Net income from securities lending activities</i>	\$5,760,567
Mid-Cap Growth Index Fund	
<i>Gross income from securities lending activities</i>	\$868,269
Fees paid to securities lending agent from a revenue split	\$0
Fees paid for any cash collateral management service (including fees deducted from a pooled cash collateral reinvestment vehicle) that are not included in the revenue split	\$1,302
Administrative fees not included in revenue split	\$13,736
Indemnification fee not included in revenue split	\$0
Rebate (paid to borrower)	\$89,268
Other fees not included in revenue split (specify)	\$0
Aggregate fees/compensation for securities lending activities	\$104,306
<i>Net income from securities lending activities</i>	\$763,963
Small-Cap Growth Index Fund	
<i>Gross income from securities lending activities</i>	\$14,370,036
Fees paid to securities lending agent from a revenue split	\$0
Fees paid for any cash collateral management service (including fees deducted from a pooled cash collateral reinvestment vehicle) that are not included in the revenue split	\$16,074
Administrative fees not included in revenue split	\$238,926
Indemnification fee not included in revenue split	\$0
Rebate (paid to borrower)	\$942,497
Other fees not included in revenue split (specify)	\$0
Aggregate fees/compensation for securities lending activities	\$1,197,497
<i>Net income from securities lending activities</i>	\$13,172,539

The services provided by Brown Brothers Harriman & Co. and Vanguard, each acting separately as securities lending agents for certain Vanguard funds, include coordinating the selection of securities to be loaned to approved borrowers; negotiating the terms of the loan; monitoring the value of the securities loaned and corresponding collateral, marking to market daily; coordinating the investment of cash collateral in the funds' approved cash collateral reinvestment vehicle; monitoring dividends and coordinating material proxy votes relating to loan securities; and transferring, recalling, arranging the return of loan securities to the funds upon termination of the loan.

PORTFOLIO TRANSACTIONS

The advisor decides which securities to buy and sell on behalf of a Fund and then selects the brokers or dealers that will execute the trades on an agency basis or the dealers with whom the trades will be effected on a principal basis. For each trade, the advisor must select a broker-dealer that it believes will provide "best execution." Best execution does not necessarily mean paying the lowest spread or commission rate available. In seeking best execution, the SEC has said that an advisor should consider the full range of a broker-dealer's services. The factors considered by the advisor in seeking best execution include, but are not limited to, the broker-dealer's execution capability, clearance and settlement

services, commission rate, trading expertise, willingness and ability to commit capital, ability to provide anonymity, financial responsibility, reputation and integrity, responsiveness, access to underwritten offerings and secondary markets, and access to company management, as well as the value of any research provided by the broker-dealer. In assessing which broker-dealer can provide best execution for a particular trade, the advisor also may consider the timing and size of the order and available liquidity and current market conditions. Subject to applicable legal requirements, the advisor may select a broker based partly on brokerage or research services provided to the advisor and its clients, including the Funds. The advisor may cause the Fund to pay a higher commission than other brokers would charge if the advisor determines in good faith that the amount of the commission is reasonable in relation to the value of services provided. The advisor also may receive brokerage or research services from broker-dealers that are provided at no charge in recognition of the volume of trades directed to the broker. To the extent research services or products may be a factor in selecting brokers, services and products may include written research reports analyzing performance or securities, discussions with research analysts, meetings with corporate executives to obtain oral reports on company performance, market data, and other products and services that will assist the advisor in its investment decision-making process. The research services provided by brokers through which a Fund effects securities transactions may be used by the advisor in servicing all of its accounts, and some of the services may not be used by the advisor in connection with the Fund.

During the fiscal years ended December 31, 2015, 2016, and 2017, the Funds paid the following approximate amounts in brokerage commissions:

Vanguard Fund	2015	2016	2017
Total Stock Market Index Fund ¹	\$5,634,000	\$7,562,000	\$10,579,000
500 Index Fund	1,122,000	1,389,000	1,812,000
Extended Market Index Fund ¹	1,126,000	1,795,000	2,597,000
Large-Cap Index Fund	54,000	67,000	80,000
Mid-Cap Index Fund	1,465,000	1,404,000	1,652,000
Small-Cap Index Fund	1,959,000	2,446,000	2,772,000
Value Index Fund	294,000	290,000	448,000
Mid-Cap Value Index Fund ¹	272,000	379,000	405,000
Small-Cap Value Index Fund	673,000	902,000	977,000
Growth Index Fund	352,000	359,000	380,000
Mid-Cap Growth Index Fund	149,000	122,000	155,000
Small-Cap Growth Index Fund	781,000	761,000	631,000

¹ Higher brokerage commissions paid during the fiscal year ended December 31, 2017, were due to an increase in common stock trades.

Some securities that are considered for investment by a Fund may also be appropriate for other Vanguard funds or for other clients served by the advisor. If such securities are compatible with the investment policies of a Fund and one or more of the advisor's other clients and are considered for purchase or sale at or about the same time, then transactions in such securities may be aggregated by the advisor, and the purchased securities or sale proceeds may be allocated among the participating Vanguard funds and the other participating clients of the advisor in a manner deemed equitable by the advisor. Although there may be no specified formula for allocating such transactions, the allocation methods used, and the results of such allocations, will be subject to periodic review by the Funds' board of trustees.

The ability of Vanguard and external advisors to purchase or dispose of investments in regulated industries, certain derivatives markets, certain international markets, and certain issuers that limit ownership by a single shareholder or group of related shareholders, or to exercise rights on behalf of a Fund, may be restricted or impaired because of limitations on the aggregate level of investment unless regulatory or corporate consents or ownership waivers are obtained. As a result, Vanguard and external advisors on behalf of a Fund may be required to limit purchases, sell existing investments, or otherwise restrict or limit the exercise of shareholder rights by the Fund, including voting rights. If a Fund is required to limit its investment in a particular issuer, the Fund may seek to obtain economic exposure to that issuer through alternative means, such as through a derivative, which may be more costly than owning securities of the issuer directly.

As of December 31, 2017, each Fund held securities of its “regular brokers or dealers,” as that term is defined in Rule 10b-1 of the 1940 Act, as follows:

Vanguard Fund	Regular Broker or Dealer (or Parent)	Aggregate Holdings
Total Stock Market Index Fund	Citigroup Global Markets Inc.	\$4,742,108,000
	Goldman, Sachs & Co.	2,084,709,000
	J.P. Morgan Securities Inc.	8,944,165,000
	Morgan Stanley	1,714,330,000
	Wells Fargo Securities, LLC	6,481,270,000
500 Index Fund	Citigroup Global Markets Inc.	3,361,281,000
	Goldman, Sachs & Co.	1,527,070,000
	J.P. Morgan Securities Inc.	6,339,141,000
	Morgan Stanley	1,247,866,000
	Wells Fargo Securities, LLC	4,594,506,000
Extended Market Index Fund	—	—
Large-Cap Index Fund	Citigroup Global Markets Inc.	155,891,000
	Goldman, Sachs & Co.	68,703,000
	J.P. Morgan Securities Inc.	293,856,000
	Merrill Lynch, Pierce, Fenner & Smith Inc.	231,760,000
	Morgan Stanley	56,564,000
Mid-Cap Index Fund	—	—
Small-Cap Index Fund	—	—
Value Index Fund	Citigroup Global Markets Inc.	1,012,685,000
	Goldman, Sachs & Co.	444,895,000
	J.P. Morgan Securities Inc.	1,909,738,000
	Morgan Stanley	366,120,000
	Wells Fargo Securities, LLC	1,384,011,000
Mid-Cap Value Index Fund	—	—
Small-Cap Value Index Fund	—	—
Growth Index Fund	—	—
Mid-Cap Growth Index Fund	—	—
Small-Cap Growth Index Fund	—	—

PROXY VOTING GUIDELINES

The Board of Trustees (the Board) of each Vanguard fund has adopted proxy voting procedures and guidelines to govern proxy voting by the fund. The Board has delegated responsibility for monitoring proxy voting activities to the Investment Stewardship Oversight Committee (the Committee), made up of senior officers of Vanguard and subject to the operating procedures and guidelines described below. The Committee reports directly to the Board. Vanguard is subject to these procedures and guidelines to the extent that they call for Vanguard to administer the voting process and implement the resulting voting decisions, and for these purposes the guidelines have also been approved by the Board of Directors of Vanguard.

The overarching objective in voting is simple: to support proposals and director nominees that maximize the value of a fund's investments—and those of fund shareholders—over the long term. Although the goal is simple, the proposals the funds receive are varied and frequently complex. As such, the guidelines adopted by the Board provide a rigorous framework for assessing each proposal. Under the guidelines, each proposal must be evaluated on its merits, based on the particular facts and circumstances as presented.

For ease of reference, the procedures and guidelines often refer to all funds. However, our processes and practices seek to ensure that proxy voting decisions are suitable for individual funds. For most proxy proposals, particularly those involving corporate governance, the evaluation will result in the same position being taken across all of the funds and the funds voting as a block. In some cases, however, a fund may vote differently, depending upon the nature and objective of the fund, the composition of its portfolio, and other factors.

The guidelines do not permit the Board to delegate voting responsibility to a third party that does not serve as a fiduciary for the funds. Because many factors bear on each decision, the guidelines incorporate factors the Committee should consider in each voting decision. A fund may refrain from voting some or all of its shares or vote in a particular way if doing so would be in the fund's and its shareholders' best interests. These circumstances may arise, for example, if the expected cost of voting exceeds the expected benefits of voting, if exercising the vote would result in the imposition of trading or other restrictions, or if a fund (or all Vanguard funds in the aggregate) were to own more than the permissible maximum percentage of a company's stock (as determined by the company's governing documents or by applicable law, regulation, or regulatory agreement).

In evaluating proxy proposals, we consider information from many sources, including, but not limited to, the investment advisor for the fund, the management or shareholders of a company presenting a proposal, and independent proxy research services. We will give substantial weight to the recommendations of the company's board, absent guidelines or other specific facts that would support a vote against management. In all cases, however, the ultimate decision rests with the members of the Committee, who are accountable to the fund's Board.

While serving as a framework, the following guidelines cannot contemplate all possible proposals with which a fund may be presented. In the absence of a specific guideline for a particular proposal (e.g., in the case of a transactional issue or contested proxy), the Committee will evaluate the issue and cast the fund's vote in a manner that, in the Committee's view, will maximize the value of the fund's investment, subject to the individual circumstances of the fund.

I. The Board of Directors

A. Election of directors

Good governance starts with a majority-independent board, whose key committees are made up entirely of independent directors. As such, companies should attest to the independence of directors who serve on the Compensation, Nominating, and Audit committees. In any instance in which a director is not categorically independent, the basis for the independence determination should be clearly explained in the proxy statement.

Although the funds will generally support the board’s nominees, the following factors will be taken into account in determining each fund’s vote:

Factors For Approval	Factors Against Approval
Nominated slate results in board made up of a majority of independent directors.	Nominated slate results in board made up of a majority of non-independent directors.
All members of Audit, Nominating, and Compensation committees are independent of management.	Audit, Nominating, and/or Compensation committees include non-independent members.
	Incumbent board member failed to attend at least 75% of meetings in the previous year.
	Actions of committee(s) on which nominee serves are inconsistent with other guidelines (e.g., excessive equity grants, substantial non-audit fees, lack of board independence).
	Actions of committee(s) on which nominee serves demonstrate serious failures of governance (e.g., unilaterally acting to significantly reduce shareholder rights, failure to respond to previous vote results for directors and shareholder proposals).

B. Contested director elections

In the case of contested board elections, we will evaluate the nominees’ qualifications, the performance of the incumbent board, and the rationale behind the dissidents’ campaign, to determine the outcome that we believe will maximize shareholder value.

C. Classified boards

The funds will generally support proposals to declassify existing boards (whether proposed by management or shareholders), and will block efforts by companies to adopt classified board structures in which only part of the board is elected each year.

D. Proxy access

We believe that long-term investors may benefit from having proxy access, or the opportunity to place director nominees on a company’s proxy ballot. In our view, this improves shareholders’ ability to participate in director elections while potentially enhancing boards’ accountability and responsiveness to shareholders.

That said, we also believe that proxy access provisions should be appropriately limited to avoid abuse by investors who lack a meaningful long-term interest in the company. As such, we generally believe that a shareholder or group of shareholders representing 3% of a company’s outstanding shares held for at least three years should be able to nominate directors for up to 20% of the seats on the board.

We will review proposals regarding proxy access case by case. The funds will be most likely to support access provisions with the terms described above, but they may support different thresholds based on a company’s other governance provisions, as well as other relevant factors.

II. Approval of Independent Auditors

The relationship between the company and its auditors should be limited primarily to the audit, although it may include certain closely related activities that do not, in the aggregate, raise any appearance of impaired independence. The funds will generally support management’s recommendation for the ratification of the auditor, except in instances in which audit and audit-related fees make up less than 50% of the total fees paid by the company to the audit firm. We will evaluate on a case-by-case basis instances in which the audit firm has a substantial non-audit relationship with the company (regardless of its size relative to the audit fee) to determine whether independence has been compromised.

III. Compensation Issues

A. Stock-based compensation plans

Appropriately designed stock-based compensation plans, administered by an independent committee of the board and approved by shareholders, can be an effective way to align the interests of long-term shareholders with the interests of

management, employees, and directors. The funds oppose plans that substantially dilute their ownership interest in the company, provide participants with excessive awards, or have inherently objectionable structural features.

An independent compensation committee should have significant latitude to deliver varied compensation to motivate the company's employees. However, we will evaluate compensation proposals in the context of several factors (a company's industry, market capitalization, competitors for talent, etc.) to determine whether a particular plan or proposal balances the perspectives of employees and the company's other shareholders. We will evaluate each proposal on a case-by-case basis, taking all material facts and circumstances into account.

The following factors will be among those considered in evaluating these proposals:

Factors For Approval	Factors Against Approval
Company requires senior executives to hold a minimum amount of company stock (frequently expressed as a multiple of salary).	Total potential dilution (including all stock-based plans) exceeds 15% of shares outstanding.
Company requires stock acquired through equity awards to be held for a certain period of time.	Annual equity grants have exceeded 2% of shares outstanding.
Compensation program includes performance-vesting awards, indexed options, or other performance-linked grants.	Plan permits repricing or replacement of options without shareholder approval.
Concentration of equity grants to senior executives is limited (indicating that the plan is very broad-based).	Plan provides for the issuance of reload options.
Stock-based compensation is clearly used as a substitute for cash in delivering market-competitive total pay.	Plan contains automatic share replenishment (evergreen) feature.

B. Bonus plans

Bonus plans, which must be periodically submitted for shareholder approval to qualify for deductibility under Section 162(m) of the IRC, should have clearly defined performance criteria and maximum awards expressed in dollars. Bonus plans with awards that are excessive, in both absolute terms and relative to a comparative group, generally will not be supported.

C. Employee stock purchase plans

The funds will generally support the use of employee stock purchase plans to increase company stock ownership by employees, provided that shares purchased under the plan are acquired for no less than 85% of their market value and that shares reserved under the plan amount to less than 5% of the outstanding shares.

D. Advisory votes on executive compensation (Say on Pay)

In addition to proposals on specific equity or bonus plans, the funds are required to cast advisory votes approving many companies' overall executive compensation plans (so-called Say on Pay votes). In evaluating these proposals, we consider a number of factors, including the amount of compensation that is at risk, the amount of equity-based compensation that is linked to the company's performance, and the level of compensation as compared to industry peers. The funds will generally support pay programs that demonstrate effective linkage between pay and performance over time and that provide compensation opportunities that are competitive relative to industry peers. On the other hand, pay programs in which significant compensation is guaranteed or insufficiently linked to performance will be less likely to earn our support.

E. Executive severance agreements (golden parachutes)

Although executives' incentives for continued employment should be more significant than severance benefits, there are instances—particularly in the event of a change in control—in which severance arrangements may be appropriate. Severance benefits payable upon a change of control AND an executive's termination (so-called "double trigger" plans) are generally acceptable to the extent that benefits paid do not exceed three times salary and bonus. Arrangements in which the benefits exceed three times salary and bonus should be justified and submitted for shareholder approval. We do not generally support guaranteed severance absent a change in control or arrangements that do not require the termination of the executive (so-called "single trigger" plans).

IV. Corporate Structure and Shareholder Rights

The exercise of shareholder rights, in proportion to economic ownership, is a fundamental privilege of stock ownership that should not be unnecessarily limited. Such limits may be placed on shareholders' ability to act by corporate charter or by-law provisions, or by the adoption of certain takeover provisions. In general, the market for corporate control should be allowed to function without undue interference from these artificial barriers.

The funds' positions on a number of the most commonly presented issues in this area are as follows:

A. Shareholder rights plans (poison pills)

A company's adoption of a so-called poison pill effectively limits a potential acquirer's ability to buy a controlling interest without the approval of the target's board of directors. Such a plan, in conjunction with other takeover defenses, may serve to entrench incumbent management and directors. However, in other cases, a poison pill may force a suitor to negotiate with the board and result in the payment of a higher acquisition premium.

In general, shareholders should be afforded the opportunity to approve shareholder rights plans within a year of their adoption. This provides the board with the ability to put a poison pill in place for legitimate defensive purposes, subject to subsequent approval by shareholders. In evaluating the approval of proposed shareholder rights plans, we will consider the following factors:

Factors For Approval	Factors Against Approval
Plan is relatively short term (3-5 years).	Plan is long term (>5 years).
Plan requires shareholder approval for renewal.	Renewal of plan is automatic or does not require shareholder approval.
Plan incorporates review by a committee of independent directors at least every three years (so-called TIDE provisions).	Board with limited independence.
Ownership trigger is reasonable (15-20%).	Ownership trigger is less than 15%.
Highly independent, non-classified board.	Classified board.
Plan includes permitted-bid/qualified-offer feature (chewable pill) that mandates a shareholder vote in certain situations.	

B. Increase in authorized shares

The funds are supportive of companies seeking to increase authorized share amounts that do not potentially expose shareholders to excessive dilution. We will generally approve increases of up to 50% of the current share authorization, but will also consider a company's specific circumstances and market practices.

C. Cumulative voting

The funds are generally opposed to cumulative voting under the premise that it allows shareholders a voice in director elections that is disproportionate to their economic investment in the corporation.

D. Supermajority vote requirements

The funds support shareholders' ability to approve or reject matters presented for a vote based on a simple majority. Accordingly, the funds will support proposals to remove supermajority requirements and oppose proposals to impose them.

E. Right to call meetings and act by written consent

The funds support shareholders' right to call special meetings of the board (for good cause and with ample representation) and to act by written consent. The funds will generally vote for proposals to grant these rights to shareholders and against proposals to abridge them.

F. Confidential voting

The integrity of the voting process is enhanced substantially when shareholders (both institutions and individuals) can vote without fear of coercion or retribution based on their votes. As such, the funds support proposals to provide confidential voting.

G. Dual classes of stock

We are opposed to dual class capitalization structures that provide disparate voting rights to different groups of shareholders with similar economic investments. We will oppose the creation of separate classes with different voting rights and will support the dissolution of such classes.

V. Corporate and Social Policy Issues

We vote case by case on all environmental and social proposals. We evaluate these resolutions in the context of our view that a company's board has ultimate responsibility for providing effective ongoing oversight of relevant sector- and company-specific risks, including those related to environmental and social matters. We evaluate each proposal on its merits and support those where we believe there is a logically demonstrable linkage between the specific proposal and long-term shareholder value. Some of the factors considered when evaluating these proposals include the materiality of the issue, the quality of the current disclosure and business practices, and any progress by the company toward the adoption of best practices and/or industry norms.

VI. Voting in Foreign Markets

Corporate governance standards, disclosure requirements, and voting mechanics vary greatly among the markets outside the United States in which the funds may invest. Each fund's votes will be used, where applicable, to advocate for improvements in governance and disclosure by each fund's portfolio companies. We will evaluate issues presented to shareholders for each fund's foreign holdings in the context with the guidelines described above, as well as local market standards and best practices. The funds will cast their votes in a manner believed to be philosophically consistent with these guidelines, while taking into account differing practices by market. In addition, there may be instances in which the funds elect not to vote, as described below.

Many foreign markets require that securities be "blocked" or reregistered to vote at a company's meeting. Absent an issue of compelling economic importance, we will generally not subject the fund to the loss of liquidity imposed by these requirements.

The costs of voting (e.g., custodian fees, vote agency fees) in foreign markets may be substantially higher than for U.S. holdings. As such, the fund may limit its voting on foreign holdings in instances in which the issues presented are unlikely to have a material impact on shareholder value.

VII. Voting Shares of a Company that has an Ownership Limitation

Certain companies have provisions in their governing documents that restrict stock ownership in excess of a specified limit. Typically, these ownership restrictions are included in the governing documents of real estate investment trusts, but may be included in other companies' governing documents.

A company's governing documents normally allow the company to grant a waiver of these ownership limits, which would allow a fund (or all Vanguard-advised funds) to exceed the stated ownership limit. Sometimes a company will grant a waiver without restriction. From time to time, a company may grant a waiver only if a fund (or funds) agrees to not vote the company's shares in excess of the normal specified limit. In such a circumstance, a fund may refrain from voting shares if owning the shares beyond the company's specified limit is in the best interests of the fund and its shareholders.

In addition, applicable law may require prior regulatory approval to permit ownership of certain regulated issuer's voting securities above certain limits or may impose other restrictions on owners of more than a certain percentage of a regulated issuer's voting shares. The Board has authorized the funds to vote shares above these limits in the same proportion as votes cast by the issuer's entire shareholder base (i.e., mirror vote) or to refrain from voting excess shares if mirror voting is not practicable. For example, rules administered by the Board of Governors of the Federal Reserve System (the FRB) generally require that a person seeking to own more than 10% of a bank regulated by the FRB seek prior approval. Vanguard has obtained regulatory approval that allows Vanguard funds to own up to 15% of a class of a bank's outstanding voting shares without seeking prior regulatory approval, provided the funds' shares in excess of 10% are mirror voted or not voted at all.

These ownership limits may be applied at the individual fund level, across all Vanguard-advised funds, or across all Vanguard funds, regardless of whether they are advised by Vanguard.

VIII. Voting on a Fund's Holdings of Other Vanguard Funds

Certain Vanguard funds (owner funds) may, from time to time, own shares of other Vanguard funds (underlying funds). If an underlying fund submits a matter to a vote of its shareholders, votes for and against such matters on behalf of the owner funds will be cast in the same proportion as the votes of the other shareholders in the underlying fund.

IX. Investment Stewardship

The Board has delegated the day-to-day operation of the funds' proxy voting process to the Investment Stewardship team (Investment Stewardship), which the Committee oversees. Although most votes will be determined, subject to the individual circumstances of each fund, by reference to the guidelines as separately adopted by each of the funds, there may be circumstances when Investment Stewardship will refer proxy issues to the Committee for consideration. In addition, at any time, the Board has the authority to vote proxies, when, at the Board's or the Committee's discretion, such action is warranted.

Investment Stewardship performs the following functions: (1) managing and conducting due diligence of proxy voting vendors; (2) reconciling share positions; (3) analyzing proxy proposals using factors described in the guidelines; (4) determining and addressing potential or actual conflicts of interest that may be presented by a particular proxy; and (5) voting proxies. Investment Stewardship also prepares periodic and special reports to the Board, and any proposed amendments to the procedures and guidelines.

X. The Investment Stewardship Oversight Committee

The Board, including a majority of the independent trustees, appoints the members of the Committee who are senior officers of Vanguard.

The Committee does not include anyone whose primary duties include external client relationship management or sales. This clear separation between the proxy voting and client relationship functions is intended to eliminate any potential conflict of interest in the proxy voting process. In the unlikely event that a member of the Committee believes he or she might have a conflict of interest regarding a proxy vote, that member must recuse himself or herself from the committee meeting at which the matter is addressed, and not participate in the voting decision.

The Committee works with Investment Stewardship to provide reports and other guidance to the Board regarding proxy voting by the funds. The Committee has an obligation to conduct its meetings and exercise its decision-making authority subject to the fiduciary standards of good faith, fairness, and Vanguard's Code of Ethics. The Committee shall authorize proxy votes that the Committee determines, at its sole discretion, to be in the best interests of each fund's shareholders. In determining how to apply the guidelines to a particular factual situation, the Committee may not take into account any interest that would conflict with the interest of fund shareholders in maximizing the value of their investments.

The Board may review these procedures and guidelines and modify them from time to time. A summary of the procedures and guidelines is available on Vanguard's website at vanguard.com.

You may obtain a free copy of a report that details how the funds voted the proxies relating to the portfolio securities held by the funds for the prior 12-month period ended June 30 by logging on to Vanguard's website at vanguard.com or the SEC's website at www.sec.gov.

INFORMATION ABOUT THE ETF SHARE CLASS

Each Fund (collectively, the ETF Funds) offers and issues an exchange-traded class of shares called ETF Shares. Each Fund issues and redeems ETF Shares in large blocks, known as "Creation Units." For Vanguard 500 Index, Vanguard Large-Cap Index, Vanguard Mid-Cap Index, Vanguard Small-Cap Index, Vanguard Value Index, Vanguard Mid-Cap Value Index, Vanguard Small-Cap Value Index, Vanguard Growth Index, Vanguard Mid-Cap Growth Index, and Vanguard Small-Cap Growth Index Funds, the number of ETF Shares in a Creation Unit is 25,000; for Vanguard Total Stock Market Index Fund, the number of ETF Shares in a Creation Unit is 100,000; and for Vanguard Extended Market Index Fund, the number of ETF Shares in a Creation Unit is 200,000.

To purchase or redeem a Creation Unit, you must be an Authorized Participant or you must transact through a broker that is an Authorized Participant. An Authorized Participant is a participant in the Depository Trust Company (DTC) that has

executed a Participant Agreement with Vanguard Marketing Corporation, the Funds' Distributor (the Distributor). For a current list of Authorized Participants, contact the Distributor.

Investors that are not Authorized Participants must hold ETF Shares in a brokerage account. As with any stock traded on an exchange through a broker, purchases and sales of ETF Shares will be subject to usual and customary brokerage commissions.

Each ETF Fund issues Creation Units in kind in exchange for a basket of securities that are part of—or soon to be part of—its target index (Deposit Securities). Each ETF Fund also redeems Creation Units in kind; an investor who tenders a Creation Unit will receive, as redemption proceeds, a basket of securities that are part of the Fund's portfolio holdings (Redemption Securities). As part of any creation or redemption transaction, the investor will either pay or receive some cash in addition to the securities, as described more fully on the following pages. Each ETF Fund reserves the right to issue Creation Units for cash, rather than in kind.

Exchange Listing and Trading

The ETF Shares have been approved for listing on a national securities exchange and will trade on the exchange at market prices that may differ from net asset value (NAV). There can be no assurance that, in the future, ETF Shares will continue to meet all of the exchange's listing requirements. The exchange will institute procedures to delist a Fund's ETF Shares if the Fund's ETF Shares do not continuously comply with the exchange's listing rules. The exchange will also delist a Fund's ETF Shares upon termination of the ETF Share class.

The exchange disseminates, through the facilities of the Consolidated Tape Association, an updated "indicative optimized portfolio value" (IOPV) for each ETF Fund as calculated by an information provider. The ETF Funds are not involved with or responsible for the calculation or dissemination of the IOPVs, and they make no warranty as to the accuracy of the IOPVs. An IOPV for a Fund's ETF Shares is disseminated every 15 seconds during regular exchange trading hours. An IOPV has a securities value component and a cash component. The securities values included in an IOPV are based on the real-time market prices of the Deposit Securities for a Fund's ETF Shares. The IOPV is designed as an estimate of an ETF Fund's NAV at a particular point in time, but it is only an estimate and should not be viewed as the actual NAV, which is calculated once each day.

Conversions and Exchanges

Owners of conventional shares (i.e., not exchange-traded shares) issued by an ETF Fund may convert those shares to ETF Shares of equivalent value of the same Fund. Please note that investors who own conventional shares through a 401(k) plan or other employer-sponsored retirement or benefit plan generally may not convert those shares to ETF Shares and should check with their plan sponsor or recordkeeper. ETF Shares, whether acquired through a conversion or purchased on the secondary market, cannot be converted to conventional shares by a shareholder. Also, ETF Shares of one fund cannot be exchanged for ETF Shares of another fund.

Note for investors in Vanguard Institutional Total Stock Market Index Fund: Owners of shares issued by Vanguard Institutional Total Stock Market Index Fund **cannot** convert their shares to ETF Shares of Vanguard Total Stock Market Index Fund because the Funds are separate and distinct. Vanguard Institutional Total Stock Market Index Fund, which is offered through a separate prospectus and Statement of Additional Information, does not issue ETF Shares.

Investors that are not Authorized Participants must hold ETF Shares in a brokerage account. Thus, before converting conventional shares to ETF Shares, an investor must have an existing, or open a new, brokerage account. This account may be with Vanguard Brokerage Services or with any other brokerage firm. To initiate a conversion of conventional shares to ETF Shares, an investor must contact his or her broker.

Vanguard Brokerage Services does not impose a fee on conversions from Vanguard conventional shares to Vanguard ETF Shares. However, other brokerage firms may charge a fee to process a conversion. Vanguard reserves the right, in the future, to impose a transaction fee on conversions or to limit or terminate the conversion privilege.

Converting conventional shares to ETF Shares is generally accomplished as follows. First, after the broker notifies Vanguard of an investor's request to convert, Vanguard will transfer conventional shares from the investor's account with Vanguard to the broker's omnibus account with Vanguard (an account maintained by the broker on behalf of all its customers who hold conventional Vanguard fund shares through the broker). After the transfer, Vanguard's records will reflect the broker, not the investor, as the owner of the shares. Next, the broker will instruct Vanguard to convert the

appropriate number or dollar amount of conventional shares in its omnibus account to ETF Shares of equivalent value, based on the respective NAVs of the two share classes. The ETF Fund's transfer agent will reflect ownership of all ETF Shares in the name of the DTC. The DTC will keep track of which ETF Shares belong to the broker, and the broker, in turn, will keep track of which ETF Shares belong to its customers.

Because the DTC is unable to handle fractional shares, only whole shares can be converted. For example, if the investor owned 300.250 conventional shares, and this was equivalent in value to 90.750 ETF Shares, the DTC account would receive 90 ETF Shares. Conventional shares with a value equal to 0.750 ETF Shares (in this example, that would be 2.481 conventional shares) would remain in the broker's omnibus account with Vanguard. The broker then could either (1) take certain internal actions necessary to credit the investor's account with 0.750 ETF Shares or (2) redeem the 2.481 conventional shares for cash at NAV and deliver that cash to the investor's account. If the broker chose to redeem the conventional shares, the investor would realize a gain or loss on the redemption that must be reported on his or her tax return (unless the shares are held in an IRA or other tax-deferred account). An investor should consult his or her broker for information on how the broker will handle the conversion process, including whether the broker will impose a fee to process a conversion.

The conversion process works differently for investors who opt to hold ETF Shares through an account at Vanguard Brokerage Services. Investors who convert their conventional shares to ETF Shares through Vanguard Brokerage Services will have *all* conventional shares for which they request conversion converted to the equivalent dollar value of ETF Shares. Because no fractional shares will have to be sold, the transaction will not be taxable.

Here are some important points to keep in mind when converting conventional shares of an ETF Fund to ETF Shares:

- The conversion process can take anywhere from several days to several weeks, depending on the broker. Vanguard generally will process conversion requests either on the day they are received or on the next business day. Vanguard imposes conversion blackout windows around the dates when an ETF Fund declares dividends. This is necessary to prevent a shareholder from collecting a dividend from both the conventional share class currently held and also from the ETF share class to which the shares will be converted.
- During the conversion process, an investor will remain fully invested in the Fund's conventional shares, and the investment will increase or decrease in value in tandem with the NAV of those shares.
- The conversion transaction is nontaxable except, if applicable, to the very limited extent previously described.
- During the conversion process, an investor will be able to liquidate all or part of an investment by instructing Vanguard or the broker (depending on whether the shares are held in the investor's account or the broker's omnibus account) to redeem the conventional shares. After the conversion process is complete, an investor will be able to liquidate all or part of an investment by instructing the broker to sell the ETF Shares.

Book Entry Only System

ETF shares issued by the Funds are registered in the name of the DTC or its nominee, Cede & Co., and are deposited with, or on behalf of, the DTC. The DTC is a limited-purpose trust company that was created to hold securities of its participants (DTC Participants) and to facilitate the clearance and settlement of transactions among them through electronic book-entry changes in their accounts, thereby eliminating the need for physical movement of securities certificates. DTC Participants include securities brokers and dealers, banks, trust companies, clearing corporations, and certain other organizations. The DTC is a subsidiary of the Depository Trust and Clearing Corporation (DTCC), which is owned by certain participants of the DTCC's subsidiaries, including the DTC. Access to the DTC system is also available to others such as banks, brokers, dealers, and trust companies that clear through or maintain a custodial relationship with a DTC Participant, either directly or indirectly (Indirect Participants).

Beneficial ownership of ETF Shares is limited to DTC Participants, Indirect Participants, and persons holding interests through DTC Participants and Indirect Participants. Ownership of beneficial interests in ETF Shares (owners of such beneficial interests are referred to herein as Beneficial Owners) is shown on, and the transfer of ownership is effected only through, records maintained by the DTC (with respect to DTC Participants) and on the records of DTC Participants (with respect to Indirect Participants and Beneficial Owners that are not DTC Participants). Beneficial Owners will receive from, or through, the DTC Participant a written confirmation relating to their purchase of ETF Shares. The laws of some jurisdictions may require that certain purchasers of securities take physical delivery of such securities. Such laws may impair the ability of certain investors to acquire beneficial interests in ETF Shares.

Each ETF Fund recognizes the DTC or its nominee as the record owner of all ETF Shares for all purposes. Beneficial Owners of ETF Shares are not entitled to have ETF Shares registered in their names and will not receive or be entitled to physical delivery of share certificates. Each Beneficial Owner must rely on the procedures of the DTC and any DTC Participant and/or Indirect Participant through which such Beneficial Owner holds its interests to exercise any rights of a holder of ETF Shares.

Conveyance of all notices, statements, and other communications to Beneficial Owners is effected as follows. The DTC will make available to each ETF Fund, upon request and for a fee, a listing of the ETF Shares of the Fund held by each DTC Participant. The ETF Fund shall obtain from each DTC Participant the number of Beneficial Owners holding ETF Shares, directly or indirectly, through the DTC Participant. The ETF Fund shall provide each DTC Participant with copies of such notice, statement, or other communication, in form, in number, and at such place as the DTC Participant may reasonably request, in order that these communications may be transmitted by the DTC Participant, directly or indirectly, to the Beneficial Owners. In addition, the ETF Fund shall pay to each DTC Participant a fair and reasonable amount as reimbursement for the expenses attendant to such transmittal, subject to applicable statutory and regulatory requirements.

Share distributions shall be made to the DTC or its nominee as the registered holder of all ETF Shares. The DTC or its nominee, upon receipt of any such distributions, shall immediately credit the DTC Participants' accounts with payments in amounts proportionate to their respective beneficial interests in ETF Shares of the appropriate Fund as shown on the records of the DTC or its nominee. Payments by DTC Participants to Indirect Participants and Beneficial Owners of ETF Shares held through such DTC Participants will be governed by standing instructions and customary practices, as is now the case with securities held for the accounts of customers in bearer form or registered in a "street name," and will be the responsibility of such DTC Participants.

The ETF Funds have no responsibility or liability for any aspects of the records relating to or notices to Beneficial Owners; for payments made on account of beneficial ownership interests in such ETF Shares; for maintenance, supervision, or review of any records relating to such beneficial ownership interests; or for any other aspect of the relationship between the DTC and DTC Participants or the relationship between such DTC Participants and the Indirect Participants and Beneficial Owners owning through such DTC Participants.

The DTC may determine to discontinue providing its service with respect to ETF Shares at any time by giving reasonable notice to the ETF Funds and discharging its responsibilities with respect thereto under applicable law. Under such circumstances, the ETF Funds shall take action either to find a replacement for the DTC to perform its functions at a comparable cost or, if such replacement is unavailable, to issue and deliver printed certificates representing ownership of ETF Shares, unless the ETF Funds make other arrangements with respect thereto satisfactory to the exchange.

Purchase and Issuance of ETF Shares in Creation Units

Except for conversions to ETF Shares from conventional shares, the ETF Funds issue and sell ETF Shares only in Creation Units on a continuous basis through the Distributor, without a sales load, at their NAV next determined after receipt of an order in proper form on any business day. The ETF Funds do not issue fractional Creation Units.

A business day is any day on which the NYSE is open for business. As of the date of this Statement of Additional Information, the NYSE observes the following U.S. holidays: New Year's Day; Martin Luther King, Jr., Day; Presidents' Day (Washington's Birthday); Good Friday; Memorial Day (observed); Independence Day; Labor Day; Thanksgiving Day; and Christmas Day.

Fund Deposit. The consideration for purchase of a Creation Unit from an ETF Fund generally consists of the in-kind deposit of a designated portfolio of securities (Deposit Securities) and an amount of cash (Cash Component) consisting of a purchase balancing amount and a transaction fee (both described in the following paragraphs). Together, the Deposit Securities and the Cash Component constitute the fund deposit.

The purchase balancing amount is an amount equal to the difference between the NAV of a Creation Unit and the market value of the Deposit Securities (Deposit Amount). It ensures that the NAV of a fund deposit (not including the transaction fee) is identical to the NAV of the Creation Unit it is used to purchase. If the purchase balancing amount is a positive number (i.e., the NAV per Creation Unit exceeds the market value of the Deposit Securities), then that amount will be paid by the purchaser to the ETF Fund in cash. If the purchase balancing amount is a negative number (i.e., the NAV per Creation Unit is less than the market value of the Deposit Securities), then that amount will be paid by an ETF Fund to the purchaser in cash (except as offset by the transaction fee).

Vanguard, through the National Securities Clearing Corporation (NSCC), makes available after the close of each business day a list of the names and the number of shares of each Deposit Security to be included in the next business day's fund deposit for each ETF Fund (subject to possible amendment or correction). Each ETF Fund reserves the right to accept a nonconforming fund deposit.

The identity and number of shares of the Deposit Securities required for a fund deposit may change from one day to another to reflect rebalancing adjustments and corporate actions or to respond to adjustments to the weighting or composition of the component securities of the relevant target index.

In addition, each ETF Fund reserves the right to permit or require the substitution of an amount of cash—referred to as “cash in lieu”—to be added to the Cash Component to replace any Deposit Security. This might occur, for example, if a Deposit Security is not available in sufficient quantity for delivery, is not eligible for transfer through the applicable clearance and settlement system, or is not eligible for trading by an Authorized Participant or the investor for which an Authorized Participant is acting. Trading costs incurred by the ETF Fund in connection with the purchase of Deposit Securities with cash-in-lieu amounts will be an expense of the ETF Fund. However, Vanguard may adjust the transaction fee to protect existing shareholders from this expense.

All questions as to the number of shares of each security in the Deposit Securities and the validity, form, eligibility, and acceptance for deposit of any securities to be delivered shall be determined by the appropriate ETF Fund, and the ETF Fund's determination shall be final and binding.

Procedures for Purchasing Creation Units. An Authorized Participant may place an order to purchase Creation Units from an ETF Fund either (1) through the Continuous Net Settlement (CNS) clearing processes of the NSCC as such processes have been enhanced to effect purchases of Creation Units, such processes being referred to herein as the Clearing Process, or (2) outside the Clearing Process. To purchase through the Clearing Process, an Authorized Participant must be a member of the NSCC that is eligible to use the CNS system. Purchases of Creation Units cleared through the Clearing Process will be subject to a lower transaction fee than those cleared outside the Clearing Process.

To initiate a purchase order for a Creation Unit (either through the Clearing Process or outside the Clearing Process) an Authorized Participant must submit an order in proper form to the Distributor and such order must be received by the Distributor prior to the closing time of regular trading on the NYSE (Closing Time) (ordinarily 4 p.m., Eastern time) to receive that day's NAV. The date on which an order to purchase (or redeem) Creation Units is placed is referred to as the transmittal date. Authorized Participants must transmit orders using a transmission method acceptable to the Distributor pursuant to procedures set forth in the Participant Agreement.

Purchase orders effected outside the Clearing Process are likely to require transmittal by the Authorized Participant earlier on the transmittal date than orders effected using the Clearing Process. Those persons placing orders outside the Clearing Process should ascertain the deadlines applicable to the DTC and the Federal Reserve Bank wire system by contacting the operations department of the broker or depository institution effectuating such transfer of Deposit Securities and Cash Component.

Neither the Trust, the ETF Funds, the Distributor, nor any affiliated party will be liable to an investor who is unable to submit a purchase order by Closing Time, even if the problem is the responsibility of one of those parties (e.g., the Distributor's phone or email systems were not operating properly).

If you are not an Authorized Participant, you must place your purchase order in an acceptable form with an Authorized Participant. The Authorized Participant may request that you make certain representations or enter into agreements with respect to the order (e.g., to provide for payments of cash when required).

Placement of Purchase Orders Using the Clearing Process. For purchase orders placed through the Clearing Process, the Participant Agreement authorizes the Distributor to transmit through the transfer agent or index receipt agent to the NSCC, on behalf of an Authorized Participant, such trade instructions as are necessary to effect the Authorized Participant's purchase order. Pursuant to such trade instructions to the NSCC, the Authorized Participant agrees to deliver the requisite Deposit Securities and the Cash Component to the appropriate ETF Fund, together with such additional information as may be required by the Distributor.

An order to purchase Creation Units through the Clearing Process is deemed received on the transmittal date if (1) such order is received by the ETF Fund's designated agent before Closing Time on such transmittal date and (2) all other procedures set forth in the Participant Agreement are properly followed. Such order will be effected based on the NAV of the ETF Fund next determined on that day. An order to purchase Creation Units through the Clearing Process

made in proper form but received after Closing Time on the transmittal date will be deemed received on the next business day immediately following the transmittal date and will be effected at the NAV next determined on that day. The Deposit Securities and the Cash Component will be transferred by the second NSCC business day following the date on which the purchase request is deemed received.

Placement of Purchase Orders Outside the Clearing Process. An Authorized Participant that wishes to place an order to purchase Creation Units outside the Clearing Process must state that it is not using the Clearing Process and that the purchase instead will be effected through a transfer of securities and cash directly through the DTC. An order to purchase Creation Units outside the Clearing Process is deemed received by the ETF Fund's designated agent on the transmittal date if (1) such order is received by the Distributor before Closing Time on such transmittal date and (2) all other procedures set forth in the Participant Agreement are properly followed.

If a fund deposit is incomplete on the second business day after the trade date (the trade date, known as "T," is the date on which the trade actually takes place; two business days after the trade date is known as "T+2") because of the failed delivery of one or more of the Deposit Securities, an ETF Fund shall be entitled to cancel the purchase order.

Alternatively, the ETF Fund may issue Creation Units in reliance on the Authorized Participant's undertaking to deliver the missing Deposit Securities at a later date. Such undertaking shall be secured by the delivery and maintenance of cash collateral in an amount determined by the ETF Fund in accordance with the terms of the Participant Agreement.

Rejection of Purchase Orders. Each ETF Fund reserves the absolute right to reject a purchase order. By way of example, and not limitation, an ETF Fund will reject a purchase order if:

- The order is not in proper form.
- The Deposit Securities delivered are not the same (in name or amount) as the published basket.
- Acceptance of the Deposit Securities would have certain adverse tax consequences to the ETF Fund.
- Acceptance of the fund deposit would, in the opinion of counsel, be unlawful.
- Acceptance of the fund deposit would otherwise, at the discretion of the ETF Fund or Vanguard, have an adverse effect on the Fund or any of its shareholders.
- Circumstances outside the control of the ETF Fund, the Trust, the transfer agent, the custodian, the Distributor, and Vanguard make it for all practical purposes impossible to process the order. Examples include, but are not limited to, natural disasters, public service disruptions, or utility problems such as fires, floods, extreme weather conditions, and power outages resulting in telephone, telecopy, and computer failures; market conditions or activities causing trading halts; systems failures involving computer or other information systems affecting the aforementioned parties as well as the DTC, the NSCC, or any other participant in the purchase process; and similar extraordinary events.

If the purchase order is rejected, the Distributor shall notify the Authorized Participant that submitted the order. The ETF Funds, the Trust, the transfer agent, the custodian, the Distributor, and Vanguard are under no duty, however, to give notification of any defects or irregularities in the delivery of a fund deposit, nor shall any of them incur any liability for the failure to give any such notification.

Transaction Fee on Purchases of Creation Units. Each ETF Fund may impose a transaction fee (payable to the Fund) to compensate the ETF Fund for costs associated with the issuance of Creation Units. The amount of the fee, which may be changed by Vanguard from time to time at its sole discretion, is made available daily to Authorized Participants, market makers, and other interested parties through Vanguard's proprietary portal system. An additional charge may be imposed for purchases of Creation Units effected outside the Clearing Process. When an ETF Fund permits (or requires) a purchaser to substitute cash in lieu of depositing one or more Deposit Securities, the purchaser may be assessed an additional charge on the cash-in-lieu portion of the investment. The amount of this charge will be disclosed to investors before they place their orders. The amount will be determined by the ETF Fund at its sole discretion but will not be more than the Fund's good faith estimate of the costs it will incur investing the cash in lieu, which may include, if applicable, market-impact costs. The maximum transaction fee on purchases of Creation Units, including any additional charges as described, shall be 2% of the value of the Creation Units.

Redemption of ETF Shares in Creation Units

To be eligible to place a redemption order, you must be an Authorized Participant. Investors that are not Authorized Participants must make appropriate arrangements with an Authorized Participant in order to redeem a Creation Unit.

ETF Shares may be redeemed only in Creation Units. Investors should expect to incur brokerage and other costs in connection with assembling a sufficient number of ETF Shares to constitute a redeemable Creation Unit. There can be no assurance, however, that there will be sufficient liquidity in the public trading market at any time to permit assembly of a Creation Unit. Redemption requests received on a business day in good order will receive the NAV next determined after the request is made.

Unless cash redemptions are available or specified for an ETF Fund, an investor tendering a Creation Unit generally will receive redemption proceeds consisting of (1) a basket of Redemption Securities; plus (2) a redemption balancing amount in cash equal to the difference between (x) the NAV of the Creation Unit being redeemed, as next determined after receipt of a request in proper form, and (y) the value of the Redemption Securities; less (3) a transaction fee. If the Redemption Securities have a value greater than the NAV of a Creation Unit, the redeeming investor will pay the redemption balancing amount in cash to the ETF Fund rather than receive such amount from the Fund.

Vanguard, through the NSCC, makes available after the close of each business day a list of the names and the number of shares of each Redemption Security to be included in the next business day's redemption basket for each ETF Fund (subject to possible amendment or correction). The basket of Redemption Securities provided to an investor redeeming a Creation Unit may not be identical to the basket of Deposit Securities required of an investor purchasing a Creation Unit. If an ETF Fund and a redeeming investor mutually agree, the Fund may provide the investor with a basket of Redemption Securities that differs from the composition of the redemption basket published through the NSCC.

Each ETF Fund reserves the right to deliver cash in lieu of any Redemption Security for the same reason it might accept cash in lieu of a Deposit Security, as previously discussed, or if the ETF Fund could not lawfully deliver the security or could not do so without first registering such security under federal or state law.

Neither the Trust, the ETF Funds, the Distributor, nor any affiliated party will be liable to an investor who is unable to submit a redemption order by Closing Time, even if the problem is the responsibility of one of those parties (e.g., the Distributor's phone or email systems were not operating properly).

Transaction Fee on Redemptions of Creation Units. Each ETF Fund may impose a transaction fee (payable to the Fund) to compensate the ETF Fund for costs associated with the redemption of Creation Units. The amount of the fee, which may be changed by Vanguard from time to time at its sole discretion, is made available daily to Authorized Participants, market makers, and other interested parties through Vanguard's proprietary portal system. An additional charge may be imposed for redemptions of Creation Units effected outside the Clearing Process. When an ETF Fund permits (or requires) a redeeming investor to receive cash in lieu of one or more Redemption Securities, the investor will be assessed an additional charge on the cash-in-lieu portion of the redemption. The amount of this charge will be disclosed to investors before they place their orders. The amount will vary as determined by the ETF Fund at its sole discretion but will not be more than the Fund's good faith estimate of the costs it will incur by selling portfolio securities to raise the necessary cash, which may include, if applicable, market-impact costs. The maximum transaction fee on redemptions of Creation Units, including any additional charges as described, shall be 2% of the value of the Creation Units.

Placement of Redemption Orders Using the Clearing Process. An Authorized Participant may place an order to redeem Creation Units of an ETF Fund either (1) through the CNS clearing processes of the NSCC as such processes have been enhanced to effect redemptions of Creation Units, such processes being referred to herein as the Clearing Process, or (2) outside the Clearing Process. To redeem through the Clearing Process, an Authorized Participant must be a member of the NSCC that is eligible to use the CNS system. Redemptions of Creation Units cleared through the Clearing Process will be subject to a lower transaction fee than those cleared outside the Clearing Process.

An order to redeem Creation Units through the Clearing Process is deemed received on the transmittal date if (1) such order is received by the ETF Fund's designated agent before Closing Time on such transmittal date and (2) all other procedures set forth in the Participant Agreement are properly followed. Such order will be effected based on the NAV of an ETF Fund next determined on that day. An order to redeem Creation Units through the Clearing Process made in proper form but received by an ETF Fund after Closing Time on the transmittal date will be deemed received on the next business day immediately following the transmittal date and will be effected at the NAV next determined on that day.

The Redemption Securities and the Cash Redemption Amount will be transferred by the second NSCC business day following the date on which the redemption request is deemed received.

Placement of Redemption Orders Outside the Clearing Process. An Authorized Participant that wishes to place an order to redeem a Creation Unit outside the Clearing Process must state that it is not using the Clearing Process and that the redemption instead will be effected through a transfer of ETF Shares directly through the DTC. An order to redeem a Creation Unit of an ETF Fund outside the Clearing Process is deemed received on the transmittal date if (1) such order is received by the ETF Fund's designated agent before Closing Time on such transmittal date and (2) all other procedures set forth in the Participant Agreement are properly followed.

If a redemption order in proper form is submitted to the transfer agent by an Authorized Participant prior to Closing Time on the transmittal date, then the value of the Redemption Securities and the Cash Redemption Amount will be determined by the ETF Fund on such transmittal date.

After the transfer agent has deemed an order for redemption outside the Clearing Process received, the transfer agent will initiate procedures to transfer the Redemption Securities and the Cash Redemption Amount to the Authorized Participant on behalf of the redeeming Beneficial Owner by the second business day following the transmittal date on which such redemption order is deemed received by the transfer agent.

If on T+2 an Authorized Participant has failed to deliver all of the Vanguard ETF Shares it is seeking to redeem, the ETF Fund shall be entitled to cancel the redemption order. Alternatively, the ETF Fund may deliver to the Authorized Participant the full complement of Redemption Securities and cash in reliance on the Authorized Participant's undertaking to deliver the missing ETF Shares at a later date. Such undertaking shall be secured by the Authorized Participant's delivery and maintenance of cash collateral in accordance with collateral procedures that are part of the Participant Agreement. In all cases the ETF Fund shall be entitled to charge the Authorized Participant for any costs (including investment losses, attorney's fees, and interest) incurred by the ETF Fund as a result of the late delivery or failure to deliver.

Each ETF Fund reserves the right, at its sole discretion, to require or permit a redeeming investor to receive the redemption proceeds in cash. In such cases, the investor would receive a cash payment equal to the NAV of its ETF Shares based on the NAV of those shares next determined after the redemption request is received in proper form (minus a transaction fee, including a charge for cash redemptions, as previously discussed).

If an Authorized Participant, or a redeeming investor acting through an Authorized Participant, is subject to a legal restriction with respect to a particular security included in the basket of Redemption Securities, such investor may be paid an equivalent amount of cash in lieu of the security. In addition, each ETF Fund reserves the right to redeem Creation Units partially for cash to the extent that the Fund could not lawfully deliver one or more Redemption Securities or could not do so without first registering such securities under federal or state law.

Suspension of Redemption Rights. The right of redemption may be suspended or the date of payment postponed with respect to an ETF Fund (1) for any period during which the NYSE or listing exchange is closed (other than customary weekend and holiday closings), (2) for any period during which trading on the NYSE or listing exchange is suspended or restricted, (3) for any period during which an emergency exists as a result of which disposal of the Fund's portfolio securities or determination of its NAV is not reasonably practicable, or (4) in such other circumstances as the SEC permits.

Precautionary Notes

A precautionary note to retail investors: The DTC or its nominee will be the registered owner of all outstanding ETF Shares. Your ownership of ETF Shares will be shown on the records of the DTC and the DTC Participant broker through which you hold the shares. Vanguard will not have any record of your ownership. Your account information will be maintained by your broker, which will provide you with account statements, confirmations of your purchases and sales of ETF Shares, and tax information. Your broker also will be responsible for distributing income and capital gains distributions and for ensuring that you receive shareholder reports and other communications from the fund whose ETF Shares you own. You will receive other services (e.g., dividend reinvestment and average cost information) only if your broker offers these services.

A precautionary note to purchasers of Creation Units: You should be aware of certain legal risks unique to investors purchasing Creation Units directly from the issuing fund.

Because new ETF Shares may be issued on an ongoing basis, a “distribution” of ETF Shares could be occurring at any time. Certain activities that you perform as a dealer could, depending on the circumstances, result in your being deemed a participant in the distribution in a manner that could render you a statutory underwriter and subject you to the prospectus delivery and liability provisions of the Securities Act of 1933 (the 1933 Act). For example, you could be deemed a statutory underwriter if you purchase Creation Units from the issuing fund, break them down into the constituent ETF Shares, and sell those shares directly to customers or if you choose to couple the creation of a supply of new ETF Shares with an active selling effort involving solicitation of secondary market demand for ETF Shares. Whether a person is an underwriter depends upon all of the facts and circumstances pertaining to that person’s activities, and the examples mentioned here should not be considered a complete description of all the activities that could cause you to be deemed an underwriter.

Dealers who are not “underwriters” but are participating in a distribution (as opposed to engaging in ordinary secondary-market transactions), and thus dealing with ETF Shares as part of an “unsold allotment” within the meaning of Section 4(3)(C) of the Securities Act, will be unable to take advantage of the prospectus delivery exemption provided by Section 4(3) of the Securities Act.

A precautionary note to shareholders redeeming Creation Units: An Authorized Participant that is not a “qualified institutional buyer” as defined in Rule 144A under the 1933 Act will not be able to receive, as part of the redemption basket, restricted securities eligible for resale under Rule 144A.

A precautionary note to investment companies: Vanguard ETF Shares are issued by registered investment companies, and therefore the acquisition of such shares by other investment companies is subject to the restrictions of Section 12(d)(1) of the Investment Company Act of 1940. Vanguard has obtained an SEC exemptive order that allows registered investment companies to invest in the issuing funds beyond the limits of Section 12(d)(1), subject to certain terms and conditions, including the requirement to enter into a participation agreement with Vanguard.

FINANCIAL STATEMENTS

Each Fund’s Financial Statements for the fiscal year ended December 31, 2017, appearing in the Funds’ 2017 Annual Reports to Shareholders, and the reports thereon of PricewaterhouseCoopers LLP, an independent registered public accounting firm, also appearing therein, are incorporated by reference into this Statement of Additional Information. For a more complete discussion of each Fund’s performance, please see the Funds’ Annual and Semiannual Reports to Shareholders, which may be obtained without charge.

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