

Vanguard Funds

Supplement Dated March 8, 2022, to the Statement of Additional Information

Statement of Additional Information Text Changes

The following is added to (or added as the last paragraph of the existing "*Foreign Securities—Russian Market Risk*" sub-section within) the **Investment Strategies, Risks, and Nonfundamental Policies** section:

Foreign Securities—Russian Market Risk. Russia's recent launch of a large-scale invasion of Ukraine has resulted in sanctions against Russian governmental institutions, Russian entities, and Russian individuals that may result in the devaluation of Russian currency; a downgrade in the country's credit rating; a freeze of Russian foreign assets; a decline in the value and liquidity of Russian securities, properties, or interests; and other adverse consequences to the Russian economy and Russian assets. In addition, a fund's ability to price, buy, sell, receive, or deliver Russian investments has been and may continue to be impaired. These sanctions, and the resulting disruption of the Russian economy, may cause volatility in other regional and global markets and may negatively impact the performance of various sectors and industries, as well as companies in other countries, which could have a negative effect on the performance of a fund, even if the fund does not have direct exposure to securities of Russian issuers.

Vanguard Funds

Supplement Dated February 22, 2022, to the Statement of Additional Information

Leadership Announcement

Effective February 21, 2022, Ashley Grim has been appointed treasurer of the Vanguard funds. In addition, Amy Gutmann has retired as trustee of the Vanguard funds.

Statement of Additional Information Text Changes

In the **Management of the Fund(s)** section under the heading “Officers and Trustees,” Ms. Grim’s biographical information is added as follows:

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
Ashley Grim (1984)	Treasurer	February 2022	Treasurer (February 2022–present) of each of the investment companies served by Vanguard. Fund Transfer Agent Controller (2019– 2022) and Director of Audit Services (2017–2019) at Vanguard. Senior Manager (2006–2017) at PriceWaterhouseCoopers (audit and assurance, consulting, and tax services).

In addition, Christine Buchanan’s biographical information is replaced with the following:

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
Christine M. Buchanan (1970)	Chief Financial Officer	November 2017	Principal of Vanguard. Chief financial officer (2021–present) and treasurer (2017–2021) of each of the investment companies served by Vanguard. Partner (2005–2017) at KPMG (audit, tax, and advisory services).

All references to Amy Gutmann are hereby deleted from the Statement of Additional Information.

PART B
VANGUARD[®] MONEY MARKET RESERVES
VANGUARD ADMIRAL FUNDS[®]

(individually, a Trust; collectively, the Trusts)

**VANGUARD CASH RESERVES FEDERAL MONEY MARKET FUND, VANGUARD FEDERAL MONEY MARKET FUND,
VANGUARD TREASURY MONEY MARKET FUND (the Funds)**

STATEMENT OF ADDITIONAL INFORMATION

December 17, 2021

This Statement of Additional Information is not a prospectus but should be read in conjunction with a Fund's current prospectus (dated December 17, 2021). 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 TRUSTS

The Trusts currently offer the following funds and share classes (identified by ticker symbol):

Vanguard Fund²	Share Classes¹			
	Investor	Admiral	Institutional	ETF
Vanguard Money Market Reserves				
Vanguard Cash Reserves Federal Money Market Fund ³	—	VMRXX	—	—
Vanguard Federal Money Market Fund	VMFXX	—	—	—
Vanguard Admiral Funds				
Vanguard Treasury Money Market Fund ⁴	VUSXX	—	—	—
Vanguard S&P 500 Growth Index Fund	—	—	VSPGX	VOOG
Vanguard S&P 500 Value Index Fund	—	—	VSPVX	VOOV
Vanguard S&P Mid-Cap 400 Index Fund	—	—	VSPMX	IVOO
Vanguard S&P Mid-Cap 400 Growth Index Fund	—	—	VMFGX	IVOG
Vanguard S&P Mid-Cap 400 Value Index Fund	—	—	VMFVX	IVOV
Vanguard S&P Small-Cap 600 Index Fund	—	—	VSMSX	VIOO
Vanguard S&P Small-Cap 600 Growth Index Fund	—	—	VSGNX	VIOG
Vanguard S&P Small-Cap 600 Value Index Fund	—	—	VSMVX	VIOV

1 Individually, a class; collectively, the classes.

2 Individually, a Fund; collectively, the Funds.

3 Prior to September 29, 2020 the Fund was named Vanguard Prime Money Market Fund.

4 Prior to December 14, 2015, the Fund was named Vanguard Admiral Treasury Money Market Fund.

For the Vanguard Admiral Funds Trust, this Statement of Additional Information relates only to Vanguard Treasury Money Market Fund. A separate Statement of Additional Information (dated December 20, 2021) relates to the other funds in the Vanguard Admiral Funds Trust and can be obtained free of charge by contacting Vanguard (800-662-7447).

Each 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.

Throughout this document, any references to “class” apply only to the extent a Fund issues multiple classes.

Organization

Vanguard Money Market Reserves was organized as Whitehall Money Market Trust in 1974 and was reorganized as a Maryland corporation in 1985. It was then reorganized as a Delaware statutory trust in 1998. Prior to its reorganization as a Delaware statutory trust, the Trust was known as Vanguard Money Market Reserves, Inc. *Vanguard Admiral Funds* was organized as a Maryland corporation in 1992 and was reorganized as a Delaware statutory trust in 1998. Each 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 Trusts are classified as diversified within the meaning of the 1940 Act.

Service Providers

Custodian. The Bank of New York Mellon, 240 Greenwich Street, New York, NY 10286, serves as the Funds’ custodian. The custodian is responsible for maintaining the Funds’ assets, keeping all necessary accounts and records of Fund assets, and appointing any foreign subcustodians 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. Each 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 a Fund or the 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 the Funds' shares.

Conversion Rights. There are no conversion rights associated with the Funds' shares.

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, each Fund must comply with certain requirements relating to the source of its income and the diversification of its assets. If a 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.

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.

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. Each Fund may not 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.

A Fund may, however, invest in a single issuer as permitted by the SEC (which currently permits a money market fund to invest up to 25% of its total assets in the highest-quality securities of a single issuer for a period of up to three business days). Additionally, Vanguard Treasury Money Market Fund may not purchase more than 10% of the outstanding voting securities of any one issuer.

Industry Concentration. Each Fund (other than Vanguard Cash Reserves Federal Money Market Fund) will not concentrate its investments in the securities of issuers whose principal business activities are in the same industry or group of industries, except that each Fund reserves the right to concentrate its investments in government securities, as defined in the 1940 Act, and certificates of deposit and bankers' acceptances issued by domestic banks (which may include U.S. branches of non-U.S. banks).

Vanguard Cash Reserves Federal Money Market Fund will concentrate its assets in the securities of issuers whose principal business activities are in the financial services industry. For the purposes of this policy, the financial services industry is deemed to include the group of industries within the financial services sector. In addition, the Fund reserves the right to concentrate its investments in government securities, as defined in the 1940 Act.

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 a 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 (i.e., 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 (at the time of borrowing) 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.

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, transfer agents, 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 that could impact a Vanguard fund or its shareholders. 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, or a fund may be unable to safeguard its data or the personal information of its shareholders.

Debt Securities. A debt security, sometimes called a fixed income security, consists of a certificate or other evidence of a debt (secured or unsecured) upon which the issuer of the debt security promises to pay the holder a fixed, variable, or floating rate of interest for a specified length of time and to repay the debt on the specified maturity date. Some debt securities, such as zero-coupon bonds, do not make regular interest payments but are issued at a discount to their principal or maturity value. Debt securities include a variety of fixed income obligations, including, but not limited to, corporate bonds, government securities, municipal securities, convertible securities, mortgage-backed securities, and asset-backed securities. Debt securities include investment-grade securities, non-investment-grade securities, and unrated securities. Debt securities are subject to a variety of risks, such as interest rate risk, income risk, call risk, prepayment risk, extension risk, inflation risk, credit risk, liquidity risk, coupon deferral risk, lower recovery value risk, and (in the case of foreign securities) country risk and currency risk. The reorganization of an issuer under the federal

bankruptcy laws or an out-of-court restructuring of an issuer's capital structure may result in the issuer's debt securities being cancelled without repayment, repaid only in part, or repaid in part or in whole through an exchange thereof for any combination of cash, debt securities, convertible securities, equity securities, or other instruments or rights in respect to the same issuer or a related entity.

Debt Securities—Commercial Paper. Commercial paper refers to short-term, unsecured promissory notes issued by corporations to finance short-term credit needs. It is usually sold on a discount basis and has a maturity at the time of issuance not exceeding 9 months. High-quality commercial paper typically has the following characteristics: (1) liquidity ratios are adequate to meet cash requirements; (2) long-term senior debt is also high credit quality; (3) the issuer has access to at least two additional channels of borrowing; (4) basic earnings and cash flow have an upward trend with allowance made for unusual circumstances; (5) typically, the issuer's industry is well established and the issuer has a strong position within the industry; and (6) the reliability and quality of management are unquestioned. In assessing the credit quality of commercial paper issuers, the following factors may be considered: (1) evaluation of the management of the issuer, (2) economic evaluation of the issuer's industry or industries and the appraisal of speculative-type risks that may be inherent in certain areas, (3) evaluation of the issuer's products in relation to competition and customer acceptance, (4) liquidity, (5) amount and quality of long-term debt, (6) trend of earnings over a period of ten years, (7) financial strength of a parent company and the relationships that exist with the issuer, and (8) recognition by the management of obligations that may be present or may arise as a result of public-interest questions and preparations to meet such obligations. The short-term nature of a commercial paper investment makes it less susceptible to interest rate risk than longer-term fixed income securities because interest rate risk typically increases as maturity lengths increase. Additionally, an issuer may expect to repay commercial paper obligations at maturity from the proceeds of the issuance of new commercial paper. As a result, investment in commercial paper is subject to the risk the issuer cannot issue enough new commercial paper to satisfy its outstanding commercial paper payment obligations, also known as rollover risk. Commercial paper may suffer from reduced liquidity due to certain circumstances, in particular, during stressed markets. In addition, as with all fixed income securities, an issuer may default on its commercial paper obligation.

Variable-amount master-demand notes are demand obligations that permit the investment of fluctuating amounts at varying market rates of interest pursuant to an arrangement between the issuer and a commercial bank acting as agent for the payees of such notes, whereby both parties have the right to vary the amount of the outstanding indebtedness on the notes. Because variable-amount master-demand notes are direct lending arrangements between a lender and a borrower, it is not generally contemplated that such instruments will be traded, and there is no secondary market for these notes, although they are redeemable (and thus immediately repayable by the borrower) at face value, plus accrued interest, at any time. In connection with a fund's investment in variable-amount master-demand notes, Vanguard's investment management staff will monitor, on an ongoing basis, the earning power, cash flow, and other liquidity ratios of the issuer, along with the borrower's ability to pay principal and interest on demand.

Debt Securities—U.S. Government Securities. The term "U.S. government securities" refers to a variety of debt securities that are issued or guaranteed by the U.S. Treasury, by various agencies of the U.S. government, or by various instrumentalities that have been established or sponsored by the U.S. government. The term also refers to repurchase agreements collateralized by such securities.

U.S. Treasury securities are backed by the full faith and credit of the U.S. government, meaning that the U.S. government is required to repay the principal in the event of default. Other types of securities issued or guaranteed by federal agencies and U.S. government-sponsored instrumentalities may or may not be backed by the full faith and credit of the U.S. government. The U.S. government, however, does not guarantee the market price of any U.S. government securities. In the case of securities not backed by the full faith and credit of the U.S. government, the investor must look principally to the agency or instrumentality issuing or guaranteeing the obligation for ultimate repayment and may not be able to assert a claim against the United States itself in the event the agency or instrumentality does not meet its commitment.

Some of the U.S. government agencies that issue or guarantee securities include the Government National Mortgage Association, the Export-Import Bank of the United States, the Federal Housing Administration, the Maritime Administration, the Small Business Administration, and the Tennessee Valley Authority. An instrumentality of the U.S. government is a government agency organized under federal charter with government supervision. Instrumentalities issuing or guaranteeing securities include, among others, the Federal Deposit Insurance Corporation, the Federal Home Loan Banks, and the Federal National Mortgage Association. From time to time, uncertainty regarding the status of negotiations in the U.S. government to increase the statutory debt ceiling could increase the risk that the U.S. government may default on payments on certain U.S. government securities, cause the credit rating of the U.S.

government to be downgraded, increase volatility in the stock and bond markets, result in higher interest rates, reduce prices of U.S. Treasury securities, and/or increase the costs of various kinds of debt. If a U.S. Government-sponsored entity is negatively impacted by legislative or regulatory action, is unable to meet its obligations, or its creditworthiness declines, the performance of a fund that holds securities of the entity may be adversely impacted.

Debt Securities—Variable and Floating Rate Securities. Variable and floating rate securities are debt securities that provide for periodic adjustments in the interest rate paid on the security. Variable rate securities provide for a specified periodic adjustment in the interest rate, while floating rate securities have interest rates that change whenever there is a change in a designated benchmark or reference rate (such as the Secured Overnight Financing Rate (SOFR) or another reference rate) or the issuer's credit quality. There is a risk that the current interest rate on variable and floating rate securities may not accurately reflect current market interest rates or adequately compensate the holder for the current creditworthiness of the issuer. Some variable or floating rate securities are structured with liquidity features such as (1) put options or tender options that permit holders (sometimes subject to conditions) to demand payment of the unpaid principal balance plus accrued interest from the issuers or certain financial intermediaries or (2) auction-rate features, remarketing provisions, or other maturity-shortening devices designed to enable the issuer to refinance or redeem outstanding debt securities (market-dependent liquidity features). Variable or floating rate securities that include market-dependent liquidity features may have greater liquidity risk than other securities. The greater liquidity risk may exist, for example, because of the failure of a market-dependent liquidity feature to operate as intended (as a result of the issuer's declining creditworthiness, adverse market conditions, or other factors) or the inability or unwillingness of a participating broker-dealer to make a secondary market for such securities. As a result, variable or floating rate securities that include market-dependent liquidity features may lose value, and the holders of such securities may be required to retain them until the later of the repurchase date, the resale date, or the date of maturity. Such liquidity risk may be heightened for certain types of variable rate securities called "extendible municipal securities," in which the holder of a security is required to retain the investment for the length of the remarketing period (the time frame in which a remarketing agent seeks a new buyer for the security). Extendible municipal securities typically have extended remarketing periods of up to 13 months after a tender date. A demand instrument with a demand notice exceeding seven days may be considered illiquid if there is no secondary market for such security. Extendible municipal securities that have been "extended" into a longer remarketing period may also be considered illiquid.

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 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 a fund's 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. A fund's advisor(s), however, will monitor and adjust, as appropriate, the fund's 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 a 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, a 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.

On October 28, 2020, the Securities and Exchange Commission adopted new regulations governing the use of derivatives by registered investment companies ("Rule 18f-4"). The Funds will be required to comply with Rule 18f-4 by August 19, 2022. A money market fund generally cannot rely on Rule 18f-4 to enter into derivative transactions, with a limited exception for investments in certain when-issued, forward-settling and non-standard settlement cycle securities transactions. Under Rule 18f-4, a money market fund will only be permitted to invest in a security on a when-issued or forward-settling basis, or with a non-standard settlement cycle, and the transaction will be deemed not to involve a senior security (as defined under Section 18(g) of the Investment Company Act), provided that, (i) the fund intends to physically settle the transaction and (ii) the transaction will settle within 35 days of its trade date. Following the compliance date, these requirements may limit the ability of a fund to invest in securities on a when-issued or forward-settling basis, or with a non-standard settlement cycle, as part of its investment strategies.

Each Fund intends to comply with Rule 4.5 under the Commodity Exchange Act (CEA), under which a 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.

Environmental, Social and Governance (ESG) Considerations. Vanguard's Investment Stewardship team, on behalf of the Board of Trustees of each Vanguard-advised Fund, administers proxy voting, engagement, and advocacy for the equity holdings of the Vanguard-advised Funds. The Investment Stewardship team may engage with issuers to better understand how they are addressing material risks, including ESG risks. Specifically, Investment Stewardship may engage with companies on how they disclose significant risks to shareholders, develop their risk mitigation approach, and report on progress.

Each Fund has adopted procedures and guidelines for monitoring portfolio holding human rights practices and violations pursuant to which it may assess regulatory, reputational, or other risks associated with the alleged activity. In extraordinary circumstances a Fund may divest of a portfolio holding where doing so is deemed appropriate.

Eurodollar and Yankee Obligations. Eurodollar bank obligations are dollar-denominated certificates of deposit and time deposits issued outside the U.S. capital markets by foreign branches of U.S. banks and by foreign banks. Yankee bank obligations are dollar-denominated obligations issued in the U.S. capital markets by foreign banks.

Eurodollar and Yankee obligations are subject to the same risks that pertain to domestic issuers, most notably income risk (and, to a lesser extent, credit risk, market risk, and liquidity risk). Additionally, Eurodollar (and, to a limited extent, Yankee) obligations are subject to certain sovereign risks. One such risk is the possibility that a sovereign country might prevent capital, in the form of 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, Eurodollar and Yankee obligations will undergo the same type of credit analysis as domestic issuers in which a Vanguard fund invests, and they will have at least the same financial strength as the domestic issuers approved for 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.

Low or Negative Interest Rates. In a low or negative interest rate environment, debt securities may trade at, or be issued with, negative yields, which means the purchaser of the security may receive at maturity less than the total amount invested. In addition, in a negative interest rate environment, if a bank charges negative interest, instead of receiving interest on deposits, a depositor must pay the bank fees to keep money with the bank. To the extent a fund holds a negatively-yielding debt security or has a bank deposit with a negative interest rate, the fund would generate a negative return on that investment. Cash positions may also subject a fund to increased counterparty risk to the fund's bank.

Debt market conditions are highly unpredictable and some parts of the market are subject to dislocations. In response to recent market volatility and economic uncertainty, the U.S. government and certain foreign central banks have taken steps to stabilize markets by, among other things, reducing interest rates. As a result, interest rates in the United States are at historically low levels, and certain European countries and Japan have pursued negative interest rate policies. These actions present heightened risks to debt securities, and such risks could be even further heightened if these actions are unexpectedly or suddenly reversed or are ineffective in achieving their desired outcomes.

If low or negative interest rates become more prevalent in the market and/or if low or negative interest rates persist for a sustained period of time, some investors may seek to reallocate assets to other income-producing assets, such as investment-grade and higher-yield debt securities, or equity securities that pay a dividend, absent other market risks

that may make such alternative investments unattractive. This increased demand for higher income-producing assets may cause the price of such securities to rise while triggering a corresponding decrease in yield over time, thus reducing the value of such alternative investments. These considerations may limit a fund's ability to locate fixed income instruments containing the desired risk/return profile. Changing interest rates, including, but not limited to, rates that fall below zero, could have unpredictable effects on the markets and may expose fixed income markets to heightened volatility and potential illiquidity.

A low or negative interest rate environment could, and a prolonged low or negative interest rate environment will, impact a fund's ability to provide a positive yield to its shareholders, pay expenses out of current income, and/or achieve its investment objective, including maintaining a stable NAV of \$1 per share. In a prolonged environment of low to negative interest rates, the Funds' board of trustees may consider taking various actions including, but not limited to, enacting mechanisms to seek to maintain a stable NAV per share at \$1.00, and discontinuing use of the amortized cost method of valuation to maintain a stable NAV of \$1 per share and establishing a fluctuating NAV rounded to four decimal places by using available market quotations or equivalents.

Market Disruption. Significant market disruptions, such as those caused by pandemics, natural or environmental disasters, war, acts of terrorism, or other events, can adversely affect local and global markets and normal market operations. Market disruptions may exacerbate political, social, and economic risks discussed above and in a fund's prospectus. Additionally, market disruptions may result in increased market volatility; regulatory trading halts; closure of domestic or foreign exchanges, markets, or governments; or market participants operating pursuant to business continuity plans for indeterminate periods of time. Such events can be highly disruptive to economies and markets and significantly impact individual companies, sectors, industries, markets, currencies, interest and inflation rates, credit ratings, investor sentiment, and other factors affecting the value of a fund's investments and operation of a fund. These events could also result in the closure of businesses that are integral to a fund's operations or otherwise disrupt the ability of employees of fund service providers to perform essential tasks on behalf of a fund.

Money Market Fund Reform. The money market fund reforms adopted by the SEC in July 2014 became effective on October 14, 2016. The reforms impact money market funds differently depending on the types of investors permitted to invest in a fund, the types of securities in which a fund may invest, and the principal investments of a money market fund. The reforms impose new liquidity-related requirements on money market funds (including the potential implementation of liquidity fees and redemption gates). Other changes required by the reforms relate to diversification, disclosure, and stress testing requirements. The imposition and termination of a liquidity fee or redemption gate and/or the provision of financial support by an affiliated person of a money market fund will be reported by a money market fund to the SEC on Form N-CR. A money market fund's designation as institutional, retail, or government determines whether the fund is required to have a floating net asset value (NAV) or is permitted to have a stable NAV.

Municipal Bonds. Municipal bonds are debt obligations issued by states, municipalities, U.S. jurisdictions or territories, and other political subdivisions and by agencies, authorities, and instrumentalities of states and multistate agencies or authorities (collectively, municipalities). Typically, the interest payable on municipal bonds is, in the opinion of bond counsel to the issuer at the time of issuance, exempt from federal income tax.

Municipal bonds include securities from a variety of sectors, each of which has unique risks, and can be divided into government bonds (i.e., bonds issued to provide funding for governmental projects, such as public roads or schools) and conduit bonds (i.e., bonds issued to provide funding for a third-party permitted to use municipal bond proceeds, such as airports or hospitals). The Funds, except for the Cash Reserves Federal Money Market Fund (see Fundamental Policies), will not concentrate in any one industry or group of industries; tax-exempt securities issued by states, municipalities, and their political subdivisions are not considered to be part of an industry. However, if a municipal bond's income is derived from a specific project, the securities will be considered to be from the industry of that project. Municipal bonds include, but are not limited to, general obligation bonds, limited obligation bonds, and revenue bonds, including industrial development bonds issued pursuant to federal tax law.

General obligation bonds are secured by the issuer's pledge of its full faith, credit, and taxing power for the payment of principal and interest. Limited obligation bonds are payable only from the revenues derived from a particular facility or class of facilities or, in some cases, from the proceeds of a special excise or other specific revenue source. Revenue or special tax bonds are payable only from the revenues derived from a particular facility or class of facilities or, in some cases, from the proceeds of a special excise or other tax, but not from general tax revenues.

Revenue bonds involve the credit risk of the underlying project or enterprise (or its corporate user) rather than the credit risk of the issuing municipality. Under the IRC, certain limited obligation bonds are considered "private activity bonds," and interest paid on such bonds is treated as an item of tax preference for purposes of calculating federal alternative

minimum tax liability. Tax-exempt private activity bonds and industrial development bonds generally are also classified as revenue bonds and thus are not payable from the issuer's general revenues. The credit and quality of private activity bonds and industrial development bonds are usually related to the credit of the corporate user of the facilities. Payment of interest on and repayment of principal of such bonds are the responsibility of the corporate user (and/or any guarantor). Some municipal bonds may be issued as variable or floating rate securities and may incorporate market-dependent liquidity features (see discussion of *"Debt Securities—Variable and Floating Rate Securities"*). A tax-exempt fund will generally invest only in securities deemed tax-exempt by a nationally recognized bond counsel, but there is no guarantee that the interest payments on municipal bonds will continue to be tax-exempt for the life of the bonds.

Some longer-term municipal bonds give the investor a "put option," which is the right to sell the security back to the issuer at par (face value) prior to maturity, within a specified number of days following the investor's request—usually one to seven days. This demand feature enhances a security's liquidity by shortening its maturity and enables it to trade at a price equal to or very close to par. If a demand feature terminates prior to being exercised, a fund would hold the longer-term security, which could experience substantially more volatility. Municipal bonds that are issued as variable or floating rate securities incorporating market-dependent liquidity features may have greater liquidity risk than other municipal bonds (see discussion of *"Debt Securities—Variable and Floating Rate Securities"*).

Some municipal bonds feature credit enhancements, such as lines of credit, letters of credit, municipal bond insurance, and standby bond purchase agreements (SBPAs). SBPAs include lines of credit that are issued by a third party, usually a bank, to enhance liquidity and ensure repayment of principal and any accrued interest if the underlying municipal bond should default. Municipal bond insurance (which is usually purchased by the bond issuer from a private, nongovernmental insurance company) provides an unconditional and irrevocable guarantee that the insured bond's principal and interest will be paid when due. Insurance does not guarantee the price of the bond or the share price of any fund. The credit quality of an insured bond reflects the higher of the credit quality of the insurer, based on its claims-paying ability, or the credit quality of the underlying bond issuer or obligor. The obligation of a municipal bond insurance company to pay a claim extends over the life of each insured bond. Although defaults on insured municipal bonds have been historically low and municipal bond insurers historically have met their claims, there is no assurance this will continue. A higher-than-expected default rate could strain the insurer's loss reserves and adversely affect its ability to pay claims to bondholders. The number of municipal bond insurers is relatively small, and not all of them are assessed as high credit quality. An SBPA can include a liquidity facility that is provided to pay the purchase price of any bonds that cannot be remarketed. The obligation of the liquidity provider (usually a bank) is only to advance funds to purchase tendered bonds that cannot be remarketed and does not cover principal or interest under any other circumstances. The liquidity provider's obligations under the SBPA are usually subject to numerous conditions, including the continued creditworthiness of the underlying borrower or bond issuer.

Municipal bonds also include tender option bonds, which are municipal derivatives created by dividing the income stream provided by an underlying security, such as municipal bonds or preferred shares issued by a tax-exempt bond fund, to create two securities issued by a special-purpose trust, one short-term and one long-term. The interest rate on the short-term component is periodically reset. The short-term component has negligible interest rate risk, while the long-term component has all of the risk of the underlying security. After income is paid on the short-term securities at current rates, the residual income goes to the long-term securities. Therefore, rising short-term interest rates result in lower income for the longer-term portion, and vice versa. The longer-term components can be very volatile and may be less liquid than other municipal bonds of comparable maturity. These securities have been developed in the secondary market to meet the demand for short-term, tax-exempt securities.

Municipal securities also include a variety of structures geared toward accommodating municipal-issuer short-term cash-flow requirements. These structures include, but are not limited to, general market notes, commercial paper, put bonds, and variable-rate demand obligations (VRDOs). VRDOs comprise a significant percentage of the outstanding debt in the short-term municipal market. VRDOs can be structured to provide a wide range of maturity options (1 day to over 360 days) to the underlying issuing entity and are typically issued at par. The longer the maturity option, the greater the degree of liquidity risk (the risk of not receiving an asking price of par or greater) and reinvestment risk (the risk that the proceeds from maturing bonds must be reinvested at a lower interest rate).

Although most municipal bonds are exempt from federal income tax, some are not. Taxable municipal bonds include Build America Bonds (BABs). The borrowing costs of BABs are subsidized by the federal government, but BABs are subject to state and federal income tax. BABs were created pursuant to the American Recovery and Reinvestment Act

of 2009 (ARRA) to offer an alternative form of financing to state and local governments whose primary means for accessing the capital markets had been through the issuance of tax-exempt municipal bonds. BABs also include Recovery Zone Economic Development Bonds, which are subsidized more heavily by the federal government than other BABs and are designed to finance certain types of projects in distressed geographic areas.

Under ARRA, an issuer of a BAB is entitled to receive payments from the U.S. Treasury over the life of the BAB equal to 35% of the interest paid (or 45% of the interest paid in the case of a Recovery Zone Economic Development Bond). For example, if a state or local government were to issue a BAB at a taxable interest rate of 10% of the par value of the bond, the U.S. Treasury would make a payment directly to the issuing government of 35% of that interest (3.5% of the par value of the bond) or 45% of the interest (4.5% of the par value of the bond) in the case of a Recovery Zone Economic Development Bond. Thus, the state or local government's net borrowing cost would be 6.5% or 5.5%, respectively, on BABs that pay 10% interest. In other cases, holders of a BAB receive a 35% or 45% tax credit, respectively. The BAB program expired on December 31, 2010. BABs outstanding prior to the expiration of the program continue to be eligible for the federal interest rate subsidy or tax credit, which continues for the life of the BABs; however, the federal interest rate subsidy or tax credit has been reduced by the government sequester. Additionally, bonds issued following expiration of the program are not eligible for federal payment or tax credit. In addition to BABs, a fund may invest in other municipal bonds that pay taxable interest.

The reorganization under the federal bankruptcy laws of an issuer of, or payment obligor with respect to, municipal bonds may result in the municipal bonds being canceled without repayment; repaid only in part; or repaid in part or whole through an exchange thereof for any combination of cash, municipal bonds, debt securities, convertible securities, equity securities, or other instruments or rights in respect to the same issuer or payment obligor or a related entity. Certain issuers are not eligible to file for bankruptcy.

Municipal Bonds—Risks. Municipal bonds are subject to credit risk. The yields of municipal bonds depend on, among other things, general money market conditions, conditions in the municipal bond market, size of a particular offering, maturity of the obligation, and credit quality of the issue. Consequently, municipal bonds with the same maturity, coupon, and credit quality may have different yields, while municipal bonds of the same maturity and coupon, but with different credit quality, may have the same yield. It is the responsibility of a fund's investment management advisor to appraise independently the fundamental quality of bonds held by the fund. Information about the financial condition of an issuer of municipal bonds may not be as extensive as that which is made available by corporations whose securities are publicly traded. Obligations of issuers of municipal bonds are generally subject to the provisions of bankruptcy, insolvency, and other laws affecting the rights and remedies of creditors.

Congress, state legislatures, or other governing authorities may seek to extend the time for payment of principal or interest, or both, or to impose other constraints upon enforcement of such obligations. For example, from time to time, proposals have been introduced before Congress to restrict or eliminate the federal income tax exemption for interest on municipal bonds. Also, from time to time, proposals have been introduced before state and local legislatures to restrict or eliminate the state and local income tax exemption for interest on municipal bonds. Similar proposals may be introduced in the future. If any such proposal were enacted, it might restrict or eliminate the ability of a fund to achieve its respective investment objective. In that event, the fund's trustees and officers would reevaluate its investment objective and policies and consider recommending to its shareholders changes in such objective and policies.

There is also the possibility that, as a result of litigation or other conditions, the power or ability of issuers to meet their obligations for the payment of interest and principal on their municipal bonds may be materially affected or their obligations may be found to be invalid or unenforceable. Such litigation or conditions may, from time to time, have the effect of introducing uncertainties in the market for municipal bonds or certain segments thereof or of materially affecting the credit risk with respect to particular bonds. Adverse economic, business, legal, or political developments might affect all or a substantial portion of a fund's municipal bonds in the same manner. For example, a state specific tax-exempt fund is subject to state-specific risk, which is the chance that the fund, because it invests primarily in securities issued by a particular state and its municipalities, is more vulnerable to unfavorable developments in that state than are funds that invest in municipal securities of many states. Unfavorable developments in any economic sector may have far-reaching ramifications on a state's overall municipal market. In the event that a particular obligation held by a fund is assessed at a credit quality below the minimum investment level permitted by the investment policies of such fund, the fund's investment advisor, pursuant to oversight from the trustees, will carefully assess the creditworthiness of the obligation to determine whether it continues to meet the policies and objective of the fund.

Municipal bonds are subject to interest rate risk, which is the chance that bond prices will decline over short or even long periods because of rising interest rates. Interest rate risk is higher for long-term bonds, whose prices are much more sensitive to interest rate changes than are the prices of shorter-term bonds. Generally, prices of longer-maturity

issues tend to fluctuate more than prices of shorter-maturity issues. Prices and yields on municipal bonds are dependent on a variety of factors, such as the financial condition of the issuer, the general conditions of the municipal bond market, the size of a particular offering, the maturity of the obligation, and the rating of the issue. A number of these factors, including the ratings of particular issues, are subject to change from time to time.

Municipal bonds are subject to call risk, which is the chance that during periods of falling interest rates, issuers of callable bonds may call (redeem) securities with higher coupons or interest rates before their maturity dates. A fund would then lose any price appreciation above the bond's call price and would be forced to reinvest the unanticipated proceeds at lower interest rates, resulting in a decline in the fund's income. Call risk is generally high for long-term bonds. Conversely, municipal bonds are also subject to extension risk, which is the chance that during periods of rising interest rates, certain debt securities will be paid off substantially more slowly than originally anticipated, and the value of those securities may fall. Extension risk is generally high for long-term bonds.

Municipal bonds may be deemed to be illiquid as determined by or in accordance with methods adopted by a fund's board of trustees. In determining the liquidity and appropriate valuation of a municipal bond, a fund's advisor may consider the following factors relating to the security, among others: (1) the frequency of trades and quotes; (2) the number of dealers willing to purchase or sell the security; (3) the willingness of dealers to undertake to make a market; (4) the nature of the marketplace trades, including the time needed to dispose of the security, the method of soliciting offers, and the mechanics of transfer; and (5) the factors unique to a particular security, including general creditworthiness of the issuer and the likelihood that the marketability of the securities will be maintained throughout the time the security is held by the fund.

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 may invest up to 10% of its assets in shares of investment companies generally 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. Vanguard also has obtained SEC exemptive orders that allow 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. The SEC recently adopted changes to the regulatory framework for fund of funds arrangements, and, as a result, Vanguard's exemptive orders will be rescinded by the SEC on January 19, 2022. However, effective January 19, 2022, new Rule 12d1-4 under the 1940 Act permits registered investment companies to invest in other registered investment companies beyond the limits in Section 12(d)(1), subject to certain conditions, including that the funds enter into a fund of funds investment agreement. 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. Because preferred shares of closed-end investment companies are not allocated any operating or advisory expenses, the Vanguard funds will not bear any expenses from investments in certain variable-rate demand-preferred securities issued by closed-end municipal bond funds. 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.

A fund may be limited to purchasing a particular share class of other investment companies (underlying funds). In certain cases, an investor may be able to purchase lower-cost shares of such underlying funds separately, and therefore be able to construct, and maintain over time, a similar portfolio of investments while incurring lower overall expenses.

Reliance on Service Providers, Data Providers, and Other Technology. Vanguard funds rely upon the performance of service providers to execute several key functions, which may include functions integral to a fund's operations. Failure by any service provider to carry out its obligations to a fund could disrupt the business of the fund and could have an adverse effect on the fund's performance. A fund's service providers' reliance on certain technology or information vendors (e.g., trading systems, investment analysis tools, benchmark analytics, and tax and accounting tools) could also adversely affect a fund and its shareholders. For example, a fund's investment advisor may use models and/or data with respect to potential investments for the fund. When models or data prove to be incorrect or incomplete, any decisions made in reliance upon such models or data expose a fund to potential risks.

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, a dealer, or another counterparty that meets minimum credit requirements 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. When entering into a repurchase agreement with the Federal Reserve, the collateral received will equal 100% of the value of the repurchase agreement. In addition, the investment advisor will monitor a fund's repurchase agreement transactions generally and will evaluate the creditworthiness of any bank, broker, dealer, or other counterparty that meets minimum credit requirements 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/Investments (including Private Placements). Illiquid securities/investments are securities that cannot be sold or disposed of in the ordinary course of business within seven calendar days at approximately the value ascribed to it by the fund. The SEC generally limits aggregate holdings of illiquid securities/investments 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/investments 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/investments may include restricted, privately placed securities (such as private investments in public equity (PIPEs) or special purpose acquisition companies (SPACs)) that, under the federal securities laws, generally may be resold only to qualified institutional buyers. If a market develops for a restricted security held by a fund, it may be treated as a liquid security in accordance with guidelines approved by the board of trustees.

Securities Lending. A fund may lend its securities to financial institutions (typically brokers, dealers, and banks) to generate income for the fund. There are certain risks associated with lending securities, including counterparty, credit, market, regulatory, and operational risks. The advisor considers the creditworthiness of the borrower, among other factors, in making decisions with respect to the lending of securities, subject to oversight by the board of trustees. 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 certain types of foreign securities, as well as certain types of borrowers that are subject to global regulatory regimes. If a fund is not able to recover the securities lent, the fund may sell the collateral and

purchase a replacement security in the market. Collateral investments are subject to market appreciation or depreciation. The value of the collateral could decrease below the value of the replacement investment by the time the replacement investment is purchased. Currently, a fund invests cash collateral into Vanguard Market Liquidity Fund, an affiliated money market fund that invests in high-quality, short-term money market instruments.

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 33⅓% 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 any other applicable regulatory requirements. 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. See *Tax Status of the Funds* for information about certain tax consequences related to a fund's securities lending activities.

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—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 regulated investment company will be allocated to shareholders of the regulated 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 operating 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—Sale or Exchange of Money Market Fund Shares by Investors. Following the October 14, 2016, final compliance date of the money market fund reforms adopted by the SEC, each of the Funds will continue to seek to maintain a stable NAV of \$1 per share; however, there can be no guarantee that it will do so. Accordingly, in general, shareholders are not expected to incur taxable gains or losses on the sale or exchange of their shares. However, in the event a Fund’s NAV goes above or below \$1, and a shareholder sells or exchanges shares at that price, the shareholder may recognize a gain or loss on the sale or exchange of shares. Also, if a Fund determines to impose a liquidity fee on redemptions of its shares, a shareholder will generally recognize a loss on the sale or exchange of shares equal to the amount of that fee. Assuming a shareholder holds the shares as a capital asset, any gain or loss recognized on a sale or exchange of shares will be treated as capital in nature.

Unless a shareholder chooses to adopt the simplified “NAV method” of accounting (described below), any capital gain or loss generally will be treated as short-term if the shareholder held Fund shares for one year or less or long-term if the shareholder held Fund shares for longer. If a shareholder sells or exchanges shares at a loss, the loss will generally be disallowed under the “wash sale” rule of the IRC where other substantially identical shares are purchased (including by dividend reinvestment) within 30 days before or after the sale or exchange.

If the shareholder elects to adopt the NAV method of accounting, rather than compute any gain or loss on every taxable sale or exchange of Fund shares, the shareholder would determine the gain or loss based on the change in the aggregate value of the Fund shares during a computation period (e.g., the shareholder’s taxable year or certain shorter periods), reduced by the net investment (purchases minus taxable sales or exchanges) in those Fund shares during the period. Under the NAV method, if a shareholder holds the shares as a capital asset, any resulting net gain or loss (including any loss arising from the shareholder’s payment of a liquidity fee on redemption of the shares) would be treated as short-term capital gain or loss. If a shareholder uses the NAV method, the wash sale rules will generally not apply to disallow a loss incurred for a computation period.

Shareholders are permitted to use different methods of accounting for shares of a single Fund that are held in different accounts or for shares of different money market funds held in the same account.

Please consult your tax advisor for more information concerning these rules.

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. 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.

Tender Option Bond Programs. Tender option bond programs are a type of municipal bond structured product, which is taxed as a partnership for federal income tax purposes. These programs provide for tax-exempt income at a variable rate. In such programs, underlying securities in the form of high-quality longer-term municipal bonds or preferred shares issued by a tax-exempt bond fund are held inside a trust and varying economic interests in the underlying securities are created and sold to investors. One class of investors earns interest at a rate based on current short-term tax-exempt interest rates and may tender its holdings at par to the program sponsor at agreed-upon intervals. This class is an eligible security for municipal money market fund investments. A second class of investors has a residual income interest (earning any net income produced by the underlying securities that exceeds the variable income paid to the other class of investors) and bears the risk that the underlying bonds or preferred shares of the tax-exempt bond fund will decline in value because of changes in market interest rates. These holdings will generally underperform the fixed-rate municipal securities market in a rising interest rate environment. The Funds do not invest in this second class of investors. Under the terms of such programs, both investor classes bear the risk of loss that would result from a payment default on the underlying bonds or preferred shares as well as from other potential, yet remote, credit or structural events. If a tender option bond program would fail to qualify as a partnership for federal income tax purposes or if the IRS were to disagree with the tax allocation mechanisms or treatment of the credit enhancement used in a program, a Fund invested in that program could realize more taxable ordinary income than it otherwise would have.

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.

Variable-Rate Demand-Preferred Securities. The Funds may purchase certain variable-rate demand-preferred securities (VRDPs) issued by closed-end municipal bond funds, which, in turn, invest primarily in portfolios of tax-exempt municipal bonds. The Funds may invest in securities issued by single-state or national closed-end municipal bond funds. VRDPs are issued by closed-end funds to leverage returns for common shareholders. Under the 1940 Act, a closed-end fund that issues preferred shares must maintain an asset coverage ratio of at least 200% at all times in order to issue preferred shares. It is anticipated that the interest on the VRDPs will be exempt from federal income tax and, with respect to any such securities issued by single-state municipal bond funds, exempt from the applicable state’s income tax. The VRDPs will pay a variable dividend rate, determined weekly, typically through a remarketing process, and include a demand feature that provides a fund with a contractual right to tender the securities to a liquidity provider. The Funds could lose money if the liquidity provider fails to honor its obligation, becomes insolvent, or files for bankruptcy. The Funds have no right to put the securities back to the closed-end municipal bond funds or demand payment or redemption directly from the closed-end municipal bond funds. Further, the VRDPs are not freely transferable, and therefore the Funds may only transfer the securities to another investor in compliance with certain exemptions under the 1933 Act, including Rule 144A.

A fund's purchase of VRDPs issued by closed-end municipal bond funds is subject to the restrictions set forth under the heading "*Other Investment Companies.*"

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.*"

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 is calculated as of the close of regular trading on the New York Stock Exchange (NYSE), generally 4 p.m., Eastern time, on each day that the NYSE is open for business (a business day). In the rare event the NYSE experiences unanticipated disruptions and is unavailable at the close of the trading day, each Fund reserves the right to treat such day as a business day and calculate NAVs as of the close of regular trading on the Nasdaq (or another alternate exchange if the Nasdaq is unavailable, as determined at Vanguard's discretion), generally 4 p.m., Eastern time. The NAV per share for the Cash Reserves Federal Money Market Fund is computed by dividing the total assets, minus liabilities, allocated to the share class by the number of Fund shares outstanding for that class. NAV per share for the Federal Money Market and Treasury Money Market Funds is computed by dividing the total assets, minus liabilities, of the Fund by the number of Fund shares outstanding. On U.S. holidays or other days when the NYSE 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 NYSE typically observes the following holidays: New Year's Day; Martin Luther King, Jr., Day; Presidents' Day (Washington's Birthday); Good Friday; Memorial Day; Juneteenth National Independence Day; Independence Day; Labor Day; Thanksgiving Day; and Christmas Day. Although each Fund expects the same holidays to be observed in the future, the NYSE may modify its holiday schedule or hours of operation at any time.

It is the policy of each Vanguard retail and government money market fund to attempt to maintain an NAV of \$1 per share for sales and redemptions. The instruments held by a retail or government money market fund generally are valued on the basis of amortized cost, which does not take into account unrealized capital gains or losses. This involves valuing an instrument at its cost and thereafter assuming a constant amortization to maturity of any discount or premium, regardless of the impact of fluctuating interest rates on the market value of the instrument. While this method provides certainty in valuation, it may result in periods during which value, as determined by amortized cost, is higher or lower than the price that the fund would receive if it sold the instrument. The fund's holdings will be reviewed by the trustees, at such intervals as they may deem appropriate, to determine whether the fund's NAV calculated by using available market quotations deviates from \$1 per share based on amortized cost. The extent of any deviation will be examined by the trustees. If such deviation exceeds 1/2 of 1%, the trustees will promptly consider what action, if any, will be initiated. In the event the trustees determine that a deviation exists that may result in material dilution or other unfair results to investors or existing shareholders, they have agreed to take such corrective action as they regard as necessary and appropriate, including selling fund instruments prior to maturity to realize capital gains or losses or to shorten average fund maturity, withholding dividends, making a special capital distribution, redeeming shares in kind, or establishing an NAV per share by using available market quotations.

The use of amortized cost and the maintenance of a retail or government money market fund's NAV at \$1 per share is based on its election to operate under Rule 2a-7 of the 1940 Act. As a condition of operating under that rule, each fund must maintain a dollar-weighted average portfolio maturity of 60 calendar days or less; maintain a dollar-weighted

average life of 120 calendar days or less; purchase only instruments having remaining maturities of 397 calendar days or less; meet applicable daily, weekly, and general liquidity requirements; and invest only in securities that are determined by methods approved by the trustees to present minimal credit risks and that are of high quality.

Although the stable share price is not guaranteed, the NAV of Vanguard retail and government money market funds is expected to remain at \$1 per share. Instruments are purchased and managed with that goal in mind.

PURCHASE AND REDEMPTION OF SHARES

Purchase of 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

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 NYSE is closed or trading on the NYSE 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, including in connection with a determination by the board of a money market fund under Rule 22e-3 under the 1940 Act to suspend redemptions and postpone payment of redemption proceeds in order to facilitate an orderly liquidation of a money market fund.

Each 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 and in accordance with procedures adopted by the Fund's board of trustees. Investors may incur brokerage charges on the sale of such securities received in payment of redemptions.

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 Funds.

Vanguard processes purchase and redemption requests through a pooled account. Pending investment direction or distribution of redemption proceeds, the assets in the pooled account are invested and any earnings (the "float") are allocated proportionately among the Vanguard funds in order to offset fund expenses. Other than the float, Vanguard treats assets held in the pooled account as the assets of each shareholder making such purchase or redemption request.

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 and (2) alter, impose, discontinue, or waive any purchase fee, redemption fee, account service fee, or other fee charged to a shareholder or a group of shareholders. Changes may affect any or all investors. These actions will be taken when, at the sole discretion of Vanguard management, Vanguard believes they are in the best interest of a fund.

Account Restrictions

Vanguard reserves the right to: (1) redeem all or a portion of a fund/account to meet a legal obligation, including tax withholding, tax lien, garnishment order, or other obligation imposed on your account by a court or government agency; (2) redeem shares, close an account, or suspend account privileges, features, or options in the case of threatening conduct or activity; (3) redeem shares, close an account, or suspend account privileges, features, or options if Vanguard believes or suspects that not doing so could result in a suspicious, fraudulent, or illegal transaction; (4) place restrictions on the ability to redeem any or all shares in an account if it is required to do so by a court or government agency; (5) place restrictions on the ability to redeem any or all shares in an account if Vanguard believes that doing so will prevent fraud or financial exploitation or abuse, or will protect vulnerable investors; (6) 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; and (7) freeze any account and/or suspend account services upon initial notification to Vanguard of the death of an account owner.

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. The funds obtain virtually all of their corporate management, administrative, and distribution services through the trusts' jointly owned subsidiary, Vanguard. Vanguard may contract with certain third-party service providers to assist Vanguard in providing certain administrative and/or accounting services with respect to the funds, subject to Vanguard's oversight. Vanguard also provides investment advisory services to certain Vanguard funds. All of these services are provided at Vanguard's total cost of operations pursuant to the Fifth Amended and Restated Funds' Service Agreement (the Agreement).

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.

Pursuant to an agreement between Vanguard and State Street Bank and Trust Company (State Street), State Street provides services for each Fund. These services include, but are not limited to: (i) the calculation of such funds' daily NAVs and (ii) the furnishing of financial reports. The fees paid to State Street under this agreement are based on a combination of flat and asset based fees. As of the fiscal year ended August 31, 2021, State Street had received fees from the Funds for administrative services rendered as follows:

Vanguard Fund	2019	2020	2021
Vanguard Cash Reserves Federal Money Market Fund	\$—	\$3,000.00	\$8,855.41
Vanguard Federal Money Market Fund	—	3,000.00	21,500.04
Vanguard Treasury Money Market Fund	—	3,000.00	21,500.04

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 the Agreement. The 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 August 31, 2021, 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 Funds' Contribution
Vanguard Cash Reserves Federal Money Market Fund	\$3,245,000	Less than 0.01%	1.30%
Vanguard Federal Money Market Fund	6,475,000	Less than 0.01	2.59
Vanguard Treasury Money Market Fund	1,205,000	Less than 0.01	0.48

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 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 is 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.

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, 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 does make fixed dollar payments to financial service providers when 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 also makes fixed dollar payments to financial service providers for data regarding funds, such as statistical information regarding sales of fund shares. In addition,

VMC makes fixed dollar payments for expenses associated with financial service providers' use of Vanguard's funds including, but not limited to, the use of funds in model portfolios. These payments may be used for services including, but not limited to, technology support and development, platform support and development, due diligence related to products used on a platform, legal, regulatory and compliance expenses related to a platform and other platform-related services.

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 policy 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 and fixed dollar payments as described above, may influence applicable 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, relationships, or payments 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. 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 August 31, 2019, 2020, and 2021, and are presented as a percentage of each Fund's average month-end net assets.

Vanguard Fund	Annual Shared Fund Operating Expenses (Shared Expenses Deducted From Fund Assets)		
	2019	2020	2021
Vanguard Cash Reserves Federal Money Market Fund			
Management and Administrative Expenses	0.14%	0.14%	0.11%
Marketing and Distribution Expenses	0.01	0.01	0.01
Vanguard Federal Money Market Fund			
Management and Administrative Expenses	0.09%	0.09%	0.10%
Marketing and Distribution Expenses	0.02	0.02	0.01
Vanguard Treasury Money Market Fund			
Management and Administrative Expenses	0.07%	0.07%	0.08%
Marketing and Distribution Expenses	0.02	0.02	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 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 Trustee¹				
Mortimer J. Buckley (1969)	Chairman of the Board, Chief Executive Officer, and President	January 2018	Chairman of the board (2019–present) of Vanguard and of each of the investment companies served by Vanguard; chief executive officer (2018–present) of Vanguard; chief executive officer, president, and trustee (2018–present) of each of the investment companies served by Vanguard; president and director (2017–present) of Vanguard; and president (2018–present) of Vanguard Marketing Corporation. Chief investment officer (2013–2017), managing director (2002–2017), head of the Retail Investor Group (2006–2012), and chief information officer (2001–2006) of Vanguard. Chairman of the board (2011–2017) and trustee (2009–2017) of the Children's Hospital of Philadelphia; and trustee (2018–present) and vice chair (2019–present) of The Shipley School.	217

¹ Mr. Buckley is considered an "interested person" as defined in the 1940 Act because he is an officer of the Trust.

Independent Trustees				
Tara Bunch (1962)	Trustee	November 2021	Head of Global Operations at Airbnb (2020–present). Vice President of AppleCare (2012–2020). Member of the board of Out & Equal (2002–2006), the University of California, Berkeley School of Engineering (2020–present), and Santa Clara University's School of Business (2018–present).	217
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. 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.	217
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.	217
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). Director of the V Foundation. 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. Chairman of the board of Saint Anselm College.	217

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
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.	217
Scott C. Malpass (1962)	Trustee	March 2012	Chief investment officer and vice president of the University of Notre Dame (retired 2020). Assistant professor of finance at the Mendoza College of Business, University of Notre Dame (retired 2020), and member of the Notre Dame 403(b) Investment Committee. Member of the board of Catholic Investment Services, Inc. (investment advisors) and the board of superintendence of the Institute for the Works of Religion.	217
Deanna Mulligan (1963)	Trustee	January 2018	Board chair (2020), chief executive officer (2011–2020), and president (2010–2019) of The Guardian Life Insurance Company of America. Chief operating officer (2010–2011) and executive vice president (2008–2010) of Individual Life and Disability of The Guardian Life Insurance Company of America. Member of the board of the Economic Club of New York. Trustee of the Partnership for New York City (business leadership), the Chief Executives for Corporate Purpose, the New York-Presbyterian Hospital, and the Bruce Museum (arts and science). Member of the Advisory Council for the Stanford Graduate School of Business.	217
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). Board member (2018–present) of RIT Capital Partners (investment firm); investment committee member of Partners Health Care System.	217
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. Professor (2020–present), Distinguished Fellow of the Global Financial Markets Center (2020–present), and Rubenstein Fellow (2017–2020) of Duke University; trustee (2017–present) of Amherst College; member of the Amherst College Investment Committee (2019–present); and member of the Regenerative Crisis Response Committee (2020–present).	217
David Thomas (1956)	Trustee	July 2021	President of Morehouse College (2018–present). Professor of Business Administration Emeritus at Harvard University (2017–2018) and Dean (2011–2016) and Professor of Management at Georgetown University, McDonough School of Business (2016–2017). Director of DTE Energy Company (2013–present). Trustee of Common Fund (2019–present).	217

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
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 BMW Group Mobility Council.	217
Executive Officers				
Christine M. Buchanan (1970)	Chief Financial Officer and Acting Treasurer	November 2017	Principal of Vanguard. Chief financial officer (2021–present) and treasurer (2017–present; acting October 2021–present) of each of the investment companies served by Vanguard. Partner (2005–2017) at KPMG (audit, tax, and advisory services).	217
David Cermak (1960)	Finance Director	October 2019	Principal of Vanguard. Finance director (2019–present) of each of the investment companies served by Vanguard. Managing director and head (2017–present) of Vanguard Investments Singapore. Managing director and head (2017–2019) of Vanguard Investments Hong Kong. Representative director and head (2014–2017) of Vanguard Investments Japan.	217
John Galloway (1973)	Investment Stewardship Officer	September 2020	Principal of Vanguard. Investment stewardship officer (2020–present) of each of the investment companies served by Vanguard. Head of Investor Advocacy (2020–present) and head of Marketing Strategy and Planning (2017–2020) at Vanguard. Deputy Assistant to the President of the United States (2015).	217
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.	217
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. Managing director and general counsel of Global Cards and Consumer Services (2014–2016) at Citigroup. Counsel (2003–2014) at American Express.	217
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.	217
John E. Schadl (1972)	Chief Compliance Officer	March 2019	Principal of Vanguard. Chief compliance officer (2019–present) of Vanguard and of each of the investment companies served by Vanguard. Assistant vice president (2019–present) of Vanguard Marketing Corporation.	217

All but one of the trustees are independent. The independent trustees designate a lead independent trustee. 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 sole interested trustee.

The independent trustees appoint the chairman of the board. The roles of chairman of the board and chief executive officer currently are held by the same person; as a result, the chairman of the board is an “interested” trustee. The independent trustees generally believe that the Vanguard funds’ chief executive officer is best qualified to serve as chairman and that fund shareholders benefit from this leadership structure through accountability and strong day-to-day leadership.

Board Committees: The Trusts’ 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: Mr. Loughrey, Mr. Loughridge, Ms. Raskin, and Mr. Volanakis. The committee held six meetings during the Trusts’ fiscal year ended August 31, 2021.
- **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 two meetings during the Trusts’ fiscal year ended August 31, 2021.
- **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 three meetings during the Trusts’ fiscal year ended August 31, 2021.
- **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 two meetings during the Trusts’ fiscal year ended August 31, 2021.

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” Trustee. Mr. Buckley serves as a trustee, but is not paid in this capacity. He is, however, paid in his role as an officer of Vanguard.

Compensation Table. The following tables provide 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 tables show 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 MONEY MARKET RESERVES
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, 2021 ²	Total Compensation From All Vanguard Funds Paid to Trustees ³
Mortimer J. Buckley	—	—	—	—
Tara Bunch ⁴	—	—	—	—
Emerson U. Fullwood	\$24,050	—	—	\$287,500
Amy Gutmann	24,050	—	—	287,500
F. Joseph Loughrey	25,507	—	—	307,500
Mark Loughridge	29,150	—	—	357,500
Scott C. Malpass	24,050	—	—	287,500
Deanna Mulligan	24,050	—	—	287,500
André F. Perold	24,050	—	—	287,500
Sarah Bloom Raskin	25,507	—	—	307,500
David A. Thomas ⁵	2,290	—	—	—
Peter F. Volanakis	25,507	—	—	307,500

1 The amounts shown in this column are based on the Trust's fiscal year ended August 31, 2021. 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 211 Vanguard funds for the 2020 calendar year.

4 Ms. Bunch became a member of the Funds' board effective November 18, 2021.

5 Mr. Thomas became a member of the Funds' board effective July 22, 2021.

**VANGUARD ADMIRAL 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, 2021 ²	Total Compensation From All Vanguard Funds Paid to Trustees ³
Mortimer J. Buckley	—	—	—	—
Tara Bunch ⁴	—	—	—	—
Emerson U. Fullwood	\$2,139	—	—	\$287,500
Amy Gutmann	2,139	—	—	287,500
F. Joseph Loughrey	2,269	—	—	307,500
Mark Loughridge	2,593	—	—	357,500
Scott C. Malpass	2,139	—	—	287,500
Deanna Mulligan	2,139	—	—	287,500
André F. Perold	2,139	—	—	287,500
Sarah Bloom Raskin	2,269	—	—	307,500
David A. Thomas ⁵	204	—	—	—
Peter F. Volanakis	2,269	—	—	307,500

1 The amounts shown in this column are based on the Trust's fiscal year ended August 31, 2021. 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 211 Vanguard funds for the 2020 calendar year.

4 Ms. Bunch became a member of the Funds' board effective November 18, 2021.

5 Mr. Thomas became a member of the Funds' board effective July 22, 2021.

Ownership of Fund Shares

All current trustees allocate their investments among the various Vanguard funds based on their own investment needs. The following tables show each trustee's ownership of shares of each Fund and of all Vanguard funds served by the trustee as of December 31, 2020. Ms. Bunch began service as trustee effective November 18, 2021, and Mr. Thomas began service as trustee effective July 22, 2021.

VANGUARD MONEY MARKET RESERVES

Vanguard Fund	Trustee	Dollar Range of Fund Shares Owned by Trustee	Aggregate Dollar Range of Vanguard Fund Shares Owned by Trustee
Vanguard Cash Reserves Federal Money Market Fund	Mortimer J. Buckley	—	Over \$100,000
	Emerson U. Fullwood	\$10,001 – \$50,000	Over \$100,000
	Amy Gutmann	—	Over \$100,000
	F. Joseph Loughrey	—	Over \$100,000
	Mark Loughridge	\$10,001 – \$50,000	Over \$100,000
	Scott C. Malpass	—	Over \$100,000
	Deanna Mulligan	—	Over \$100,000
	André F. Perold	\$1 – \$10,000	Over \$100,000
	Sarah Bloom Raskin	—	Over \$100,000
	Peter F. Volanakis	—	Over \$100,000
Vanguard Federal Money Market Fund	Mortimer J. Buckley	Over \$100,000	Over \$100,000
	Emerson U. Fullwood	\$1 – \$10,000	Over \$100,000
	Amy Gutmann	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
	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	Over \$100,000

VANGUARD ADMIRAL FUNDS

Vanguard Fund	Trustee	Dollar Range of Fund Shares Owned by Trustee	Aggregate Dollar Range of Vanguard Fund Shares Owned by Trustee
Vanguard Treasury Money Market Fund	Mortimer J. Buckley	—	Over \$100,000
	Emerson U. Fullwood	—	Over \$100,000
	Amy Gutmann	—	Over \$100,000
	F. Joseph Loughrey	—	Over \$100,000
	Mark Loughridge	—	Over \$100,000
	Scott C. Malpass	—	Over \$100,000
	Deanna Mulligan	—	Over \$100,000
	André F. Perold	\$1 – \$10,000	Over \$100,000
	Sarah Bloom Raskin	—	Over \$100,000
	Peter F. Volanakis	—	Over \$100,000

As of November 30, 2021, 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 November 30, 2021, the following owned of record 5% or more of the outstanding shares of each class:

Vanguard Fund	Share Class	Owner and Address	Percentage of Ownership
Vanguard Federal Money Market Fund	Investor Shares	VANGUARD BROKERAGE SERVICES A DIVISION OF VMC VIA OMNIBUS ACCOUNT VALLEY FORGE, PA	60.96%
		VANGUARD MARKETING CORPORATION VALLEY FORGE, PA	6.33%
Vanguard Treasury Money Market Fund	Investor Shares	CHARLES SCHWAB & CO INC SAN FRANCISCO, CA	6.02%
		FIDELITY INVESTMENTS INSTITUTIONAL OPERATIONS CO COVINGTON, KY	8.42%

A shareholder who owns more than 25% of a Fund's voting shares may be considered a controlling person. As of November 30, 2021, the following held of record 25% or more of the voting shares:

Vanguard Fund	Owner	Percentage of Ownership
Vanguard Federal Money Market Fund	VANGUARD BROKERAGE SERVICES A DIVISION OF VMC VIA OMNIBUS ACCOUNT	60.96%

Portfolio Holdings Disclosure Policies and Procedures

Introduction

Vanguard and the boards of trustees of the Vanguard funds (the 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* 30 calendar days after the end of the calendar quarter. 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* 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* 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 discloses complete portfolio holdings 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.; Charles River Systems, Inc.; 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; and Trade Informatics LLC.

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

Vanguard may disclose complete portfolio holdings 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, VMC, or a Vanguard fund to Affiliates and Fiduciaries must be authorized by a Vanguard fund officer or a Principal of Vanguard.

Currently, Vanguard discloses complete portfolio holdings 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 Trading Counterparties 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 any trading counterparty, including one or more broker-dealers or banks, during the course of, or in connection with, normal day-to-day securities and derivatives transactions with or through such trading counterparties subject to the counterparty'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.

In addition to the disclosures described below to Authorized Participants, a Vanguard fund investment advisor or administrator may also disclose portfolio holdings information to other current or prospective fund shareholders in connection with the dissemination of information necessary for transactions in Creation Units (as defined below) or other large transactions with a Vanguard fund. Such shareholders are typically Authorized Participants or other financial institutions that have been authorized by VMC to purchase and redeem large blocks of shares, but may also include market makers and other institutional market participants and entities to whom a Vanguard fund advisor or administrator may provide information in connection with transactions in a Vanguard fund.

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, VMC, 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 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 Enterprise 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, VMC, 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 email, 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 Fixed Income Group. These services are provided by an experienced investment 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 August 31, 2019, 2020, and 2021, the Funds incurred the following approximate advisory expenses:

Vanguard Fund	2019	2020	2021
Vanguard Cash Reserves Federal Money Market Fund	\$4,212,000	\$3,665,000	\$2,491,000
Vanguard Federal Money Market Fund	4,174,000	4,816,000	4,153,000
Vanguard Treasury Money Market Fund	868,000	1,003,000	880,000

1. Other Accounts Managed

The following table provides information relating to the other accounts managed by the portfolio managers of the Funds as of the fiscal year ended August 31, 2021 (unless otherwise noted).

Portfolio Manager		No. of accounts	Total assets	No. of accounts with performance-based fees	Total assets in accounts with performance-based fees
John C. Lanius	Registered investment companies ¹	3	\$301B	0	\$0
	Other pooled investment vehicles	0	\$ 0	0	\$0
	Other accounts	0	\$ 0	0	\$0
Nafis T. Smith	Registered investment companies ²	2	\$131B	0	\$0
	Other pooled investment vehicles	0	\$ 0	0	\$0
	Other accounts	0	\$ 0	0	\$0

¹ Includes Vanguard Federal Money Market Fund which held assets of \$194 billion as of August 31, 2021.

² Includes Cash Reserves Federal Money Market Fund and Treasury Money Market Fund which held assets of \$95 billion as of August 31, 2021.

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 in which 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 August 31, 2021, 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 the 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 any individual fund's portfolio. For each Fund, the performance factor depends on how successfully the portfolio manager maintains the credit quality of the Fund, and consequently, how the Fund performs relative to the expectations previously described generally 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

As of August 31, 2021, Mr. Lanius owned shares of Vanguard Federal Money Market Fund in the \$100,001–500,000 range and Mr. Smith owned shares of Vanguard Cash Reserves Federal Money Market Fund in the \$100,001–500,000 range. Except as noted in the previous sentence, as of August 31, 2021, Mr. Smith and Mr. Lanius did not own any shares of the Funds they managed.

Duration and Termination of Investment Advisory Agreement

Vanguard provides 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.

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 a 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.

The types of securities in which the Funds invest are generally purchased and sold through principal transactions, meaning that the Funds normally purchase securities directly from the issuer or a primary market-maker acting as principal for the securities on a net basis. Explicit brokerage commissions are not paid on these transactions, although purchases of new issues from underwriters of securities typically include a commission or concession paid by the issuer to the underwriter, and purchases from dealers serving as market-makers typically include a dealer's markup (i.e., a spread between the bid and the asked prices).

As previously explained, the types of securities that the Funds purchase do not normally involve the payment of explicit brokerage commissions. If any such brokerage commissions are paid, however, the advisor will evaluate their reasonableness by considering: (1) the historical commission rates; (2) the rates that other institutional investors are

paying, based upon publicly available information; (3) the rates quoted by brokers and dealers; (4) the size of a particular transaction, in terms of the number of shares, the dollar amount, and the number of clients involved; (5) the complexity of a particular transaction in terms of both execution and settlement; (6) the level and type of business done with a particular firm over a period of time; and (7) the extent to which the broker or dealer has capital at risk in the transaction.

During the fiscal years ended August 31, 2019, 2020, and 2021, the Funds did not pay any brokerage commissions.

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 an 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 certain fund investments, or to exercise rights on behalf of a Fund, may be restricted or impaired because of limitations imposed by law, regulation, or by certain regulators or issuers. As a result, Vanguard and external advisors on behalf of a Fund may be required to limit purchases, sell existing investments, or otherwise limit the exercise of shareholder rights by the Fund, including voting rights. These ownership restrictions and limitations can impact a Fund's performance. For index funds, this impact generally takes the form of tracking error, which can arise when a fund is not able to acquire its desired amount of a security. For actively managed funds, this impact can result, for example, in missed investment opportunities otherwise desired by a fund's investment advisor. If a Fund is required to limit its investment in a particular issuer, then the Fund may seek to obtain regulatory or corporate consents or ownership waivers. Other options a Fund may pursue include seeking 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, or through investment in a wholly-owned subsidiary.

As of August 31, 2021, 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
Vanguard Cash Reserves Federal Money Market Fund	Goldman, Sachs & Co.	\$ 435,000,000
	RBC Dominion Securities, Inc.	99,000,000
	Standard Chartered Bank	1,000,000,000
	Sumitomo Bank and Trust Co.	878,000,000
Vanguard Federal Money Market Fund	Credit Agricole Securities (USA) Inc.	650,000,000
	Goldman, Sachs & Co.	565,000,000
	J.P. Morgan Securities Inc.	500,000,000
	RBC Dominion Securities, Inc.	200,000,000
	Sumitomo Bank and Trust Co.	3,115,000,000
Vanguard Treasury Money Market Fund	—	—

PROXY VOTING

I. Proxy Voting Policies

Each Vanguard fund advised by Vanguard retains the authority to vote proxies received with respect to the shares of equity securities held in a portfolio advised by Vanguard. The Board of Trustees of the Vanguard-advised funds (the Board) has adopted proxy voting procedures and guidelines to govern proxy voting for each portfolio retaining proxy voting authority, which are summarized in *Appendix A*.

Vanguard has entered into agreements with various state, federal, and non-U.S. regulators and with certain issuers that limit the amount of shares that the funds may vote at their discretion for particular securities. For these securities, the funds are able to vote a limited portion of the shares at their discretion. Any additional shares generally are voted in the same proportion as votes cast by the issuer's entire shareholder base (i.e., mirror voted), or the fund is not permitted to vote such shares. Further, the Board has adopted policies that will result in certain funds mirror voting a higher proportion of the shares they own in a regulated issuer in order to permit certain other funds (generally advised by managers not affiliated with Vanguard) to mirror vote none, or a lower proportion, of their shares in such regulated issuer.

II. Securities Lending

There may be occasions when Vanguard needs to restrict lending of and/or recall securities that are out on loan in order to vote the full position at a shareholder meeting. For the funds managed by Vanguard, Vanguard has processes to monitor securities on loan and to evaluate any circumstances that may require it to restrict and/or attempt to recall the security based on the criteria set forth in *Appendix A*.

To 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, log on to *vanguard.com* or visit the SEC's website at *www.sec.gov*.

FINANCIAL STATEMENTS

Each Fund's Financial Statements for the fiscal year ended August 31, 2021, appearing in the Funds' 2021 [financial statements](#) to Shareholders, and the report 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.

APPENDIX A

Summary of the Vanguard-Advised Funds Proxy Voting Policy

Each Vanguard fund advised by Vanguard retains authority to vote proxies received with respect to the shares of equity securities held in a portfolio advised by Vanguard. The Board of Trustees (the Board) for the Vanguard-advised funds has adopted proxy voting procedures and guidelines to govern proxy voting for each portfolio retaining proxy voting authority.

The Investment Stewardship Oversight Committee (the Committee), comprised primarily of fund officers and subject to the procedures described below, oversees the Vanguard-advised funds' proxy voting. The Committee reports directly to the Board. Vanguard is subject to these procedures and the proxy voting policies to the extent that they call for Vanguard to administer the voting process and implement the resulting voting decisions, and for these purposes the voting policies have also been approved by the Board of Directors of Vanguard.

The voting principles and policies adopted by the Board provide a framework for assessing each proposal and seek to ensure that each vote is cast in the best interests of each fund. Under the voting policies, each proposal is evaluated on its merits, based on the particular facts and circumstances as presented. For more information on the funds' proxy voting policies, please visit about.vanguard.com/investment-stewardship.

I. Investment Stewardship Team

The Investment Stewardship Team administers the day-to-day operation of the funds' proxy voting process, overseen by the Committee. The Investment Stewardship Team 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 voting policies; (4) determining and addressing potential or actual conflicts of interest that may be presented by a particular proxy; and (5) voting proxies. The Investment Stewardship Team also prepares periodic and special reports to the Board, and proposes amendments to the procedures and voting policies.

II. Investment Stewardship Oversight Committee

The Board, including a majority of the independent trustees, appoints the members of the Committee (which is comprised primarily of fund officers). The Committee works with the Investment Stewardship Team to provide reports and other guidance to the Board regarding proxy voting by the funds. The Committee has an obligation to exercise its decision-making authority in accordance with the Board's instructions as set forth in the funds' proxy voting procedures and voting policies and subject to the fiduciary standards of good faith, fairness, and Vanguard's Code of Ethics. The Committee may advise the Investment Stewardship Team on how to best apply the Board's instructions as set forth in the voting policies or refer the matter to the Board, which has ultimate decision-making authority for the funds. The Board reviews the procedures and voting policies annually and modifies them from time to time upon the recommendation of the Committee and in consultation with the Investment Stewardship Team.

III. Proxy Voting Principles

Vanguard's investment stewardship activities are grounded in four principles of good governance:

- 1) *Board composition:* We believe good governance begins with a great board of directors. Our primary interest is to ensure that the individuals who represent the interests of all shareholders are independent, committed, capable, and appropriately experienced.
- 2) *Oversight of strategy and risk:* We believe that boards are responsible for effective oversight of a company's long-term strategy and any relevant and material risks.
- 3) *Executive compensation:* We believe that performance-linked compensation (or remuneration) policies and practices are fundamental drivers of sustainable, long-term value.
- 4) *Governance structures:* We believe that companies should have in place governance structures to ensure that boards and management serve in the best interests of the shareholders they represent.

IV. Evaluation of Proxies

For ease of reference, the procedures and guidelines often refer to all funds. However, the 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 could result in the funds having a common interest in the matter and, accordingly, each fund casting votes in the same manner. In other cases, however, a fund may vote differently from other funds if doing so is in the best interest of the individual fund.

The voting policies do not permit the Board to delegate voting discretion to a third party that does not serve as a fiduciary for the funds. Because many factors bear on each decision, the voting policies incorporate factors that should be considered 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, which could include, but is not limited to, an investment advisor unaffiliated with Vanguard that has investment and proxy voting authority with respect to Vanguard funds that hold shares in the applicable company, the management or shareholders of a company presenting a proposal, and independent proxy research services. Additionally, data and recommendations from proxy advisors serve as one of many inputs into our research process. The funds may utilize automated voting for matters that are clearly addressed by the fund's procedures and voting policies.

While serving as a framework, the voting policies 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 Investment Stewardship Team, under the supervision of the Committee, will evaluate the matter and cast the fund's vote in a manner that is in the fund's best interest, subject to the individual circumstances of the fund.

V. Conflicts of Interest

Vanguard takes seriously its commitment to avoid potential conflicts of interest. Vanguard funds invest in thousands of publicly listed companies worldwide. Those companies may include clients, potential clients, vendors, or competitors. Some companies may employ Vanguard trustees, former Vanguard executives, or family members of Vanguard personnel who have direct involvement in Vanguard's Investment Stewardship program.

Vanguard's approach to mitigating conflicts of interest begins with the funds' proxy voting procedures. The procedures require that voting personnel act as fiduciaries, and must conduct their activities at all times in accordance with the following standards: (i) fund shareholders' interests come first; (ii) conflicts of interest must be avoided; (iii) and compromising situations must be avoided.

We maintain an important separation between Vanguard's Investment Stewardship Team and other groups within Vanguard that are responsible for sales, marketing, client service, and vendor/partner relationships. Proxy voting personnel are required to disclose potential conflicts of interest, and must recuse themselves from all voting decisions and engagement activities in such instances. In certain circumstances, Vanguard may refrain from voting shares of a company, or may engage an independent third-party fiduciary to vote proxies.

Each externally managed fund has adopted the proxy voting guidelines of its advisor(s) and votes in accordance with the external advisors' guidelines and procedures. Each advisor has its own procedures for managing conflicts of interest in the best interests of fund shareholders.

VI. Environmental and Social Proposals

Proposals in this category, initiated primarily by shareholders, typically request that a company enhance its disclosure or amend certain business practices. These resolutions are evaluated in the context of the general corporate governance principle 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. Each proposal is evaluated on

its merits and supported when there is a logically demonstrable linkage between the specific proposal and long-term shareholder value of the company. Some of the factors considered when evaluating these proposals include the materiality of the issue, the quality of the current disclosures/business practices, and any progress by the company toward the adoption of best practices and/or industry norms.

VII. Voting in Markets Outside the United States

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 support improvements in governance and disclosure by each fund's portfolio companies. Matters presented by non-U.S. portfolio companies will be evaluated in the foregoing context, as well as in accordance with local market standards and best practices. Votes are cast for each fund in a manner philosophically consistent with the voting policies, taking into account differing practices by market.

In many other markets, voting proxies will result in a fund being prohibited from selling the shares for a period of time due to requirements known as "share-blocking" or reregistration. Generally, the value of voting is unlikely to outweigh the loss of liquidity imposed by these requirements on the funds. In such instances, the funds will generally abstain from voting.

The costs of voting (e.g., custodian fees, vote agency fees) in other 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.

VIII. Voting Shares of a Company Subject to an Ownership Limitation

Certain companies have provisions in their governing documents or other agreements 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 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 issuers' 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. Further, the Board has adopted policies that will result in certain funds mirror voting a higher proportion of the shares they own in a regulated issuer in order to permit certain other funds (generally advised by managers not affiliated with Vanguard) to mirror vote none, or a lower proportion, of their shares in such regulated issuer.

IX. 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.

X. Securities Lending

There may be occasions when Vanguard needs to restrict lending of and/or recall securities that are out on loan in order to vote in a shareholder meeting. Vanguard has processes to monitor securities on loan and to evaluate any circumstances that may require us to restrict and/or recall the stock. In making this decision, we consider:

- The subject of the vote and whether, based on our knowledge and experience, we believe the topic is potentially material to the corporate governance and/or long-term performance of the company;
- The Vanguard funds' individual and/or aggregate equity investment in a company, and whether we estimate that voting Vanguard funds' shares would affect the shareholder meeting outcome; and
- The long-term impact to our fund shareholders, evaluating whether we believe the benefits of voting a company's shares would outweigh the benefits of stock lending revenues in a particular instance.

The S&P 500® Value Index, S&P 500 Growth Index, S&P MidCap 400® Index, S&P MidCap 400 Value Index, S&P MidCap 400 Growth Index, S&P SmallCap 600® Index, S&P SmallCap 600 Value Index, and S&P SmallCap 600 Growth Index are products of S&P Dow Jones Indices LLC, a division of S&P Global, or its affiliates (“SPDJI”), and have been licensed for use by Vanguard. Standard & Poor’s®, and S&P® are registered trademarks of Standard & Poor’s Financial Services LLC, a division of S&P Global (“S&P”); Dow Jones® is a registered trademark of Dow Jones Trademark Holdings LLC (“Dow Jones”); and these trademarks have been licensed for use by SPDJI and sublicensed for certain purposes by Vanguard. Vanguard’s S&P 500 Value Index Fund, S&P 500 Growth Index Fund, S&P Mid-Cap 400 Index Fund, S&P Mid-Cap 400 Value Index Fund, S&P Mid-Cap 400 Growth Index Fund, S&P Small-Cap 600 Index Fund, S&P Small-Cap 600 Value Index Fund, and S&P Small-Cap 600 Growth Fund are not sponsored, endorsed, sold or promoted by SPDJI, Dow Jones, S&P, their respective affiliates, and none of such parties make any representation regarding the advisability of investing in such product(s) nor do they have any liability for any errors, omissions, or interruptions of the S&P 500 Value Index, S&P 500 Growth Index, S&P MidCap 400® Index, S&P MidCap 400 Value Index, S&P MidCap 400 Growth Index, S&P SmallCap 600® Index, S&P SmallCap 600 Value Index, and S&P SmallCap 600 Growth Index.

