

Notice of Amendment to the Vanguard Brokerage Account Agreement (Legacy)

Effective December 30, 2020

Please read this important information carefully and retain this document for future reference. It contains updates to the terms and conditions of the Vanguard Brokerage Account Agreement (Legacy) ("Agreement"), which governs your Vanguard Brokerage Account.

We have highlighted below the provisions that have been revised, removed, or added since the Agreement was last amended in September 2020. In addition to the changes noted below, all references to "sweep to settlement fund" are updated to "Sweep Program" or "Sweep Program option" or "Sweep," as applicable.

Index:

- Vanguard Brokerage Account Agreement (Legacy)
- Vanguard Dividend Reinvestment Program – section removed
- Policies – section removed
- Electronic Services Agreement – section removed
- Vanguard Brokerage Disclosure Statement

Vanguard Brokerage Account Agreement (Legacy)

- Introduction – section revised
- Definitions – additions and revisions
- 2. Sweep Program – section renamed and revised
- 3. Commissions and Fees – section revised
- 27. Trade Reports, Confirmations, Statements, and Other Account-Related Communications – section revised
- 30. Trading or Disbursement Restrictions – section revised
- 33. Disclosure of Account Information – section revised
- 43. Delivery of Distributions/Withdrawals – section added
- 44. Nontransferable Securities – section added
- 45. Mutual Fund Mergers, Share Conversions, or Other Fund Actions – section added
- 46. Changing or Canceling Orders – section added

Vanguard Brokerage Disclosure Statement

- 4. Business Contingency Planning and Disaster Recovery – section removed
- 5. Privacy Policy – section removed
- 6. Lost Securities – renumbered as 4
- 7. SIPC Protection – renumbered as 5, revised
- 8. Complaints – renumbered as 6
- 9. Liens and Levies – renumbered as 7
- 10. Dormant Accounts – renumbered as 8
- 11. FundAccess® Dollar-Cost-Averaging Transactions – section removed

Vanguard Brokerage Account Agreement (Legacy)

Introduction

This Vanguard Brokerage Account Agreement (Agreement) is for Accounts considered "Legacy" accounts, which are those that currently use a Sweep Program option held by the Vanguard funds' transfer agent (see below). This Agreement contains important terms and conditions that apply to Your Vanguard Brokerage Account. The Agreement also includes the Vanguard Brokerage Account Application, the Vanguard Brokerage Services Commission and Fee Schedules, and the other disclosures, terms, and agreements relating to Your Account or to particular features or services offered in connection with Your Account, each as amended from time to time. In addition, You may in the future receive from Vanguard Brokerage Services" (VBS") supplemental disclosures, terms, and agreements that pertain to certain account types, features, or services. References to the Agreement include these supplemental disclosures, terms and agreements. The Agreement supersedes any previous agreements made by You individually with VBS relating to Your Account, and if Your Account is held jointly or in other combinations, it supersedes any previous agreements made by the same parties to the Agreement with VBS relating to Your Account, to the extent the subject matter is covered in the Agreement. Please read this document carefully and retain it for future reference.

Vanguard Brokerage Services is a division of Vanguard Marketing Corporation (VMC), which is a member firm of the Financial Industry Regulatory Authority (FINRA). As such, We are required to inform You that FINRA sponsors a program, called BrokerCheck, designed to give investors convenient access to information about the professional background, business practices, and conduct of FINRA member firms and brokers with whom they invest. The hotline number for this program is 800-289-9999. An investor brochure that describes the program may be obtained from FINRA by telephone or at finra.org.

Definitions

- **"Bank Account Product"**: One of the options of VBS' Sweep Program. An FDIC-insured product that may be made available to invest Free Credit Balances and to pay for transactions and receive the proceeds from trades and other transactions in Your Account.
- **"Free Credit Balance"**: The uninvested cash in Your Account, less what is needed to pay for unsettled purchase transactions, charges to Your Account, or credit balances designated as collateral. Free Credit Balances are payable on demand.
- **"Settlement Fund"**: One of the options of VBS' Sweep Program. A Vanguard money market mutual fund that You may use for Free Credit Balances or to pay for transactions and receive the proceeds from trades and other transactions made in Your Account.
- **"Sweep"**: A transaction that moves cash under the Sweep Program.
- **"Sweep Program"**: The service VBS may provide to its clients to move Free Credit Balances into money market funds and/or Bank Account Products.

2. Sweep Program

VBS has a Sweep Program and may Sweep Free Credit Balances into money market funds and/or Bank Account Products. Currently, VBS' Sweep Program moves free credits into a money market settlement fund ("Settlement Fund") which clients use to pay for trades or other transactions; the Bank Account Product option is not yet available for use under the Sweep Program. Under the Sweep Program option currently available for Your Account, You open a separate Vanguard money market mutual fund account to serve as Your Settlement Fund. Your Settlement Fund is held through the Vanguard Group, Inc., and assets in accounts held by The Vanguard Group, Inc., are not protected by the Securities Investor Protection Corporation (SIPC).

Only cash can move into and out of the Sweep Program; if VBS receives directions to move something other than cash in the Sweep Program, including a direction to transfer shares in kind to or from Your Settlement Fund, VBS will treat the directions as an instruction to transfer cash. There is no guarantee that cash will Sweep into or out of the Sweep Program. VBS' Sweep Program may decline to accept a purchase for any reason, including, for example, if the size of the purchase may negatively impact a Sweep Program option's operation or performance. If the Sweep Program declines Your purchase, the Sweep will not be processed and no Sweep Program option will be credited. VBS will attempt to notify You if the Sweep Program declines a purchase and to obtain alternative investment instructions. If VBS does not receive alternative investment instructions, or if it cannot process Your alternative investment instructions, the amount of Your attempted purchase will result in a Free Credit Balance in Your Account (which is another sweep option). VBS will not be liable for lost profits, or other losses and damages that allegedly result from a failure or delay to Sweep. You agree that VBS may, on prior written notice to You, limit, change, or add options to its Sweep Program or end the Sweep Program. If a sweep option under the Sweep Program is temporarily made unavailable (because, for example, a money market fund closes or a fund determines that a customer is not an eligible investor or a Sweep bank refuses deposits), then VBS may sweep to another available option under the Sweep Program, or it may opt to reflect cash as a Free Credit Balance in Your Account. If the current Settlement Fund is eliminated or restricted as an option in the Sweep Program, VBS may seek a new money market mutual fund, considering such factors as yield, fees, investment objectives, risks, and current market conditions, or VBS may make available or use another available option or combination of options under the Sweep Program, such as an FDIC-insured Bank Account Product, or Free Credit Balances in Your Account. After notice whenever feasible, VBS may change Your investment made through the Sweep Program from one Settlement Fund to another, or from one Sweep Program option to another. Pending payments and proceeds and payments and proceeds for trades placed after a Sweep Program option is eliminated or restricted, assuming the Sweep Program has not ended, will Sweep into or out of the alternative Sweep Program option and/or be reflected as a Free Credit Balance in Your Account.

Cash not swept under the Sweep Program will be reflected as a free credit or a Free Credit Balance in Your Account. VBS expects to receive compensation based on the amount of Free Credit Balances in VBS Accounts.

3. Commissions and Fees

You agree to pay our commissions and transaction, processing, and other fees, including federal, state, and local taxes, promptly in accordance with the then-current Vanguard Brokerage Commission and Fee Schedules as they apply to Your transactions and the features and services You receive. You authorize VBS to automatically debit Your Account or any account You have with Our affiliates for any such fees. VBS' failure to deduct fees from Your Account or any account You have with Our affiliates at the time You incur those fees does not waive VBS' right to deduct those fees from Your Account or any account You have with Our affiliates at a later time. Note: If You request an in-kind distribution, and VBS is required to withhold tax on that distribution, You may be required to have the amount of applicable tax available in Your Account at the time the distribution is processed. VBS may restrict the types of distributions available to certain clients; for example, clients who are nonresident aliens may not be permitted to take in-kind distributions.

For more information, please see the Vanguard Brokerage Commission and Fee Schedules, incorporated by reference as part of the Agreement. This document provides You with an overview of standard pricing for commission rate, transaction fees, and key account charges and service fees. Certain clients may have a different pricing structure based on assets or activities in their accounts at VBS or its affiliates.

VBS reserves the right to change or waive fees at our discretion, subject to notification in accordance with applicable laws and regulations. Your continued use of Your Account or the applicable service following such a change will evidence Your consent.

27. Trade Reports, Confirmations, Statements, and Other Account-Related Communications

VBS will provide You with written confirmation of trades that are executed in Your Account as required under SEC, FINRA, or applicable self-regulatory organization (SRO) rules. You agree that VBS is not legally obligated to provide You with any trade status report other than the written confirmation required by SEC rules and account statements as required by applicable FINRA or SRO rules, and that any other trade status report is provided as a courtesy only. VBS will not be liable for any losses, lost profits, or other damages that allegedly result from delays in or a failure to issue a trade status report. VBS may elect to send a monthly statement, in lieu of an immediate confirmation, for transactions executed pursuant to a periodic plan or an investment company plan, transactions executed in shares of any open-end registered money market mutual fund, or for certain fractional share liquidations.

Shortly after quarter-end, You will receive an Account Statement that includes all of Your identically registered Vanguard Brokerage and Vanguard Fund accounts. A statement containing all brokerage account transactions will also be issued for any month in which there is brokerage activity. Information about all systematic or scheduled transactions will be included on Your statement for the periods during which the transaction occurred. These include, for example, purchases through a mutual fund dollar-cost-averaging program or reinvestment of dividends.

You acknowledge that You have an affirmative duty to promptly review any and all trade confirmations and account statements for accuracy and completeness and to immediately notify Us of any items You believe to be in error. You agree to waive any objections to the trades, positions, funds transfers, checks, disbursements, fees, and other information set forth on any confirmations and account statements unless You notify Us of an unauthorized transaction or other error in writing within ten (10) days of mailing of the trade confirmation or account statement at issue. You agree that We are not liable for any damages or market fluctuations resulting from an error You fail to timely report to Us. Any oral communications regarding inaccuracies must be reconfirmed in writing to further protect Your rights, including Your rights under the Securities Investor Protection Act (SIPA).

You agree that VBS may combine communications such as account statements, confirmations, and other written communications related to account activity for Your accounts in a manner that reduces the number of envelopes mailed to You. Combined communications for accounts that have more than one Account Owner may be addressed solely to the first-listed Account Owner or to the Account Owner who has his or her tax identification number serve as the tax reporting identification number on the account (usually the first-listed Account Owner).

30. Trading or Disbursement Restrictions

VBS is not required to accept any trade, or take any funding, and it may place trading, funding, disbursement, or other restrictions on an Account. These restrictions could include, but are not limited to, restrictions relating to: court orders, tax levies, or garnishments; requests from a government agency or law enforcement authority; a failure to pay for trades in a timely manner or for trading or trade-related violations; notice of a dispute between Account Owners; if VBS believes that doing so will prevent fraud, financial exploitation or abuse, or to protect vulnerable investors; or VBS' knowledge or suspicion that a violation of any law may or could occur without the restriction. You agree to abide by any such restriction and not to initiate trades or transactions that would violate the restriction. VBS may also eliminate or restrict Your ability to purchase particular Securities or Other Property. You agree We may debit Your Account a processing fee of \$35 for each garnishment, subpoena, court order, tax levy, or other legal process on Your Account.

33. Disclosure of Account Information

We may disclose Your name and/or information about Your Account or Your transactions consistent with Our Privacy Policy and pursuant to Rule 14b-1 under the Securities Exchange Act of 1934 to companies whose Securities You hold unless We receive Your written objection. Different rules apply for European Union domiciled Securities, and You may not be able to opt out of Our disclosure of shareholder identifying information to issuers of such Securities. For additional information about Our Privacy Policy, visit Our Privacy Center at investor.vanguard.com/privacy-center/home-page. In addition, if You request a large transaction in a Vanguard Fund, including in Your Settlement Fund, VBS may disclose information about You and/or Your Vanguard Fund holdings to The Vanguard Group, Inc.

43. Delivery of Distributions/Withdrawals

If You request a distribution or withdrawal from Your Account, but We are unable to deliver the funds as instructed or We have questions on the instructions, VBS will attempt to contact You for corrected or revised delivery instructions or for additional information. If You do not provide VBS with corrected or revised delivery instructions or the requested information promptly, VBS may return the funds to Your Account with the proceeds to Sweep. For Retirement Accounts: If funds are returned to Your Account for one of the reasons noted above, Your Account records (including the tax records) will reflect that the distribution did not occur.

44. Nontransferable Securities

If You hold nontransferable Securities in Your Account, VBS may remove the Securities from Your Account. Securities become nontransferable when there are no transfer agent services available for the Securities. If nontransferable Securities are removed from Your Account, You should consult with Your tax advisor about any potential tax implications.

45. Mutual Fund Mergers, Share Conversions, or Other Fund Actions

A mutual fund, or its transfer agent, may merge fund shares held in Your Account to another fund pursuant to a fund merger, convert shares from one class to another, or take other actions as described in each fund's prospectus. VBS will accept the direction of a fund or its transfer agent to merge, convert Your shares, or take other action.

46. Changing or Canceling Orders

It may not be possible for You to cancel an order once You have placed it. If You attempt to cancel or change an order, Your attempt will be treated as a request to cancel or change. VBS will process Your request on a best-efforts basis, but if VBS cannot cancel or change Your order, You will be bound to the terms of the original order You placed.

For VBS' protection, it may, without prior notice, decline, cancel, modify, or reverse Your orders or instructions.

Vanguard Brokerage Disclosure Statement

5. SIPC Protection

Securities held in Your Account are held in custody by VBS, a division of VMC. VMC is a member of the Securities Investor Protection Corporation (SIPC), which protects securities customers of its members up to \$500,000 (including \$250,000 for claims for cash). An explanatory brochure is available upon request or at sipc.org.

VBS maintains additional coverage through an insurer. Account protection, either under SIPC or the additional insurance maintained by VBS, does not cover fluctuations in the market value of the investments in Your Account. Positions held away from VBS are not in VBS' custody or control and are not covered by SIPC or VBS' additional insurance.

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Amendment to the Vanguard Legacy Brokerage Account Agreement

Effective September 1, 2020

Please read this important information carefully. This Amendment updates Sections 1 and 8 of the Vanguard Brokerage Disclosure Statement found in the Vanguard Brokerage Account Agreement. Please retain this document for future reference.

1. Order Routing

Best Execution and Payment for Order-Flow Practices

VBS routes equity and options orders to various market participants. VBS uses a top-down approach in selecting the market participants with which We will establish a relationship. This approach includes a review of system availability, quality of service, and financial and regulatory standing. The designated market participants to which orders are routed are selected based on the consistent high quality of their executions in one or more market segments. In analyzing quality of executions, VBS considers factors such as liquidity enhancement, price improvement, execution speed, and overall effective price compared with the national best bid and offer (NBBO). VBS regularly conducts analysis and reviews reports for quality of execution purposes.

VBS is required to make publicly available quarterly reports that disclose the venues to which orders were routed as well as the nature of Our routing relationships, including any payment for order-flow arrangements. You can access this information by visiting vanguard.com and selecting Stocks and other ETFs from the Investing tab.

In addition to the publicly available reports, VBS, upon written request, will provide information related to Your orders that were routed for execution in the past six months. This information will include the venue to which Your order(s) was (were) routed, whether the order(s) was (were) directed or nondirected, the time of the transactions, and the source and remuneration received, if any, in connection with Your order.

VBS does not receive compensation for directing order flow in equity Securities. VBS receives compensation for directing certain options Securities to Our execution partners.

8. Complaints

Complaints concerning services provided by VBS may be directed to:

Complaints
Vanguard Brokerage Services
P.O. Box 982901
El Paso, TX 79998-2901

Vanguard Brokerage Services is a division of Vanguard Marketing Corporation, member FINRA and SIPC.

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Vanguard Brokerage Account Agreement

Effective September 5, 2017

Please read this important information carefully.

Information about:

- Vanguard Brokerage Account Agreement
- Vanguard Dividend Reinvestment Program
- Policies
- Electronic Services Agreement
- Vanguard Brokerage Disclosure Statement

Vanguard Brokerage Account Agreement

Introduction

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11. FundAccess[®] Dollar-Cost-Averaging Transactions

Vanguard Brokerage Account Agreement

Introduction

This Vanguard Brokerage Account Agreement (Agreement) contains important terms and conditions that apply to Your Vanguard Brokerage Account. The Agreement includes the Vanguard Brokerage Account Application and the Application Agreement, the Vanguard Brokerage Services Commission and Fee Schedules and the other disclosures, terms, and agreements relating to Your Account or to particular features or services offered in connection with Your Account, each as amended from time to time. In addition, You may in the future receive from Vanguard Brokerage Services[®] (VBS[®]) supplemental disclosures, terms, and agreements that pertain to certain account types, features, or services. References to the Agreement include these supplemental disclosures, terms and agreements. The Agreement supersedes any previous agreements made by You individually with VBS relating to Your Account, and if Your Account is held jointly or in other combinations, it supersedes any previous agreements made by the same parties to the Agreement with VBS relating to Your Account, to the extent the subject matter is covered in the Agreement. Please read this document carefully and retain it for future reference.

Vanguard Brokerage Services is a division of Vanguard Marketing Corporation (VMC), which is a member firm of the Financial Industry Regulatory Authority (FINRA). As such, We are required to inform You that FINRA sponsors a program, called BrokerCheck, designed to give investors convenient access to information about the professional background, business practices, and conduct of FINRA-member firms and brokers with whom they invest. The hotline number for this program is **800-289-9999**. An investor brochure that describes the program may be obtained from FINRA by telephone or at finra.org.

Definitions

As used in the Agreement, the terms listed below are defined as follows:

- **"Account"**—Account means the brokerage account established under Your Agreement in Your name alone, or in Your name together with other Account Owners, or in which You have a beneficial interest.

- **"Brokerage Account Application"**—The application You submit to open a VBS Account.
- **"Business Day"**—Any day that the New York Stock Exchange and the Federal Reserve Bank of New York are open. (Although our offices may be open on certain bank holidays, these days are not considered Business Days for purposes relating to the transfer of funds.)
- **"Debit Balance"**—An account balance representing money owed to Us.
- **"Electronic Services"**—VBS' wireless, internet computer services, and systems, including, but not limited to, services and information accessible through proprietary software, websites, externally accessible computers, networks and any other wireless, internet, computer, or telephonic securities trading services and information systems provided to You by VBS, whether established by VBS directly or through other service providers.
- **"Free Credit Balance"**—The uninvested cash in Your Account, less (i) funds necessary to pay for purchase transactions due to settle on or after the date the Free Credit balance is determined; (ii) charges to Your Account; and (iii) credit balances that are designated as collateral for Your obligations, such as margin loans, short sales, and options positions.
- **"Good Delivery"**—The delivery to Us of freely transferable securities (that is, properly registered, endorsed, and fully negotiable).
- **"Long Sale"**—The sale of a security that You own.
- **"Other Property"**—Money, instruments (including certificates of deposit and other financial instruments), and any other property or rights.
- **"Retirement Account"**—An Account held in a traditional or Roth individual retirement account or a Coverdell Education Savings Account (collectively, "IRA") or an employer-sponsored retirement plan.
- **"Settlement Fund"**—One of the Vanguard money market funds, the shares of which are available for automatic investment and redemption through Your Account as set forth in the Agreement.
- **"Securities"**—Securities of any kind and nature, including those You may deposit or redeposit with Us for any reason (including safekeeping), as well as uncertificated securities, such as money market fund shares.
- **"To close any or all transactions"**—To complete or liquidate any or all unsettled transactions; to cancel open orders; to sell any or all long Securities and Other Property, including options; to buy any or all Securities and Other Property that are short in the VBS Account or required for delivery against any sale order or other obligation; and to purchase option contracts to close any outstanding short option positions.
- **"You"/"Your"/"Account Owner"**—Each person who signs the Brokerage Account Application.
- **"We"/"Us"/"Our"/"VBS"**—Vanguard Brokerage Services, a division of Vanguard Marketing Corporation, and its affiliates.

1. Provision of Services

To open an Account, You complete a Brokerage Account Application. When We approve Your application, which may be subject to credit verification, We will open an Account for You and act as Your broker to purchase and sell Securities and Other Property for Your Account based on Your instructions. VBS may establish from time to time minimum balance requirements to open an Account. The minimum deposit necessary to open an Account may be funded through a check, Electronic Fund Transfer, and/or marginable securities.

VBS can close Your account, or terminate any feature, at any time, for any reason, and without prior notice. Such termination may include declining to accept orders, cancellation, rejected orders, and liquidation of Your account. You can close Your account or terminate any optional feature by notifying Us in writing. VBS may automatically close accounts with zero balances. Regardless of how or when Your account is closed, You will remain responsible for all charges, debit items, or other transactions You initiated or authorized, whether arising before or after termination. Note that a final disbursement of assets may be delayed until any remaining issues have been resolved.

Securities and Other Property that are held for Your account and that are in "street name," or are being held by a securities depository are commingled with the same securities being held for other clients of financial organizations and for VBS' own clients. Your ownership of these Securities and Other Property is reflected in Our records. You have the right at any time to require delivery to You of any such Securities and Other Property that are fully paid for or are in excess of margin requirements.

2. Money Market Settlement Fund Information

You must direct Us to open a separate Vanguard money market mutual fund account to serve as Your Settlement Fund. You pay for and receive the proceeds from trades through Your Settlement Fund. If You have a Vanguard Brokerage Option Account through an employer-sponsored retirement plan, Your Settlement Fund is held in custody by VBS. For all other brokerage accounts, Your Settlement Fund is held through the Vanguard Group, Inc., and the assets in these accounts are not protected by the Securities Investor Protection Corporation (SIPC).

Your Settlement Fund may, in its sole discretion, decline to accept a purchase for any reason, including, for example, if the size of the purchase may negatively impact the Fund's operation or performance. VBS will not be liable for lost profits, or other losses and damages that allegedly result from the Fund's rejection of that purchase. If Your Settlement Fund declines Your purchase, the sweep transaction will not be processed and Your Settlement Fund will not be credited. VBS will attempt to notify You of the rejection and to seek alternative investment instructions. If We do not receive alternative investment instructions, or if We cannot process Your alternative investment instructions, the amount of Your attempted purchase will result in a Free Credit Balance.

Subject to certain minimum balance and time requirements, You may receive interest on Your Free Credit Balance provided the balance is awaiting investment. VBS may receive compensation based on the amount of Free Credit Balances in

VBS accounts. If You currently maintain Free Credit Balances in Your account solely for the purpose of receiving credit interest and have no intention to invest the balance in the future, You must contact VBS to discuss Your investment options.

VBS may, on prior written notice to You, limit, change, or add to the Settlement Fund choices. If Your current Settlement Fund is eliminated as a sweep fund choice, all pending payments and proceeds and all payments and proceeds for trades placed after the elimination date will sweep into or out of the Vanguard Prime Money Market Fund. If the Vanguard Prime Money Market Fund is eliminated as a sweep fund choice, We will use best efforts to seek a new sweep money market mutual fund (New Settlement Fund) that is an appropriate money market mutual fund for clients, considering such factors as yield, fees, investment objectives, risks, and current market conditions, and all pending payments and proceeds and all payments and proceeds for trades placed after the elimination date will sweep into or out of this New Settlement Fund. The assets in the money market fund that was eliminated as a sweep option will remain invested in the fund without change until You direct VBS or Vanguard to move these assets into another fund.

3. Commissions and Fees

You agree to pay our commissions and transaction, processing, and other fees, including federal, state, and local taxes, promptly in accordance with the then-current Vanguard Brokerage Commission and Fee Schedules as they apply to Your transactions and the features and services You receive. You authorize VBS to automatically debit Your Account or any account You have with Our affiliates for any such fees. VBS' failure to deduct fees from Your Account or any account You have with Our affiliates at the time You incur those fees does not waive VBS' right to deduct those fees from Your Account or any account You have with Our affiliates at a later time. Note that tax withheld on in-kind distributions from Your brokerage account is automatically withdrawn from the linked money market.

For more information, please see the Vanguard Brokerage Commission and Fee Schedules, incorporated by reference as part of the Agreement. This document provides You with an overview of standard pricing for commission rate, transaction fees, and key account charges and service fees. Certain clients may have a different pricing structure based on assets or activities in their accounts at VBS or its affiliates.

VBS reserves the right to change or waive fees at our discretion, subject to notification in accordance with applicable laws and regulations. Your continued use of Your Account or the applicable service following such a change will evidence Your consent.

4. Rules and Regulations

Your Account and any transactions You make are subject to Our house trading rules and policies and the following rules, regulations, and policies, all as modified or amended from time to time:

- Applicable rules, regulations, customs, and usage of any exchange, market, clearinghouse, or self-regulatory organization, if any, where the transactions are executed; and

- Applicable federal, state, and international laws, rules, regulations, and treaties.

In no event will VBS be obligated to effect any transaction it believes would violate any federal, state, or international law, rule, or regulation or the rules or regulations of any regulatory or self-regulatory body.

5. Payment, Equity Deposit, and Settlement

You agree to pay for all transactions You make and all authorized transactions in Your Account. When You purchase Securities and Other Property on a cash basis, You agree to pay for the Securities and Other Property by settlement date. VBS may use available funds in Your Account or in any account with Our affiliates to settle a transaction. For a Retirement Account, VBS will only use available funds in your Retirement Account or an account with Our affiliates that is part of the same IRA or retirement plan to settle a transaction.

We may require an equity deposit or a full payment before We accept Your order. When You execute a Long Sale of Securities and Other Property, You must own the Securities and Other Property when You place the order. You also agree to make Good Delivery of the Securities and Other Property You are selling by settlement date. Proceeds of any sale will not be paid until VBS has received Good Delivery of the Securities and Other Property and the settlement of the Securities and Other Property is complete.

For Our protection, or to satisfy Your obligations to Us, except with respect to Retirement Accounts, We may, at Our discretion and without prior demand or notice, sell or otherwise liquidate all or any part of the Securities and Other Property securing Your obligations or necessary to close any or all transactions in Your Account or in any of Your accounts with Our affiliates. Furthermore, except with respect to Retirement Accounts, We may transfer Securities and Other Property from any Account or in any accounts with Our affiliates in which You have an interest to any other Account in which You have an interest, regardless of whether there are other Account Owners on either Account, in order to satisfy deficiencies in any such Account or if We think Your obligations in any such Account are not adequately secured. For Retirement Accounts, VBS may, at Our discretion and without prior demand or notice, sell or otherwise liquidate all or any part of the Securities and Other Property necessary to close any or all transactions in Your Retirement Account or in any of Your accounts with Our affiliates that are part of the same retirement plan. In Retirement Accounts, You agree that the security or securities that You purchased giving rise to the outstanding obligation would be sold first to the extent needed to close out such transaction or transactions and that Your Retirement Account will be charged a commission as a result of such sale.

You are responsible for all debits, costs, commissions, and losses arising from any actions we must take to liquidate or close transactions in Your VBS Account, or from Your failure to make timely Good Delivery of Securities and Other Property. If You know or suspect that You have received an overpayment of funds or securities, or if You know or suspect that VBS has not yet collected from Your Account a fee You have incurred, You agree to notify VBS, in writing, as soon as You learn of the overpayment or uncollected fee. You further

agree not to remove the overpayment of funds or securities or the uncollected fee from the account or to return the entire overpayment or uncollected fee to VBS if it has already been removed from Your Account. You agree that You are required to return the full amount of the overpayment or uncollected fee to VBS, notwithstanding any oral representations made by any VBS representative to the contrary. If You fail to do so, You will become liable to VBS not only for the amount of the overpayment or uncollected fee, but also for the interest and expenses associated with its recovery.

For Our protection, We may place trading, disbursement, and other restrictions on Your Account. Except for Retirement Accounts other than IRAs and ESAs, We may also, without prior notice, decline, cancel, or reverse your orders or instructions.

6. Payment of Indebtedness

You agree to satisfy, promptly upon demand, any Debit Balance or other indebtedness or outstanding obligation related to Your Account, including, but not limited to, any such indebtedness that results from instructions provided to VBS by You, Your agent or any attorney-in-fact under a power of attorney, or Investment Advisor authorized to make transactions in Your Account. Except for Retirement Accounts, We may elect anytime, with or without notice, to make any Debit Balance or other indebtedness or outstanding obligation related to Your Account immediately due and payable. Except for Retirement Accounts, We may elect anytime, with or without notice, to sell securities in any of Your brokerage accounts or in any of Your accounts with Our affiliates to satisfy any Debit Balances. For a Retirement Account, We may only sell securities in Your Retirement Account or in any of Your accounts with Our affiliates that are part of the same retirement plan to satisfy any Debit Balances. You further agree to be responsible for all costs and commissions related to such sales. In addition, You agree that VBS shall be entitled to apply any dividends, capital gains payments, interest payments, or other incoming funds, such as funds that would otherwise be invested through the Vanguard Brokerage Dividend Reinvestment Program, to cover fees or other indebtedness to VBS. Debit Balances in Your Account will be charged interest in accordance with VBS' established rules and policies, as disclosed to You.

If You owe money to VBS as the result of activity in Your Retirement Account and there are other assets in that Retirement Account or that same IRA or other retirement plan that You hold at VBS or with any of Our affiliates which could fully or partially satisfy the debt, You agree that, upon VBS' written demand, You will execute all documents and/or give any oral instructions necessary to effect a transfer of such other assets, including cash, to Your VBS Retirement Account.

7. Security for Indebtedness

As security for the repayment of all present or future indebtedness owed to Us by each Account Owner, each Account Owner grants to Us a first, perfected, and prior lien on, a continuing security interest in, and right of set-off with respect to, all Securities and Other Property that is, now or in the future, held, carried, or maintained for any purpose in or through VBS, and, to the extent of such Account Owner's interest in or through, any present or future account with Us or Our affiliates in which the Account Owner has an interest.

VBS may rehypothecate any Securities or Other Property held, carried, maintained, or in the possession and control of VBS. In the event of a breach or default by You under the Agreement, VBS will have the rights and remedies available to a secured creditor under all applicable laws in addition to the rights and remedies provided in the Agreement. You agree to indemnify VBS for any loss or expense that VBS may incur in enforcing its lien or any other remedies available to it, including the reasonable cost of collection. This section does not apply to assets in a Retirement Account or to IRA or other retirement plan assets held at Our affiliates.

8. Remittance

If a check or other item You remit to Us is returned unpaid, We may charge a fee to Your VBS Account. For Our protection, We may restrict Your ability to draw on funds represented by a check or to apply such funds to settle a securities transaction for up to ten (10) business days. In addition, VBS reserves the right to not accept orders until such funds are validated.

9. Your Responsibility Concerning the Sale of Control or Restricted Securities

Before instructing Us to sell Securities that are:

- "Restricted securities" or Securities of an issuer of which You are an "affiliate" (as those terms are defined in Rule 144 under the Securities Act of 1933); or
- Securities that are being sold in reliance on Rule 701 or 145(d) under said Act; or
- Securities of which You and the issuer or its underwriter have entered into an agreement restricting the transferability of such Securities;

You agree to tell Us the status of Your restricted/control Securities, including any restrictions (including contractual lock-up or blackout restrictions) on Your ability to sell such Securities, and to furnish promptly whatever information and documents We need to comply with Our regulatory duties. You acknowledge that furnishing the necessary information and documents to VBS does not constitute an order to sell Your restricted/control Securities, and that You must place a separate order to sell by telephone or using the Electronic Services. You agree that You are responsible for all costs, including the cost to repurchase stock, if You sell stock that is later found to be restricted or nontransferable. You further acknowledge that proceeds from the sale of Your restricted/control Securities will not sweep to your Settlement Fund or be made available to You for withdrawal or trading purposes until VBS receives what it, in its sole opinion, considers to be adequate verification that Your restricted/control shares have been transferred or cleared for transfer.

Because restricted/control Securities transactions require special handling by both VBS and third parties, processing Your transaction may require several weeks, during which time the price of Your securities may fluctuate. You agree not to hold VBS responsible for market fluctuations that may occur to the market price of Your securities while Your transaction is processed. You further agree not to hold VBS liable for delays in the sale (or settlement of such sale) of Your restricted/control Securities resulting from the failure of issuer's counsel to issue or approve any necessary legal opinion, the failure of

the transfer agent to process Your shares, or any other action or failure to act of a third party.

You agree not to tender restricted/control Securities as collateral for an obligation You owe Us, unless You first obtain Our prior written approval.

10. Your Responsibility for Understanding Terms of Securities

Certain Securities and Other Property may impart valuable rights that expire unless You take some action.

You are responsible for knowing the rights and terms of Your Securities and Other Property, and for taking action to realize the value of Your Securities and Other Property. However, if any such Security or Other Property is about to expire worthless; be redeemed, exchanged, converted, tendered, or exercised; or remain at a value significantly less than the value You would have received if You had given Us specific instructions; and We have not received instructions from You; except with respect to Retirement Accounts, We may, at our discretion, but are not obligated to, sell, redeem, exchange, tender, convert, or exercise the Security or Other Property for Your Account. You will be charged a brokerage commission and/or fee for any such transaction.

Although We may take the actions described above, We are not obligated to do so or to notify You of impending expiration or redemption dates. You agree not to hold VBS liable for any decrease in the value of Your Securities and Other Property or other losses resulting from Your failure to give VBS instructions on how to respond to a tender offer, exchange offer, or other offer or transaction.

11. Your Responsibility to Identify as a Large Trader

Any individual or entity whose transactions in exchange-listed securities equal or exceed two million shares or \$20 million a day, or 20 million shares or \$200 million a month, must identify themselves as "large traders" with the Securities and Exchange Commission (SEC). These thresholds apply not only to accounts that You own but also to accounts over which You have investment authority, such as agent authority. If You meet these thresholds, it is Your responsibility to file Form 13H with the SEC (available at [sec.gov](https://www.sec.gov)). Upon receiving the form, the SEC will assign You a unique ID number. You'll need to provide this ID to all broker-dealers with which You trade, including Vanguard Brokerage, so that accurate trading records can be provided to the SEC upon request.

12. Accuracy of Account Information

You represent and warrant that:

- You have attained the age of majority.
- You have supplied accurate information in Your Brokerage Account Application.
- No one except the Account Owners listed on the Brokerage Account Application (and, if community property is held, the Account Owners' spouses) has an interest in the Account.

In addition, You agree to notify Us promptly in writing of any important change in the information You supply Us on the Brokerage Account Application. In particular, You agree to notify Us:

- If You are or become a director, 10% beneficial shareholder, policymaking officer, or otherwise an "affiliate" (as defined in Rule 144 under the Securities Act of 1933) of a publicly traded company; or
- If You are or become affiliated with or employed by a securities exchange, or corporation controlled by a securities exchange, or a member of a securities exchange, or a securities association; or
- If there are significant changes to the net worth, income level, investment objectives, or employment status You listed on the Brokerage Account Application, Vanguard Brokerage Option Application, and/or Margin Account Application.

13. Joint or Multiple-Party Accounts

If there is more than one Account Owner, each Account Owner is jointly and severally liable for obligations arising under the Agreement or relating to the Account. Each joint Account Owner has authority, acting individually and without notice to any other Account Owner, to deal with Us as fully and completely as if the Account Owner were the sole Account Owner. We are authorized to follow the instructions of any joint Account Owner and to deliver Securities and Other Property in the Account to any joint Account Owner or upon any Account Owner's instructions. We are not responsible for determining the purpose or propriety of an instruction we receive from any Account Owner or for the disposition of payments or deliveries among joint Account Owners.

We reserve the right to require written instructions from all Account Owners, at our sole discretion. We reserve the right, but are not obligated, to place trading, disbursement, and other restrictions on an Account in the event we receive notice of a dispute among, or in our opinion conflicting instructions from, joint Account Owners.

Any notice We send to one Account Owner will be deemed to be notice to all Account Owners.

14. Termination

You may close Your Account, or terminate any features or services anytime by giving Us notice in writing. We may in our sole discretion close Your Account or terminate any or all services rendered in connection with the Account anytime and for any reason, without prior notice. VBS may automatically close accounts with zero balances without prior notice.

Closing an Account or terminating features or services will not affect Your obligations incurred prior to such closure or termination. You will remain responsible for all Debit Balances, charges, or other obligations or indebtedness that You owe to VBS, and You must settle all transactions You initiated or authorized whether arising before or after termination. Note that a final disbursement of assets may be delayed until any remaining Debit Balances, charges, or other obligations or indebtedness have been satisfied.

15. Approval of Application, Credit Verification, and Account Information

By submitting a Brokerage Account Application, You authorize Us to:

- Verify Your identity, creditworthiness, and other information (and Your spouse's if You live in a community-property state).

To obtain verification, we may contact Your employer (and Your spouse's, if applicable), obtain consumer and credit reports, and make other inquiries, but we are not obligated to do so.

You further authorize VBS to obtain copies of Your consumer and credit reports at its discretion, at any time, for reasons including, but not limited to, the following:

- To collect a Debit Balance in Your Account;
- To investigate, detect, and help prevent fraud involving You or Your Account;
- To help Us evaluate whether to grant, extend, or modify the terms and conditions of any credit You have applied for or received;
- If a deposit of Securities or Other Property to Your Account is returned.

We may report information about Your Account to credit bureaus. Late payments, missed payments, or other defaults on Your Account may be reflected in Your credit report.

On Your written request, We will inform You whether We have obtained credit reports and, if so, We will provide You with the name and address of the reporting agency that furnished the reports. We may deny Your Brokerage Account Application to open an Account or may decline to offer You certain features and services available under the Agreement in Our sole discretion for any lawful reason.

16. Governing Law

The Agreement, all transactions made in Your Account, and all matters arising in connection with the Agreement will be governed by, and construed and enforced in accordance with, the laws of the State of New York (regardless of the choice of law rules thereof).

17. Assignment

We may assign Our rights and obligations under the Agreement to any subsidiary, affiliate, or successor by merger or consolidation without notice to You or to any other entity after thirty (30) days' written notice to You. You may not assign Your rights and obligations under the Agreement without first obtaining Our written consent. The Agreement is binding upon You and Your heirs, executors, administrators, successors, and assigns, and it will benefit You and Your successors and assigns, if any.

18. Arbitration

Required Arbitration Disclosures: The Agreement contains a predispute arbitration clause. By signing an arbitration agreement, the parties agree as follows:

- All parties to the Agreement are giving up the right to sue each other in court, including the right to a trial by jury, except as provided by the rules of the arbitration forum in which a claim is filed.
- Arbitration awards are generally final and binding; a party's ability to have a court reverse or modify an arbitration award is very limited.
- The ability of the parties to obtain documents, witness statements, and other discovery is generally more limited in arbitration than in court proceedings.
- The arbitrators do not have to explain the reason(s) for their award unless, in an eligible case, a joint request for an explained decision has been submitted by all parties to the panel at least 20 days prior to the first scheduled hearing date.
- The panel of arbitrators may include a minority of arbitrators who were or are affiliated with the securities industry.
- The rules of some arbitration forums may impose time limits for bringing a claim in arbitration. In some cases, a claim that is ineligible for arbitration may be brought in court.
- The rules of the arbitration forum in which the claim is filed and any amendments thereto shall be incorporated into the Agreement.

You agree to settle by arbitration any controversy between or among You and VBS arising out of or relating to VBS' business or the Agreement. Such arbitration will be conducted by, and in accordance with, the securities arbitration rules and regulations then in effect of FINRA or any national securities exchange that provides a forum for the arbitration of disputes, provided that VBS is a member of such national securities exchange at the time the arbitration is initiated. Arbitration must be commenced by service upon the other party of a written demand for arbitration or a written notice of intention to arbitrate, therein electing the arbitration tribunal. In the event the undersigned does not make such election within five (5) days of such demand or notice, then the undersigned authorizes VBS to do so on behalf of the undersigned. The award of the arbitrator will be final and binding, and judgment on the award may be entered in any court having jurisdiction.

No person shall bring a putative or certified class action to arbitration, nor seek to enforce any predispute arbitration agreement against any person who has initiated in court a putative class action; or who is a member of a putative class who has not opted out of the class with respect to any claims encompassed by the putative class action until: (i) the class certification is denied; (ii) the class is decertified; or (iii) the customer is excluded from the class by the court. Such forbearance to enforce an agreement to arbitrate shall not constitute a waiver of any rights under the Agreement except to the extent stated herein.

19. Liability

VBS will not be liable to You or to any third parties for any expenses, losses, damages, liabilities, demands, charges, and claims of any kind or nature whatsoever (including without limitation any legal expenses and costs or expenses relating to investigating or defending any demands, charges, and claims) (collectively, "Losses") by or with respect to the Account, except to the extent such Losses result solely from VBS' gross negligence or willful misconduct, nor will We be liable for any special, indirect, incidental, or consequential damages (including lost profits, trading losses, and damages), regardless of whether such damages or other Losses were reasonably foreseeable.

VBS will not be liable for any Losses caused directly or indirectly by: government restrictions, exchange or market rulings, market volatility or disruptions in order trading on any exchange or market, suspension of trading, war, strikes, severe weather, natural disasters, other acts of God, failure of computer or other electronic or mechanical equipment or communication lines, unauthorized access, theft, operator errors, acts of terrorism, failure of third parties to follow instructions, or other conditions and occurrences beyond Our control.

20. Phone Channel Access

During nonbusiness hours or during periods of peak demand, market volatility, systems upgrades or maintenance, or for other reasons, access to a VBS representative via the phone channel may be limited or unavailable. Some clients may have their calls routed to automated telephone channels or informational messages.

21. Provision of Market Data

We may convey to You by telephone, electronic, or other means the last sale transaction data, bid and asked quotations, news reports, analysts' reports or research, or other information relating to securities and the securities markets (collectively referred to in this section as "market data"). We may charge a fee for providing these market data. We obtain market data from securities exchanges, markets, and from parties that transmit market data (collectively referred to in this section as "the market data providers"). All market data are protected by copyright laws. We provide market data for Your personal noncommercial use; You may not sell, market, or distribute them in any way unless You have entered into a written agreement with the appropriate market data provider.

We receive the market data from industry sources that are believed to be reliable. However, the accuracy, completeness, timeliness, suitability for use, or correct sequencing of the market data cannot be guaranteed either by Us or by the market data providers. Neither We nor the market data providers will be liable for interruptions in the availability of market data or Your access to market data.

The market data are provided "as is" and on an "as available" basis. There is no warranty of any kind, express or implied, regarding the market data. We are not responsible for, and You agree not to hold Us liable for, lost profits, trading losses, or any other damages resulting from market data or your use thereof. In any case, our liability arising from any legal claim (whether in contract, tort, or otherwise) relating

to the market data will not exceed the amount You have paid for use of the services or market data. You agree that we may correct any execution reported to You that was based on inaccurate market data provided to Us by an exchange, market center, or other provider.

22. Order Entry Services

You acknowledge that all orders must be entered verbally with one of VBS' brokerage associates or on vanguard.com, and that written orders will not be accepted. VBS may, in its sole discretion, eliminate or restrict Your ability to purchase particular Securities or Other Property due to volatility or other factors.

23. Investment and Tax Information

You agree and acknowledge that:

- VBS will act only as Your broker-dealer and not as an investment advisor;
- VBS does not have any discretionary authority or obligation to review or make recommendations for the investment of Securities and Other Property in Your Account;
- You will rely on multiple sources of information in making investment decisions for Your Account, and any information VBS may provide will not serve as the sole basis for any investment decision You make or any investment decision made on Your behalf;
- You have an affirmative duty to monitor profits and losses in Your Account and to modify Your trading decisions accordingly;
- You are solely responsible for investment decisions in Your Account, including whether to buy or sell a particular security;
- Any research, analysis, news, or other information made available through the Electronic Services (e.g., vanguard.com or e-mail alerts) does not constitute an individualized recommendation to You to buy or sell a particular security;
- VBS does not give legal advice; and
- VBS does not give tax or estate planning advice, but We may provide You with general tax and estate planning information and principles. You agree that these principles do not apply to Your specific circumstances or take into account Your comprehensive tax or estate planning situation. For that type of assistance, You agree to consult Your own tax or legal advisor.

Note for Non-U.S. Accounts: With respect to assets custodied by VBS on Your behalf, distributions to You from Your Account may be subject to withholding tax, and income and capital gains or distributions to You from Your Account may be taxable in Your home jurisdiction. Please consult Your tax advisor for the appropriate tax treatment of Your transactions.

In addition, nonresident alien clients are not permitted to perform in-kind distributions. The amount of tax withholding must be available at the time the in-kind distribution is processed.

Note for Retirement Accounts: Subject to changes in prevailing rules—or changes in Your circumstances—You may, at any time, designate or change the federal and state income tax

withholding election for distributions from Your individual retirement arrangement or qualified retirement plan by contacting VBS. Please note that if You do not have enough federal or state income tax withheld, You may be responsible for payment of estimated taxes. Penalties and interest may also apply.

24. Mandatory Cost Basis Reporting

Recently enacted Internal Revenue Code provisions require VBS to report to You and the IRS cost basis and certain other information (jointly, "Cost Basis Information") with respect to stock held in Your nonretirement accounts (the "Cost Basis Rules"). Under the "phase-in" period for these rules, VBS must report Cost Basis Information for (i) stock (except for stock described in (ii)), acquired on or after January 1, 2011, and (ii) stock in a Regulated Investment Company (RIC) or acquired through a Dividend Reinvestment Plan (DRP), acquired on or after January 1, 2012.

Under the Cost Basis Rules, if You sell or transfer stock acquired after January 1, 2011 (other than RIC or DRP stock), You must specifically identify which stock you wish to sell or transfer before the settlement date or You will be treated as having sold (if available) stock for which VBS has not allocated basis (under the Cost Basis Rules or the VBS Cost Basis Accounting Service discussed below) and if all available shares have allocated basis from the earliest lot acquired (First In, First Out ("FIFO")). Cost basis for RIC and DRP stock may be determined under the "average cost" method and is not subject to the rule described in the preceding sentence. If You fail to make a specific identification for a sale or transfer of these securities, VBS will use the average cost method.

Cost Basis Information reported to You and the IRS may differ in some cases from the information You are required to report on Your income tax return. You are responsible for correct tax reporting of Your securities transactions. VBS recommends that you seek guidance from a qualified tax professional.

VBS Cost Basis Accounting Service

VBS may also track the cost basis of some or all of securities held in Your Brokerage account that are not subject to the Cost Basis Rules (the "VBS Cost Basis Accounting Service"). Your account has automatically been enrolled in the VBS Cost Basis Accounting Service. Unlike Cost Basis Information discussed above, information provided under the VBS Cost Basis Accounting Service is provided for informational purposes and is not reported to the IRS.

The VBS Cost Basis Accounting Service applies to securities You purchased through VBS and securities You transfer to VBS from another broker. However, You may have to enter the cost basis information for transferred securities.

The VBS Cost Basis Accounting Service is also provided for Brokerage retirement accounts. For retirement accounts, FIFO is the default method for all securities other than FundAccess mutual funds, for which the default method is average cost.

Access to Cost Basis Information

You must be a registered user of vanguard.com to view Cost Basis Information and information provided under the VBS Cost Basis Accounting Service.

25. Privacy Policy, Extended-Hours Trading, and Other Terms and Disclosures

VBS from time to time will inform You of terms and conditions for accessing or using products or services VBS offers, including, but not limited to, accessing our website and participation in an extended-hours trading session. Such terms and conditions, when accepted by You as indicated either by Your actions or express acknowledgement, become part of the Agreement with VBS, and You agree to abide by the requirements of those terms and conditions.

VBS also will inform You from time to time of important disclosures and notices pertaining to Your access or use of VBS products or services, including, but not limited to, Our privacy policy and the risks of buying or selling certain securities or trading in an extended-hours session. You agree that Your use of such products or services is an acknowledgment that You have understood the disclosure, notice, or policy, and that You agree to any action taken by VBS in accordance with the stated disclosure, notice, or policy.

26. Notification

We will direct written communications to the mailing address or facsimile number, electronic mail to the e-mail address, and oral communications to the telephone number You provided on Your Brokerage Account Application or as You otherwise specify in writing. Any communication We direct to such an address, facsimile, or telephone number, whether by mail, facsimile, telegraph, messenger, electronic mail, voice mail, or otherwise, is considered delivered to You personally when sent by Us, whether or not You actually receive it.

27. Trade Reports, Confirmations, Statements, and Other Account-Related Communications

VBS will provide You with written confirmation of trades that are executed in Your Account as required under SEC, FINRA, or applicable self-regulatory organization (SRO) rules. You agree that VBS is not legally obligated to provide You with any trade status report other than the written confirmation required by SEC rules and account statements as required by applicable FINRA or SRO rules, and that any other trade status report is provided as a courtesy only. VBS will not be liable for any losses, lost profits, or other damages that allegedly result from delays in or a failure to issue a trade status report.

Shortly after quarter-end, You will receive an Account Statement that includes all of Your identically registered Vanguard Brokerage and Vanguard fund accounts. A statement will also be issued for any month in which there is brokerage activity. Information about all systematic or scheduled transactions will be included on Your statement for the periods during which the transaction occurred. These include, for example, purchases through a mutual fund dollar-cost-averaging program or reinvestment of dividends.

You acknowledge that You have an affirmative duty to promptly review any and all trade confirmations and account statements for accuracy and completeness and to immediately notify Us of any items You believe to be in error. You agree to waive any objections to the trades, positions, funds transfers, checks, disbursements, fees, and other information set forth on

any confirmations and account statements unless You notify Us of an unauthorized transaction or other error in writing within ten (10) days of mailing of the trade confirmation or account statement at issue. You agree that We are not liable for any damages or market fluctuations resulting from an error You fail to timely report to Us. Any oral communications regarding inaccuracies should be reconfirmed in writing to further protect Your rights, including Your rights under the Securities Investor Protection Act (SIPA).

You agree that VBS may combine communications such as account statements, confirmations, and other written communications related to account activity for Your accounts in a manner that reduces the number of envelopes mailed to You. Combined communications for accounts that have more than one Account Owner may be addressed solely to the first-listed Account Owner or to the Account Owner who has his or her tax identification number serve as the tax reporting identification number on the account (usually the first-listed Account Owner).

28. Consent to Electronic Delivery of Records and Regulatory Information

As a condition of Your eligibility to receive certain VBS products, services, or offers, or as a condition for You to set up access to Your Account through the web or another Electronic Service, upon notice to You, VBS may require that You accept delivery of trade confirmations, account statements, mutual fund prospectuses, issuer information, or other documents by electronic means such as electronic mail or through one of our websites. You agree that, after such notice, Your enrollment in or acceptance of such products, services, or offers or Your new access to the web or Electronic Services constitutes Your consent to electronic delivery of trade confirmations, account statements, mutual fund prospectuses, issuer information, or other documents.

29. Monitoring Conversations

You and any agent or representative acting on Your behalf agree that We may, but are not obligated to, record telephone calls or listen to conversations You have with any VMC representative to monitor the quality of the service You receive and to verify securities transaction information to banks, mutual funds, and other entities regarding the products or services We offer or arrange on behalf of customers or for other business reasons. You acknowledge and understand that not all telephone conversations are recorded by VMC, and VMC does not guarantee that recordings of any particular telephone calls will be retained or will be capable of being retrieved.

30. Trading or Disbursement Restrictions

You agree that we may place trading, disbursement, or other restrictions on Your Account as VBS deems necessary, including, but not limited to, the following circumstances: pursuant to a court order, tax levy, or garnishment; at the request of a government agency or law enforcement authority; in the event that Your Account is restricted (including, but not limited to, cash-up-front restriction because of trading or trade-related violations); or in the event of a dispute between joint tenants. You agree to abide by any such restriction and not to initiate trades or transactions which would violate the restriction. You agree to allow Us to liquidate securities in Your Account to

satisfy any court order, garnishment, tax levy, or other legal obligation imposed by a court or government agency. You agree not to hold VBS liable for any trading losses, lost profits, tax obligation, or other damages resulting from liquidations or trading or disbursement restrictions imposed on Your Account in connection with a court order, tax levy, garnishment, or other legal proceeding. You agree we may debit Your Account a processing fee of \$35 for each garnishment, subpoena, court order, tax levy, or other legal process on Your Account.

31. Severability

If any provision or condition of the Agreement shall be held to be invalid or unenforceable by any court or regulatory or self-regulatory agency or body, such invalidity or unenforceability shall attach only to such provision or condition. The validity of the remaining provisions and conditions shall not be affected thereby, and the Agreement shall be valid and enforceable as if any such invalid or unenforceable provision or condition were not contained herein.

32. Entire Agreement, Amendment, and Waiver

The Agreement and the terms contained on the account statements and confirmations sent to You by or on behalf of VBS contain the entire understanding between You and VBS concerning the subject matter of the Agreement. In certain non-U.S. jurisdictions, We may incorporate agreements deemed appropriate and advisable under local law.

Upon notice to You, We may modify or rescind existing provisions or add new provisions to the Agreement. By not closing and/or continuing to use Your Account, You confirm Your agreement to abide by the Agreement, as amended from time to time. No such amendment will affect rights or obligations either of Us incur before the effective date of the amendment. No prior conduct, past practice, or oral statement by any VMC employee or agent can amend or modify this written agreement.

Any waivers of rights by VMC under the Agreement must be expressed in writing and signed by the party waiving the rights. A waiver will apply only to the particular circumstance giving rise to the waiver and will not be considered a continuing waiver in other similar circumstances unless the intention to grant a continuing waiver is expressed in writing. Our failure to insist on strict compliance with the Agreement or any other course of conduct on Our part is not considered a waiver of our rights under the Agreement.

33. Disclosure of Account Information

We may disclose Your name and/or information about Your Account or Your transactions consistent with Our privacy policy and pursuant to Rule 14b-1 under the Securities and Exchange Act of 1934 to companies in which you hold securities unless we receive your written objection. For additional information with respect to Our privacy policy visit vanguard.com.

34. Cash-in-Lieu Payments

If You receive fractional shares as the result of a stock split or other corporate action, We, in Our sole discretion, may either sell the shares on the open market or to the issuer or transfer agent, and You are entitled to receive Your pro rata portion of

the proceeds of such sale. If sold on the open market, their sale price may differ from that offered to certain registered owners by the issuer or transfer agent.

35. Interest, Dividend, and Other Payments

If You are entitled to receive dividend, interest, or other payments on investment instruments, We, in Our sole discretion, may choose to pay such proceeds to You only upon receipt of payment to Us from the issuer or applicable intermediaries with whom We participate.

36. Backup Withholding

The following certification does not apply if You have submitted an Internal Revenue Service (IRS) W-8. You certify under penalty of perjury that: (1) You have provided Us with Your correct taxpayer identification number; (2) You are not subject to backup withholding because (a) You are exempt from backup withholding, or (b) You have not been notified by the IRS that You are subject to backup withholding as a result of a failure to report all interest and dividends, or (c) the IRS has notified You that You are no longer subject to backup withholding; and (3) You are a U.S. person (including a U.S. resident alien). However, if You have been notified by the IRS that You are subject to backup withholding as a result of dividend or interest underreporting and You have not received a notice from the IRS advising You that backup withholding is terminated, You agree that You have crossed out the appropriate information in the box above Your signature on Your Brokerage Account Application. The IRS does not require Your consent to any provision of this document other than the certifications required to avoid backup withholding.

37. Electronic Copies

The electronically stored copy of Your (or Your agent's) signature, any written instructions or authorizations, the Vanguard Brokerage Account Application, and the Agreement are considered to be the true, complete, valid, authentic, and enforceable records, admissible in judicial, administrative, or arbitration proceedings to the same extent as if the documents and records were originally generated and maintained in printed form. You agree not to contest the admissibility or enforceability of VBS' electronically stored copy of such documents in any proceeding between You and VBS.

38. Optional Dividends

When a company offers its shareholders a choice to receive a dividend either in cash or stock, We will use Your dividend reinvestment election as the basis for allocating distributions. In other words, accounts that have elected to have their dividends reinvested on the affected security or at the account level will be credited optional dividends with additional shares, while accounts that have elected to receive their dividends in cash will be paid optional dividends in cash.

39. Fraud/ID Theft

You acknowledge responsibility for the confidentiality and use of the account number assigned to You for all securities and other transactions initiated through all means. Any orders communicated to VBS through all means will be considered to have been sent by You. You also agree to notify VBS immediately if You become aware of:

- (a) Unauthorized use, theft, or loss of the account number assigned to Your Account.
- (b) Receipt of confirmation of an order that You did not place.
- (c) Failure to receive an accurate written confirmation of an order or its execution.
- (d) Unauthorized use of or access to Your Account or any information related to Your Account, including, but not limited to, information provided by You to VBS or provided by VBS to You.

VBS may require You to use a number or password to access Your Account. You are responsible for the confidentiality and use of Your access number, password, and account number, and for all transactions initiated through these means. Any orders communicated to Us through all means will be considered to have been sent and authorized by You. You also agree to notify Us immediately if You:

- Become aware of any loss, theft, or unauthorized use of Your access number, password, or account number, or any unauthorized use of the services or the market data.
- Fail to receive a message that an order You initiated through the services has been received or executed.
- Fail to receive an accurate written confirmation of an order or its execution.
- Receive confirmation of an order that You did not place.

40. Callable Securities

The terms of many bonds allow the issuer to partially redeem or "call" the issue prior to maturity date. Certain preferred stocks are also subject to being called by the issuer. Whenever any such Security and Other Property being held by Us is partially "called," We will determine, through a random selection procedure, the ownership of the Securities and Other Property to be submitted for redemption without regard to unsettled sales. In the event that such Securities and Other Property owned by You are selected and redeemed, Your Account will be credited with the proceeds.

To review VBS' procedures for the client allocation of securities to be redeemed or selected as called vanguard.com/bondallocation. To request a free, printed copy of VBS' allocation procedures, call **800-992-8327**.

Should You wish not to be subject to this random selection process, You must instruct VBS to have Us deliver Your securities to You. Your assets in a Retirement Account may not be delivered to You; as a result, Your Retirement Account will be subject to this random selection process. Delivery will be effected provided that Your position is unencumbered or had not already been called by the issuer prior to receipt. The probability of one of Your securities being called is the same whether they are held by You or by VBS for You.

41. Miscellaneous Credits

VBS credits to Your Account funds belonging to You such as dividends, interest, redemptions, and proceeds of corporate reorganizations on the day such funds are received by Us. These funds come to Us from issuers and various intermediaries in which We are participants, such as the Depository Trust

Company. Periodically, certain of those intermediaries pass on to their participants some or all of the interest earned on funds while in the possession of the intermediary. To the extent VBS receives such payments, We retain them.

Contact VBS for further information regarding when VBS credits Your Account with funds due to You, when those funds are available to You, and/or when You begin earning interest on those funds.

42. Fiduciary

A fiduciary is a person or entity authorized to make decisions with respect to an account on behalf of the account's beneficial owner(s), including a trustee, custodian of an UGMA or UTMA account, conservator, guardian, executor, administrator, attorney-in-fact, investment advisor, or other person to whom You have granted trading authority over Your Account. You understand and agree that VBS does not review any action or inaction by a fiduciary with respect to Your Account and is not responsible for determining whether a fiduciary's action or inaction satisfies the standard of care applicable to such fiduciary's handling of the account. You further understand and agree that VBS is not responsible for determining the validity of a person's or entity's status or capacity to serve as a fiduciary. You agree to hold VBS and its officers, directors, employees, agents, and affiliates harmless from any liability, claim, or expense (including attorneys' fees and disbursements), as incurred, for the actions or inactions of Your fiduciary. If Your Account has two or more fiduciaries authorized to make decisions, each fiduciary shall have full authority on Your behalf to deal with VBS, all without notice to the other fiduciary(ies), unless VBS is notified otherwise in writing. Notwithstanding the foregoing, VBS may, at its sole discretion, require joint instruction from some or all of the fiduciaries before taking action.

Vanguard Brokerage Dividend Reinvestment Program

If you chose this option when you completed your application for a Vanguard Brokerage Account, the following terms apply. If you have not requested this service, you can set it up by calling us at **800-992-8327** on business days from 8 a.m. to 10 p.m. or on Saturdays from 9 a.m. to 4 p.m., Eastern time.

Note: If you are an "affiliate" or "insider," you should consider consulting with your personal legal advisor before enrolling in this program.

1. What is the Vanguard Brokerage dividend reinvestment program?

This no-fee, no-commission reinvestment program allows you to reinvest dividend and capital gains distributions from any or all eligible stocks, closed-end mutual funds, or exchange-traded funds (ETFs) in your Vanguard Brokerage Account in additional shares of the same securities. All eligible distributions paid by the securities you designate must be reinvested.

The program is provided through Vanguard Brokerage. The dividend reinvestment program is available for all Vanguard Brokerage Accounts except those that are subject to either backup or nonresident alien income-tax withholding.

To modify or cancel any or all of your reinvestment instructions at any time, notify Us by letter, secure e-mail, or telephone. To change dividend elections, We must receive the instructions at least two business days before the payable date for the changes to be effective with that distribution. Changes received after that time will be processed on a best-efforts basis.

2. What are the eligibility requirements?

To be eligible for the program, securities must be held in "street name" by VBS prior to the stock's record date. Under street-name registration, the securities are owned by the brokerage customer but are registered in a brokerage's or clearing agent's name for easy transfer and protection against loss or theft. Virtually all the stocks, closed-end mutual funds, and ETFs You hold through Your Account are held in street name.

Note the following eligibility characteristics:

- You must be a shareholder on the record date of the distribution to receive dividends.
- A security's distributions will not be reinvested if the security has a low average daily trading volume or if the corporation is involved in a corporate reorganization or other corporate action, such as a merger.
- Only cash dividends from the eligible securities in Your Account can be used to purchase additional shares. Types of dividends that are ineligible for this program include those from securities held in your name outside Your Account, optional dividends, and certain special dividends. (Optional dividends allow shareholders to take the dividend in cash, stock, or a combination of cash and stock. Special dividends are paid in addition to normally scheduled dividends.)
- Unit investment trusts, American Depositary Receipts (ADRs), foreign equities, and certain domestic equities are not eligible for the reinvestment program.
- VBS may make a security eligible or ineligible for automatic reinvestment without prior notification to shareholders.

3. How does the reinvestment program work?

When reinvesting dividends, VBS combines the cash distributions from the accounts of all clients who have requested reinvestment in the same security, and then uses that combined total to purchase additional shares of the security in the open market.

The new shares are divided proportionately among the clients' accounts, in whole and fractional shares rounded to three decimal places. If the total purchase cannot be completed in one trade, clients will receive shares purchased at the weighted average price paid by VBS.

4. How can I keep track of transactions?

You can view the dividend reinvestment status of the securities in Your Account online at vanguard.com or in the Holdings section of your regular VBS statement.

Reinvestment transactions will be reported in the Activity section on Your regular brokerage statement.

A line entry will show the total amount of the dividend payment; a separate line entry will report the number of shares purchased and the purchase price per share. You will not receive an interim confirmation.

You can access updated account information after the dividend payable date at vanguard.com, via AutoBroker[®], our automated telephone system, or by calling a brokerage associate.

5. Does selling shares affect a distribution?

If You sell the entire stock position two days or more before the dividend-payable date, Your distribution will be paid in cash. If, however, You sell an entire position within the two-day time frame of the security's payable date, the dividend will be reinvested, resulting in additional shares. Selling these subsequent shares will require another sell order, which will incur additional commission charges. Dividends which would have been reinvested into less than one whole share will be automatically liquidated into cash.

Policies

Listed below is information on two of our policies that clients frequently inquire about. Information regarding additional policies can be found on vanguard.com.

1. Vanguard Brokerage Services' Position Regarding Frequent Trading and Market-Timing

VBS supports safeguards that mutual funds offered through the FundAccess program have put in place with the goal of protecting shareholders from the potentially harmful effects of frequent trading and market-timing. Mutual funds offered through FundAccess may reject trades that violate the funds' frequent-trading policies.

VBS may not know at the time a trade is placed that a fund policy has been violated. Nonetheless, VBS cooperates with mutual funds that have identified clients that have violated their policies; VBS will support those funds' enforcement of their policies, which could include rejecting trades. If a trade has been rejected by a mutual fund company, VBS will contact You, if practicable.

In addition to supporting mutual funds' policies regarding frequent trading and market-timing, Vanguard Brokerage maintains its own policy. The first time Vanguard Brokerage is notified by a mutual fund of a frequent-trading violation, Vanguard Brokerage will block trading in that fund family by the client. Vanguard Brokerage will treat similarly a second and third violation, from different fund companies, concerning the same client. If Vanguard Brokerage receives a fourth notification, from yet a different mutual fund company, Vanguard Brokerage will block trading purchases by that client for all mutual funds on its platform.

Redemption Fees

In accordance with their prospectuses, mutual funds offered through the FundAccess program may impose redemption fees on the sale of shares. Typically, redemption fees are tied to holding periods specified in a mutual fund's prospectus. If a mutual fund waives redemption fees in some circumstances, the waiver may not be available through VBS.

Additionally, for no-transaction-fee funds offered through FundAccess, VBS imposes a 1% redemption fee on fund shares held for 180 days or less.

Vanguard Funds

For Vanguard funds, VBS will seek to apply the funds' frequent-trading policy in each fund's prospectus at the time a trade is placed. That policy generally limits an investor's purchases or exchanges into a fund account for 60 calendar days after the investor has redeemed or exchanged out of that fund account. The policy does not apply to Vanguard money market funds, short-term bond funds, or ETF Shares.

2. Extended-Hours Trading

Trading through VBS' extended-hours session is subject to the terms and conditions ("terms") and policies set forth by VBS and is subject to change without notice.

VBS' extended-hours trading offers the ability to trade all National Market System (NMS) equity securities that have not been halted both before and after the regular market session. Vanguard Brokerage generally will not accept extended-hours trading orders over the telephone.

Policies

A. After-market trading

Refer to the following table for some important information regarding VBS' extended-hours trading sessions:

Session times	Session times are 4:15 p.m. to 6:30 p.m., Eastern time, every day the exchanges are open (this may not apply when the exchanges close early). For certain trading sessions around the holidays, early exchange closings at 1 p.m., Eastern time, will result in modifications to extended trading times.
Allowable order types	Limit orders only.
Order size	Odd Lot (less than 100 shares), Round Lot (multiples of 100), and Mixed Lot (more than 100 shares, but not a multiple of 100) orders are acceptable. Maximum order size: 99,999 shares per order.
Order duration	Orders entered are only in force for the trading session during which they were entered and are automatically canceled at the end of the session. Good-till-canceled (GTC) orders are not accepted in the extended-hours session.
Securities available	NMS equity securities are eligible for trading including: NASDAQ Global Select Market NASDAQ Global Market SM NASDAQ Capital Market [®] Exchange-listed securities Note: Over-the-Counter Bulletin Board (OTCBB), Pink Sheets, and securities traded on foreign exchanges are not eligible for extended-hours trading.

Execution

Extended-hours trades are routed to an electronic communications network (ECN) or participating exchange. Markets may be linked to additional electronic trading systems to improve the opportunity for Your order to be executed.

Trades are executed by matching orders on the ECN with other available orders at the price You specify. Orders are ranked within the ECN first by price (better-priced orders first) and second by time (earlier orders at the same price level first). If a better price is available within a linked ECN, You may or may not receive the better price, depending on whether another order precedes Yours.

Partial executions can occur. All orders placed during the extended-hours trading session expire at the end of that session if unfilled in whole or in part.

You should ensure that You are not entering duplicate trades (consider any trades you entered during the standard day session that did not fill or have not received a verified canceled status). In addition, You may not trade against an order You enter.

B. Types of orders

Only limit orders may be entered. Other types of orders and order qualifiers such as market, stop, all-or-none (AON), and fill-or-kill (FOK) are not currently available.

C. Short sales

Short sales are permitted in approved VBS margin accounts during extended-hours trading sessions provided that the security is available to borrow.

D. Duration of orders

Orders placed during an extended-hours trading session are good only for that session. If an order is not executed, it expires at the end of that session and does not roll into the next regular or extended-hours session. Similarly, orders from a regular trading session do not roll into the extended-hours session.

E. Margin requirements

Margin requirements are the same as during regular trading hours, and margin trades may be placed only in an approved Vanguard Brokerage margin account. A stock's margin eligibility during extended-hours sessions is computed using the closing price of the previous regular market session.

F. Commission schedule

Commissions are determined by the commission schedule applicable to Your brokerage account.

G. Halted trading

If trading is halted for a given security on the primary stock exchange, then that security will not be eligible for trading on the ECN. The rules of the NASDAQ and the stock exchange governing stock halts apply to the extended-hours trading sessions.

H. Settlement

For settlement and clearing purposes, trades executed during extended-hours trading sessions are processed as if they had

been executed during the standard day session. The standard two-day settlement process applies. For example, if Your extended-hours order to buy is executed on Monday, the 23rd of the month, the settlement date is Wednesday the 25th, and payment is due at that time.

All transactions may be subject to the rules of the exchanges, ECNs, FINRA, and state or federal statutes and to the regulations of any governmental authority.

I. Canceling orders

You may attempt to cancel Your order at any time before it is executed. If all or a portion of Your order is executed before Your cancellation is received, that portion cannot be canceled and You will be responsible for settlement.

Risks associated with extended-hours trading

Certain risks may be greater than those present during standard market hours. These include:

A. Risk of lower liquidity

Liquidity refers to the ready availability of securities for trading. Generally, the more orders available in the market, the more liquid that market is. Liquidity is important because with greater liquidity it is easier for investors to buy or sell securities, and as a result, investors are more likely to pay or receive a competitive price for securities purchased or sold. Due to limited trading activity, liquidity in the extended-hours trading sessions may be significantly less than during regular market hours. Lower liquidity may prevent Your order from being executed in whole or in part or from receiving as favorable a price as You might receive during regular trading hours. In addition, lower liquidity means fewer shares of a security are being traded, which may result in larger spreads between bid and ask prices and volatile swings in stock prices.

B. Risk of higher volatility

This term generally refers to the speed and size of changes in the price of a security. Generally, the higher the volatility of a security, the greater its price swings. There may be greater volatility in the extended-hours sessions than in the standard day session, which may prevent Your order from being executed in whole or in part or from receiving as favorable a price as You might receive during standard market hours.

C. Risk of changing prices

For extended-hours trading sessions, quotations will reflect the bid and ask currently available through the utilized quotation services. At times, there may be no orders entered for a particular security, so there will be no quote available. The quotation service may not reflect all available bids and offers posted by other participating ECNs or exchanges and may reflect bids and offers that may not be accessible through Vanguard Brokerage's trading partners.

Buy and sell quotations may differ from the standard market hours' closing prices and opening prices the next morning. Systems are not all linked; therefore, You may pay more or less for Your purchases or receive more or less for Your sales through a participating ECN or exchange than you would for a similar transaction on a different ECN or exchange.

D. Risk of unlinked markets

Depending on the extended-hours trading system or the time of day, the prices displayed on a particular extended-hours trading system may not reflect the prices in other concurrently operating extended-hours trading systems dealing in the same securities. Accordingly, You may receive an inferior price in one extended-hours trading system than you would in another extended-hours trading system.

E. Risk of news announcements

Normally, issuers make news announcements that may affect the price of their securities after regular market hours. Similarly, important financial information is frequently announced outside of regular market hours. In extended-hours trading, these announcements may occur during trading, and if combined with lower liquidity and higher volatility, may cause an exaggerated and unsustainable effect on the price of a security.

F. Risk of wider spreads

This term generally refers to the difference between the buy and sell prices of a security. Lower liquidity and higher volatility in extended-hours sessions may result in wider-than-normal spreads.

G. Risk of order entry timing

All orders entered into and posted during the extended-hours trading sessions must be limit orders and are generally handled in the order in which they were received at each price level. You must indicate the price at which You would like Your order to be executed. You will not buy for more or sell for less than the price You enter, although Your order may be executed at a better price. Your order will only be executed if it matches an order from another investor or market professional to sell or purchase. Transactions transmitted by other investors before Your order may match an order You were attempting to match from the ECN or exchange order book. This may prevent Your order from being executed or receiving as favorable a price as You might receive during standard market hours.

H. Risk of communications delays or failures

Delays or failures due to a high volume of communications or other computer system problems experienced by Vanguard Brokerage's trading partners or an ECN or participating exchange may prevent or delay the execution of Your order. Vanguard Brokerage Services reserves the right to temporarily or permanently close an extended-hours trading session without prior notification in case of system failure or unforeseen emergencies. Vanguard Brokerage will not be held liable for missed executions in case of system failure.

I. Risk of trading halts

News stories may have a significant impact on stock prices during extended-hours trading sessions. The Securities and Exchange Commission (SEC), FINRA, or one of the stock exchanges may impose a trading halt when significant news has affected a company's stock price. Any SEC-, FINRA-, or exchange-imposed trading halt will be enforced. Pending orders for a security will be held and reinitiated upon resumption of trading during that session.

J. Risk of duplicate orders

Duplicate orders may occur if You place an order in an extended-hours session for a security for which You already have an outstanding order in the regular trading session, even if that order is a day order. Orders executed during regular trading hours may not be confirmed until after the extended-hours trading session has begun.

K. Risk of partial executions

Orders placed during extended trading hours are entered through a participating ECN or exchange, which may be linked to other ECNs or exchanges. Because You cannot add qualifiers such as AON or FOK, Your order may be filled in part, leaving You with stock left over to buy or sell. There is a risk that Your remaining order may not be filled during the extended-hours session. An odd lot may not be represented in the displayed quote. This would occur in instances in which an order has an execution leaving an odd lot. There are no execution guarantees for an odd lot or the odd-lot portion of a mixed-lot portion of an order.

L. Change requests will not be accepted

You may not change Your extended-hours order at any time before it is executed. Instead, the order must be canceled outright and replaced with a new one. Note that a cancellation or replacement may cause the order to lose its time priority.

M. Risk of lack of calculation or dissemination of underlying index value or intraday indicative value (IIV)

For certain derivative securities products, an updated underlying index value or IIV may not be calculated or publicly disseminated in extended trading hours. Since the underlying index value and IIV are not calculated or widely disseminated during the opening and late trading sessions, an investor who is unable to calculate implied values for certain derivative securities products in those sessions may be at a disadvantage as compared to market professionals.

Electronic Services Agreement

The Electronic Services Agreement (Electronic Services Agreement) between You and Vanguard Brokerage Services, a division of Vanguard Marketing Corporation, states the terms of Your use of VBS' Electronic Services.

"Electronic Services" means VBS' wireless, internet computer services and systems, including, but not limited to, services and information accessible through proprietary software, websites, externally accessible computers, networks and any other wireless, internet, computer, or telephonic securities trading services and information systems provided to You by VBS, whether established by VBS directly or through other service providers.

In offering its Electronic Services, VBS is making available to You interactive computer services or systems that allow You to enter orders to buy and sell certain securities and mutual funds within the accounts now or hereafter opened by You with VBS or in which You have an interest (the "Accounts") and to obtain quotations and other information via computer

for use on compatible personal, home, or small-business computers, including handheld computers with modems, terminals, or network computers that can connect to a telecommunications network.

The quotations and other information accessible through the Electronic Services include, but are not limited to, financial market data, quotes, news, research, and other information (the "Information") independently obtained by financial markets information services, financial publishers, various securities markets, such as stock exchanges, and their affiliates, and others (collectively, "Information Providers"). The parties transmitting the Information accessible through the Electronic Services are referred to as the "Information Transmitters."

Your access to and use of the Electronic Services is governed by and subject to compliance with all the terms set forth in this Electronic Services Agreement. Nothing contained in this Electronic Services Agreement is intended to modify or amend any other written agreement, if any, that may currently be in effect between You and VBS or its affiliates with regard to matters other than Your use of the Electronic Services.

The terms of the Electronic Services Agreement supplement any other agreements You entered into with respect to Your Account(s). If You ever wish to deactivate Your access to VBS' Electronic Services, You may do so, subject to the terms of the Electronic Services Agreement, by contacting a VBS client service representative at **800-992-8327**.

You hereby agree to the foregoing and to the following:

1. Proprietary Information

The Information is the property of the Information Providers or others and is protected by intellectual property laws. Except as set forth in this Electronic Services Agreement, You agree not to modify, copy, reproduce, retransmit, post, disseminate, distribute, sell, transfer, license, distribute, publish, broadcast, circulate, display, publicly perform, create derivative works from, or commercially exploit the Information in any manner without the express written consent of VBS and the relevant Information Provider; nor to use the Electronic Services or Information for any unlawful purpose. You agree to comply with reasonable written requests by VBS to protect all parties' respective rights in the Information and the Electronic Services.

2. Use of Information and Electronic Services

You agree to use and access the Information and the Electronic Services only for Your personal, informational, and noncommercial use.

Notwithstanding the foregoing, if You are a securities professional, such as an investment advisor, You may occasionally furnish limited amounts of the Information to Your customers and clients, but solely in the regular course of Your securities business. If You furnish any Information to Your customers and clients who are not on Your premises, You may do so solely (i) in written advertisements, educational material, sales literature, or similar written communications; or (ii) during telephonic voice communication not entailing the use of computerized voice synthesization or similar technology. You shall not permit any customer or client to take physical

possession of the equipment that You use to receive, display, or otherwise use the Information. You shall abide by any additional limitations on the use of the Electronic Services or Information that VBS may specify in the future.

You may not (i) engage in any conduct that could damage, disable, or overburden the Electronic Services or any systems, networks, servers, software, websites, or accounts of VBS or its affiliates, agents, licensors, or service providers, including without limitation, using devices or software that provides repeated automated access to the systems, networks, servers, software, websites, or accounts of VBS or its affiliates, agents, licensors, or service providers; (ii) probe, scan, or test the vulnerability of the Electronic Services or any systems, networks, servers, software, websites, or accounts of VBS or its affiliates, agents, licensors, or service providers; or (iii) attempt to gain unauthorized access to the Electronic Services or any systems, networks, servers, software, websites, or accounts of VBS or its affiliates, agents, licensors, or service providers through hacking, password or data mining, or any other means of circumventing any access-limiting, user authentication, or security device of the Electronic Services or any systems, networks, servers, software, websites, or accounts of VBS or its affiliates, agents, licensors, or service providers.

3. Risks of Electronic Trading

Access to the Electronic Services may be limited or unavailable during periods of peak demand, market volatility, systems upgrades or maintenance, or for other reasons. If the Electronic Services are unavailable or delayed at any time, You agree to use alternative means to place Your orders, such as calling a VBS client representative. VBS and its affiliates, agents, licensors, and service providers will not be liable to You if You are unable to access Your Account information or request a transaction through the Electronic Services.

4. Volatile Market Conditions

During periods of heavy trading and/or wide price fluctuations ("Volatile Markets"), there may be delays in executing Your order or providing trade-status reports to You. In addition, if You place a market order in a Volatile Market, there may be a significant difference in the quote You receive prior to or at the time You place the order and the execution price You receive.

If the Electronic Services are available, and You decide to place an order in volatile market conditions, You agree to accept full responsibility for that order. If VBS believes any particular stock is or may be volatile, VBS may, but is not obligated to, decline to allow customers to place orders for that stock through the Electronic Services. In addition, VBS reserves the right, but is not obligated, to prevent any IPO stock from being traded through the Electronic Services. In either of these situations, You may be required to contact a VBS client representative to assist You with transactions in these stocks. VBS and its affiliates, agents, licensors, and service providers shall not be liable to You for any losses, lost opportunities, or increased commissions that may result from You being unable to place orders for these stocks through the Electronic Services.

5. Order Change and Cancellation Requests

You acknowledge that it may not be possible to cancel an order once You have placed it, and You agree to exercise caution

before placing all orders. Any attempt You make to cancel an order is simply a request to cancel. VBS processes Your requests to change or cancel an order on a best-efforts basis only and will not be liable to You if VBS is unable to change or cancel Your order. If an order cannot be canceled or changed, You agree that You are bound by the results of the original order You placed.

6. Account Restrictions

If there is a restriction on Your Account, Your use of the Electronic Services' trading functions will be so restricted with respect to such Account. Further, VBS reserves the right, in its sole discretion, to require a cash or equity deposit at any time and to determine the adequacy of any such deposit prior to the execution of any transaction through the Electronic Services. Neither VBS nor its affiliates will be responsible for any delay or failure to provide the Electronic Services, including the execution of any securities order, in the event there is a restriction on Your Account, You lack sufficient funds in Your Account, or You delay or fail to make a required cash or equity deposit.

7. No Legal or Tax Advice

You acknowledge that neither the Electronic Services nor any of the Information is intended as tax or legal advice.

8. No Recommendations

Although the Electronic Services provide access to recommendations relating to investment approaches and opportunities to buy or sell securities and/or mutual funds, none of these recommendations are developed or endorsed by VBS or its affiliates. Nothing in this Electronic Services Agreement should be construed as a solicitation or recommendation to buy or sell any product or security.

You acknowledge that You are solely responsible for determining the nature, potential value, suitability, and risks for Yourself of any particular security, transaction, or investment strategy and that VBS does not give advice or recommendations regarding particular securities, including advice involving suitability of and investment strategies for particular securities. You acknowledge that orders You place using Electronic Services may be sent directly to an exchange without being viewed by anyone. You accept full responsibility for all orders You place, and release VBS, and its affiliates, agents, licensors, and service providers from any liability for executing the orders You place using the Electronic Services. You acknowledge that all orders are at Your sole risk.

9. International Use

Because of the global nature of the internet, wireless technology, and means of electronic communication, You agree to comply with all local rules with respect to Your Accounts and Your online conduct, including all laws, rules, codes, and regulations of the country in which You reside and the country from which You access the Electronic Services, including, without limitation, all laws, rules, codes, regulations, decrees, acts, orders, directives, legislation, bills, and statutes pertaining to tax, contracts, intellectual property, securities, e-commerce, banking, technology, computers, fraud, and privacy. In addition, You agree to comply with all applicable laws, rules, codes,

and regulations regarding the transmission of technical data exported from the United States.

10. User IDs, Access, Passwords, and Security

You agree to provide VBS with current, complete, and accurate information as prompted by the applicable registration process and agree to regularly update this information to maintain its completeness and accuracy. You will be responsible for the confidentiality and use of Your user ID(s), access number(s), password(s), and Account number(s) and for logging off of Your Accounts and any protected areas of the Electronic Services. You will be responsible for all orders entered through and under Your user ID(s), access number(s), password(s), and Account number(s), and any orders so received by VBS will be deemed to have been received from You. All orders shall be deemed to be made at the time received by VBS and in the form received. Neither VBS nor its affiliates, agents, licensors, or service providers shall be deemed to have received any order electronically transmitted by You until it has actual knowledge of such order. You agree immediately to notify VBS if You become aware of:

- (a) Any loss or theft of Your user ID(s), access number(s), password(s), and/or Account number(s);
- (b) Any unauthorized use of any of Your user ID(s), access number(s), password(s), and/or Account number(s), or of the Electronic Services or any Information;
- (c) Any failure by You to receive a message that an order initiated by You through the Electronic Services has been received and/or executed through the Electronic Services;
- (d) Any failure by You to receive accurate written confirmation of an order or its execution within five business days after entering the order through the Electronic Services; or
- (e) Any receipt of confirmation of an order that You did not place, or any similarly inaccurate or conflicting report or information.

VBS AND ITS AFFILIATES, AGENTS, LICENSORS, AND SERVICE PROVIDERS WILL NOT BE LIABLE FOR ANY LOSS OR DAMAGE ARISING FROM YOUR FAILURE TO COMPLY WITH THIS PARAGRAPH.

11. Consent to Electronic Communications

By subscribing to the Electronic Services, You consent to the electronic transmission, including via any e-mail address You provide to Us, of information that You may consider to be personal financial information or promotional and marketing materials.

12. Data Transmission

You acknowledge that data, including e-mail, electronic communications, and personal financial data, may be accessed by unauthorized third parties when communicated between You and VBS and its affiliates, agents, licensors, or service providers, the Information Providers or the Information Transmitters using wireless, internet, other network communications facilities, or any other electronic means. You agree to use software produced by third parties that supports a data security protocol compatible with

the protocol used by VBS and its service providers. You acknowledge that neither VBS nor its affiliates, agents, licensors, or service providers are responsible for notifying You of any upgrades, fixes, or enhancements to any such software or for any compromise of data transmitted across computer networks or telecommunications facilities, including, but not limited to, the internet.

13. Warranty Disclaimers

THE INFORMATION HAS BEEN INDEPENDENTLY OBTAINED BY VBS FROM INFORMATION PROVIDERS OR PROVIDED BY INFORMATION TRANSMITTERS. VBS BELIEVES THAT THE INFORMATION PROVIDERS AND INFORMATION TRANSMITTERS ARE RELIABLE, BUT THE SECURITY, CURRENCY, CORRECTNESS, QUALITY, ACCURACY, COMPLETENESS, RELIABILITY, PERFORMANCE, TIMELINESS, CONTINUED AVAILABILITY, CORRECT SEQUENCING, OR CONTENT OF THE INFORMATION IS NOT GUARANTEED BY VBS AND ITS AFFILIATES, AGENTS, LICENSORS, OR SERVICE PROVIDERS, THE INFORMATION PROVIDERS, OR THE INFORMATION TRANSMITTERS. THERE MAY BE DELAYS, OMISSIONS, OR INACCURACIES IN THE INFORMATION. YOU AGREE THAT NEITHER VBS AND ITS AFFILIATES, AGENTS, LICENSORS, OR SERVICE PROVIDERS, THE INFORMATION PROVIDERS, NOR THE INFORMATION TRANSMITTERS SHALL HAVE ANY LIABILITY, CONTINGENT OR OTHERWISE, FOR THE SECURITY, CURRENCY, CORRECTNESS, QUALITY, ACCURACY, COMPLETENESS, RELIABILITY, PERFORMANCE, TIMELINESS, CONTINUED AVAILABILITY, CORRECT SEQUENCING, OR CONTENT OF THE INFORMATION, OR FOR ANY DECISION MADE OR ACTION TAKEN BY YOU IN RELIANCE UPON THE INFORMATION OR THE ELECTRONIC SERVICES, OR FOR INTERRUPTION OF ANY DATA, INFORMATION, OR ASPECT OF THE ELECTRONIC SERVICES. THERE IS NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTY OF MERCHANTABILITY, TITLE, FITNESS FOR A PARTICULAR PURPOSE, OR NONINFRINGEMENT REGARDING THE INFORMATION, OR ANY ASPECT OF THE ELECTRONIC SERVICES (INCLUDING, BUT NOT LIMITED TO, INFORMATION ACCESS AND ORDER EXECUTION).

YOU EXPRESSLY AGREE THAT YOUR USE OF THE ELECTRONIC SERVICES AND OF ANY SOFTWARE PROVIDED FOR USE IN ACCESSING THE ELECTRONIC SERVICES IS AT YOUR SOLE RISK, AND ON AN "AS IS" AND "AS AVAILABLE" BASIS. NEITHER VBS AND ITS AFFILIATES, AGENTS, LICENSORS, OR SERVICE PROVIDERS, THE INFORMATION PROVIDERS, NOR THE INFORMATION TRANSMITTERS WARRANT THAT THE ELECTRONIC SERVICES WILL BE UNINTERRUPTED OR ERROR-FREE; NOR DO ANY OF THEM MAKE ANY WARRANTY AS TO THE RESULTS THAT MAY BE OBTAINED FROM THE USE OF THE ELECTRONIC SERVICES OR AS TO THE SECURITY, CURRENCY, CORRECTNESS, QUALITY, ACCURACY, COMPLETENESS, RELIABILITY, PERFORMANCE, TIMELINESS, CONTINUED AVAILABILITY, CORRECT SEQUENCING, OR CONTENT OF ANY INFORMATION, SERVICE, OR TRANSACTION PROVIDED THROUGH THE ELECTRONIC SERVICES, OR WITH RESPECT TO ANY SOFTWARE PROVIDED FOR USE IN ACCESSING THE ELECTRONIC SERVICES.

TO THE EXTENT ANY JURISDICTION DOES NOT ALLOW THE EXCLUSION OF CERTAIN WARRANTIES, SOME OF THE ABOVE EXCLUSIONS MAY NOT APPLY TO YOU. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY HAVE OTHER RIGHTS, WHICH VARY FROM JURISDICTION TO JURISDICTION.

14. Limitations of Liability

IN NO EVENT WILL VBS AND ITS AFFILIATES, AGENTS, LICENSORS, OR SERVICE PROVIDERS, THE INFORMATION PROVIDERS, OR THE INFORMATION TRANSMITTERS BE LIABLE TO YOU OR ANYONE ELSE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, EXEMPLARY, PUNITIVE, OR INDIRECT DAMAGES (INCLUDING, BUT NOT LIMITED TO, LOST PROFITS, TRADING LOSSES, AND DAMAGES) THAT RESULT FROM INCONVENIENCE, DELAY, THE USE OF, OR LOSS OF THE USE OF THE ELECTRONIC SERVICES, EVEN IF VBS OR ITS AFFILIATES, AGENTS, LICENSORS, OR SERVICE PROVIDERS, THE INFORMATION PROVIDERS, OR THE INFORMATION TRANSMITTERS HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES OR LOSSES. TO THE EXTENT THAT A JURISDICTION DOES NOT PERMIT THE EXCLUSION OR LIMITATION OF LIABILITY AS SET FORTH HEREIN, YOU AGREE THAT THE LIABILITY OF VBS AND ITS AFFILIATES, AGENTS, LICENSORS, OR SERVICE PROVIDERS, THE INFORMATION PROVIDERS, AND THE INFORMATION TRANSMITTERS ARISING OUT OF ANY KIND OF LEGAL CLAIM (WHETHER IN CONTRACT, TORT, OR OTHERWISE) IN ANY WAY CONNECTED WITH THE ELECTRONIC SERVICES OR THE INFORMATION, IS LIMITED TO THE EXTENT PERMITTED BY LAW IN SUCH JURISDICTIONS. NEITHER VBS AND ITS AFFILIATES, AGENTS, LICENSORS, OR SERVICE PROVIDERS, THE INFORMATION PROVIDERS, NOR THE INFORMATION TRANSMITTERS SHALL BE LIABLE FOR ANY LOSS RESULTING FROM A CAUSE OVER WHICH SUCH ENTITY DOES NOT HAVE DIRECT CONTROL, INCLUDING, BUT NOT LIMITED TO, FAILURE OF ELECTRONIC OR MECHANICAL EQUIPMENT OR COMMUNICATION LINES, TELEPHONE, OR OTHER INTERCONNECT PROBLEMS, BUGS, ERRORS, CONFIGURATION PROBLEMS, OR INCOMPATIBILITY OF COMPUTER HARDWARE OR SOFTWARE, FAILURE OR UNAVAILABILITY OF WIRELESS ACCESS, INTERNET ACCESS, INTERNET SERVICE PROVIDERS, OR OTHER EQUIPMENT OR SERVICES RELATING TO YOUR COMPUTER, INTERMEDIATE COMPUTER OR COMMUNICATIONS NETWORKS OR FACILITIES, DATA TRANSMISSION FACILITIES OR YOUR TELEPHONE OR TELEPHONE SERVICE, OR UNAUTHORIZED ACCESS, THEFT, OPERATOR ERRORS, SEVERE WEATHER, EARTHQUAKES, OTHER NATURAL DISASTERS, OR LABOR DISPUTES.

NEITHER VBS AND ITS AFFILIATES, AGENTS, LICENSORS, OR SERVICE PROVIDERS, THE INFORMATION PROVIDERS, NOR THE INFORMATION TRANSMITTERS ARE RESPONSIBLE FOR ANY DAMAGE TO YOUR COMPUTER, SOFTWARE, MODEM, TELEPHONE, OR OTHER PROPERTY RESULTING FROM YOUR USE OF THE ELECTRONIC SERVICES.

SOME JURISDICTIONS DO NOT ALLOW LIMITATIONS ON HOW LONG IMPLIED WARRANTIES LAST, THE EXCLUSION

OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, OR THE EXCLUSION OF CERTAIN IMPLIED WARRANTIES, SO THAT THESE DISCLAIMERS AND LIMITATIONS MAY NOT APPLY TO YOU.

YOU ARE RESPONSIBLE FOR PROVIDING AND MAINTAINING THE COMMUNICATIONS EQUIPMENT INCLUDING COMPUTERS, MODEMS, AND TELEPHONE OR ALTERNATIVE SERVICES REQUIRED FOR ACCESSING AND USING THE ELECTRONIC SERVICES, AND FOR ALL COMMUNICATIONS SERVICE FEES AND CHARGES INCURRED BY YOU IN ACCESSING THE ELECTRONIC SERVICES.

SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE EXCLUSIONS OR LIMITATIONS MAY NOT APPLY TO YOU. TO THE EXTENT THAT A JURISDICTION DOES NOT PERMIT THE EXCLUSION OR LIMITATION OF LIABILITY AS SET FORTH HEREIN, THE LIABILITY OF VBS AND ITS AFFILIATES, AGENTS, LICENSORS, OR SERVICE PROVIDERS, THE INFORMATION PROVIDERS, AND THE INFORMATION TRANSMITTERS IS LIMITED TO THE EXTENT PERMITTED BY LAW IN SUCH JURISDICTIONS.

15. Indemnification

You agree to defend, indemnify, and hold harmless VBS and its agents, licensors, and service providers, the Information Providers, and the Information Transmitters, and each of its and their affiliates, officers, directors, employees, agents, and contractors, from and against any and all claims, losses, liabilities, costs, and expenses (including, but not limited to, attorneys' fees) arising from (i) Your improper use of or access to the Electronic Services; (ii) Your furnishing of any of the Information to any third party; or (iii) Your violation of this Electronic Services Agreement, state or federal securities laws or regulations, or any third party's rights, including, but not limited to, infringement of any intellectual property right, violation of any proprietary right, and invasion of any privacy rights. This obligation will survive any termination of this Electronic Services Agreement.

16. Termination of Electronic Services

VBS reserves the right to suspend or terminate Your access to the Electronic Services or any portion of it, in its sole discretion, without notice, and without limitation for any reason whatsoever, including, but not limited to, the unauthorized use of Your access number(s), password(s), and/or Account number(s), breach of this Electronic Services Agreement, and discontinuance of VBS' access to any Information or data from any Information Provider, or termination of one or more agreements between VBS and its agents, licensors, service providers, the Information Providers, or Information Transmitters. In the event of any termination by VBS, VBS and its affiliates, agents, licensors, and service providers, and the Information Providers and Information Transmitters shall have no liability to You; provided, however, that if the termination is without cause, VBS will refund the pro rata portion of any fee that may have been paid by You for the portion of the Electronic Services not furnished to You as of the date of such termination.

17. Copyright, Trademarks, and Patents

All data, information, content, software, products, services, or other materials on, generated by, or obtained from the Electronic Services, whether separate or compiled, including, but not limited to, text, graphics, audio clips, logos, buttons, images, digital downloads, data compilations, software, icons, html code, and xml code, as well as all copyright, patent, trademark, trade dress, and other rights therein, are owned or licensed by VBS and its affiliates, licensors, and service providers, the Information Providers, and/or Information Transmitters, and are protected by United States and international intellectual property laws. All trademarks, service marks, logos, and trade dress featured on the Electronic Services and in the Information are the exclusive property of their respective owners, and nothing contained in the Electronic Services should be construed as granting any license or right in or to any such trademarks, service marks, logos, or trade dress.

18. General

You acknowledge that, in providing You with the Electronic Services, VBS has relied upon Your agreement to be bound by the terms of this Electronic Services Agreement, and any user or license agreement(s) related to or accompanying Electronic Services-related software. You further acknowledge that You have read, understood, and agreed to be bound by the terms of (i) the user license agreement of any Electronic Services-related software; and (ii) the terms of the Agreement(s) with respect to Your Account(s) and any other agreement with VBS that applies to Your Account(s), all as currently in effect and as amended from time to time.

19. Modifications

This Electronic Services Agreement may be modified by VBS upon written notice to You or by VBS by posting notice of such modification in the Electronic Services Agreement online for a period of five consecutive business days. You confirm Your acceptance of such modifications by not closing and/or by continuing to use Your Account(s) after the earlier to occur of receipt of such notice or said five days.

20. Integration and Severability

If any provision of this Electronic Services Agreement is deemed unlawful, void, or unenforceable, then that provision will be deemed severable from this Electronic Services Agreement and will not affect the validity and enforceability of the remaining provisions. This Electronic Services Agreement represents the entire agreement between You and VBS relating to the subject matter herein.

Vanguard Brokerage Disclosure Statement

This statement contains important information. Please read it carefully and retain it for future reference.

To help fight the funding of terrorism and money-laundering activities, U.S. law and international best practice require financial organizations to obtain, verify, and record information that identifies each person who opens an account. You will be asked for appropriate identifying information when You establish Your Account with Us. The information that You

provide may be used to perform a credit check and verify Your identity by using internal sources and third-party vendors.

1. Order Routing

Best Execution and Payment for Order-Flow Practices

VBS routes equity and option orders to various markets. VBS uses a top-down approach in selecting market centers with whom we will establish a relationship. This approach includes a review of system availability and quality of service, as well as financial and regulatory standing. The designated market centers, to which orders are routed, are selected based on the consistent high quality of their executions in one or more market segments. In analyzing quality of executions, VBS considers factors such as liquidity enhancement, price improvement, execution speed, and overall effective price compared to the national best bid or offer (NBBO). VBS regularly conducts analysis and reviews reports for quality of execution purposes.

VBS is required to make publicly available quarterly reports that disclose the venues to which orders were routed as well as the nature of our routing relationships, including any payment for order-flow arrangements. You can access this information at vrs.vista-one-solutions.com/reports/1-6/vang/ or by visiting [vanguard.com](https://www.vanguard.com).

In addition to the publicly available reports, VBS, upon written request, will provide information related to your orders that were routed for execution in the past six months. This information will include the venue to which your order(s) was routed, whether the order(s) was directed or nondirected, the time of the transactions, and the source and remuneration received, if any, in connection with your order.

VBS does not receive compensation for directing order flow in equity securities. VBS receives compensation for directing certain options securities to our execution partners.

2. Breakpoint Discounts and Other Disclosures Relating to Load Funds and Revenue Sharing

Mutual fund breakpoint discounts

You can purchase non-Vanguard mutual funds through the VBS FundAccess program, including load funds. Most load funds offer investors a variety of ways to qualify for breakpoint discounts on the sales charge associated with the purchase of Class A shares. In general, most load funds provide breakpoint discounts to investors who make large purchases at one time. The extent of the discount depends upon the size of the purchase. Generally, as the amount of the purchase increases, the percentage used to determine the sales load decreases. The entire sales charge may be waived for investors that make very large purchases of Class A shares. Mutual fund prospectuses contain tables that illustrate the available breakpoint discounts and the investment levels at which breakpoint discounts apply. Additionally, most mutual funds allow investors to qualify for breakpoint discounts based upon current holdings from prior purchases through Rights of Accumulation (ROA) and from future purchases based upon Letters of Intent (LOI).

Mutual funds have different rules regarding the availability of ROAs and LOIs. In other circumstances, a mutual fund company may decide to grant waivers from sales charges to investors

who satisfy criteria established by the mutual fund company. The specific terms of each method are described in each fund's prospectus. Therefore, You should review the mutual fund's prospectus and statement of additional information to determine the specific terms upon which a mutual fund offers ROAs or LOIs.

Rights of accumulation

Many load funds allow investors to count the value of previous purchases of the same fund, or another fund within the same fund family, with the value of the current purchase to qualify for breakpoint discounts. Moreover, load funds may allow investors to count existing holdings in multiple accounts, such as individual retirement accounts (IRAs) or accounts at other financial organizations, to qualify for breakpoint discounts. To make sure You qualify for any volume discounts when You purchase Class A shares through VBS, inform a brokerage associate of Your accounts at other firms or those held by relatives. Also be ready to provide documentation attesting to these holdings.

Load funds also follow different rules to determine the value of existing holdings. Some funds use the current net asset value (NAV) of existing investments in determining whether an investor qualifies for a breakpoint discount. However, a small number of funds use the historical cost, which is the cost of the initial purchase, to determine eligibility for breakpoint discounts. If the mutual fund uses historical costs, You may need to provide account records, such as confirmation statements or monthly statements, to qualify for a breakpoint discount based upon previous purchases. You should review the mutual fund's prospectus and statement of additional information to determine whether the mutual fund uses NAV or historical costs to determine breakpoint eligibility.

Letters of intent

Most load funds allow investors to qualify for breakpoint discounts by signing a LOI, which commits the investor to purchase a specified amount of Class A shares within a defined period of time, usually 13 months.

For instance, if an investor plans to purchase \$50,000 worth of Class A shares over a period of 13 months, but each individual purchase would not qualify for a breakpoint discount, the investor could sign a LOI at the time of the first purchase and receive the breakpoint discount associated with a \$50,000 investment on the first and all subsequent purchases. Additionally, some funds offer retroactive LOIs that allow investors to rely upon purchases in the recent past to qualify for a breakpoint discount. However, if an investor fails to invest the amount required by the LOI, the fund is entitled to retroactively deduct the correct sales charges based upon the amount that the investor actually invested. If You intend to make several purchases within a 13-month period, You should consult the mutual fund prospectus to determine if it would be beneficial for You to sign a LOI.

For more information

Understanding the availability of breakpoint discounts is important because it may allow You to purchase Class A shares at a lower price. The availability of breakpoint discounts may save You money and may also affect Your decision regarding the appropriate share class in which to invest. Therefore, You

should carefully review the mutual fund prospectus and its statement of additional information when choosing among the share classes offered by a mutual fund. VBS associates can also explain the investment options available to investors.

VBS associates are salaried and receive no commissions from the sale of fund shares. They are rewarded on service standards, such as accuracy and client satisfaction, not sales output.

For more information about breakpoints for load funds from other fund companies offered through VBS, please contact VBS. You can also research mutual funds from other fund companies at vanguard.com/research.

If You wish to learn more about mutual fund share classes or breakpoints, You can review the investor alerts that are on the FINRA's website at: finra.org/InvestorInformation/InvestorAlerts/MutualFunds/UnderstandingMutualFundClasses/index.htm.

FundAccess mutual fund fees and revenue sharing

VBS may receive servicing fees from mutual funds that participate in VBS' mutual fund no-transaction-fee (NTF) program. These fees may be considered revenue sharing and are a significant source of revenue for VBS. These fees are paid in accordance with an asset-based formula.

VBS also receives operational reimbursements from mutual funds in the form of networking or omnibus processing fees. These fees could be based on a flat fee per position and/or an asset-based formula and are reimbursed to VBS for the work it performs on behalf of the funds, which may include, but is not limited to, subaccounting services, dividend calculation and posting, accounting, reconciliation, client confirmation and statement preparation and mailing, and tax statement preparation and mailing. These fees are a significant source of revenue for VBS. For additional details regarding VBS' mutual fund no-transaction-fee program or a listing of funds that pay VBS networking or omnibus fees, please refer to vanguard.com/research.

Certificates of Deposit (CDs)

All brokered CDs will fluctuate in value between purchase date and maturity date. CDs may be sold on the secondary market prior to maturity, subject to market conditions, which may be limited. Any CD sold prior to maturity may be subject to a substantial gain or loss. VBS does not make a market in brokered CDs. The original face amount of the purchase is not guaranteed if the position is sold prior to maturity. CDs are subject to availability. All CDs are federally insured up to \$250,000 per bank. In determining the applicable insurance limits, the FDIC aggregates accounts held at the issuer, including those held through different broker-dealers or other intermediaries. For additional details regarding coverage eligibility and insurance limits for other types of accounts, visit fdic.gov. The minimum purchase for new issues is \$10,000. Yields are calculated as simple interest, not compounded. Brokered CDs do not need to be held to maturity, charge no penalties for redemption, and have limited liquidity in a secondary market. If a CD has a step rate, the interest rate of the CD may be higher or lower than prevailing market rates.

Step-rate CDs are subject to secondary market risk and often will include a call provision by the issuer that would subject the investor to reinvestment risk. The initial rate of a step-rate CD cannot be used to calculate the yield to maturity. If a CD has a call provision, the issuer has sole discretion whether to call the CD. If an issuer calls a CD, there is a risk to the investor that the investor will be forced to reinvest at a less favorable interest rate. VBS makes no judgment as to the creditworthiness of the issuing institution and does not recommend or endorse CDs in any way.

For additional information with respect to CDs, visit vanguard.com. Additional information is available at fdic.gov.

Access to BondDesk Trading LLC

VBS has provided availability to the Alternative Trading Systems operated by BondDesk Trading LLC and to other content provided by BondDesk Trading LLC. BondDesk Trading LLC is a third party and is not affiliated with VBS. VBS is not responsible for, and does not prepare, edit, or endorse, the content, advertising, products, or other materials on or available from any website owned or operated by a third party. While Vanguard provides access to BondDesk Trading LLC's Alternative Trading Systems, Vanguard has no control over actions taken by BondDesk Trading LLC. All offerings are subject to market conditions and/or prior sale.

3. Foreign Securities Trading, Settlement, and Custody

VBS may act as agent for foreign security orders traded in local markets. As a policy, foreign security trades are settled in U.S. dollars. Foreign account activity, including, but not limited to, trades, transfers, dividends, and similar corporate actions, may be automatically converted to or from U.S. dollars. VBS has an established partnership with J.P. Morgan (JPM) to facilitate the clearance and settlement of foreign security transactions. Your foreign securities may be custodied through JPM or any subcustodian located in a particular local market and will be held at JPM in an account established for the exclusive benefit of customers of VBS.

4. Business Contingency Planning and Disaster Recovery

The following is a general description of plans in place at Vanguard and VBS to maintain business continuity in the event that operations are disrupted for any reason.

Contingency planning at Vanguard and Vanguard Brokerage Services

Vanguard's goal is to help its millions of shareholders build and preserve wealth. So it is critical that we plan carefully and methodically to ensure a quick and smooth recovery in the event of a disaster or emergency. From Chairman and CEO F. William McNabb III to each Vanguard associate, Vanguard has a companywide commitment—including the investment of significant resources—to ensure that Your assets are safe and that Our service to You continues without interruption.

Our approach to contingency planning is simple. We think of Our business as a chain in which each link is a component of Our operation—people, facilities, business processes,

infrastructure, and information. Each link is equally important and must be accounted for and tested as part of an overall business-continuity program.

To accomplish this, We have established a Contingency Council to oversee key initiatives, as well as a special unit, Vanguard's Business Contingency Services group, dedicated to coordinating the planning, development, testing, and execution of contingency plans.

Vanguard's business contingency planning provides for the recovery and restoration of all crucial operations. Our process consists of three major components: detailed, written business contingency plans; data security and recovery; and business contingency tests.

- **Business contingency plans.** Vanguard designs specific, formal plans to respond to a range of incidents—from worst-case scenarios, such as loss of a data center, buildings, or staff, to occurrences such as power outages or excessive phone volumes. These plans are regularly tested and updated to accommodate changes in contingency requirements.
- **Data security and recovery.** Data security is, of course, a top priority. To mitigate computer virus attacks and other acts of cyberterrorism, We have implemented controls monitored by a dedicated team of information security specialists. We also maintain a network of redundant systems, off-site data storage, and off-site tape vaults to ensure that all source data are recoverable in a disaster.
- **Business contingency tests.** All contingency plans undergo rigorous testing, ranging from comprehensive evaluations of a variety of emergency scenarios to full-scale drills in which we close a building and conduct business from a remote location. We also periodically conduct mock disaster drills with the cooperation of local, state, and federal authorities. We conduct integrated tests with critical vendors to validate our ability to work together during an emergency. In addition, Our Information Technology division frequently performs disaster recovery tests to gauge how quickly We can regain our systems in the event of an emergency.

Maintaining business as usual

In addition to regular planning and testing, Vanguard uses several routine business strategies to ensure flexibility and resiliency in Our operations. To reduce the potential impact of recovery from regional events such as major power outages and winter storms, We maintain geographic diversity by running key business functions from multiple locations. Moreover, resources (such as power) for significant buildings are backed up with redundant and/or emergency power-supply capability. And, should events warrant, Vanguard's Contingency Council and Public Relations Group are prepared to meet to determine what type of communication is necessary and to create appropriate messages.

In the Event of a Business Disruption

Should there be a significant business disruption, please visit vanguard.com for additional information, which will include instructions to ensure prompt access to your funds and securities.

If You have questions about Vanguard's plans

The preceding descriptions are general overviews of Vanguard's plans. If You require more specific information, a VBS associate will be happy to help You. Call VBS at **800-992-8327** on business days from 8 a.m. to 10 p.m. or on Saturdays from 9 a.m. to 4 p.m., Eastern time.

5. Privacy Policy

The following privacy policy is provided by the Vanguard funds, The Vanguard Group, Inc., Vanguard Marketing Corporation, Vanguard Advisers, Inc., Vanguard Fiduciary Trust Company, and Vanguard National Trust Company.

Our Commitment to You

As a Vanguard investor, you have entrusted to our care not only your hard-earned money but your personal and financial data as well. We recognize that your relationship with us is based on trust, and that you expect us to act responsibly and in your best interests. Because your personal and financial data are your private information, we hold ourselves to the highest standards in their safekeeping and use.

This means, most importantly, that we do not sell client information—whether it is your personal information or the fact that you are a Vanguard client—to anyone.

Instead, we use your information primarily to complete transactions that you request or to make you aware of other financial products and services that we offer or sponsor.

The Information We Collect About You

You provide personal information when you complete a Vanguard account application. (If you enter information in an online application, we may store the information even if you don't complete or submit the application.) You also provide personal information when you request a transaction that involves Vanguard or one of the Vanguard-affiliated companies.

In addition to personal information you provide to us, we may receive information about you that you authorize third parties to provide to us. We also may obtain personal information from third parties in order to verify your identity, to prevent fraud, or to help us identify products and services that may benefit you.

Personal information collected from any source may include, among other things, your name and address, Social Security or taxpayer identification number, date of birth, assets, income, account balances, investment activity, and accounts at other institutions.

How We Handle Your Personal Information

We do not sell information about current or former clients or their accounts to third parties. Nor do we share such information, except when needed to complete transactions at your request or to make you aware of related financial products and services that we offer. Here are the details:

- In order to complete certain transactions or account changes that you direct, it may be necessary to provide identifying information to companies, individuals, or groups that are not affiliated with Vanguard. For example, if you

ask to transfer assets from another financial institution to Vanguard, we will need to provide certain information about you to that company to complete the transaction.

- In order to alert you to other financial products and services that Vanguard offers or sponsors, we may share your information within the Vanguard family of affiliated companies. This would include, for example, sharing your information within Vanguard to make you aware of new Vanguard funds or other investment offerings, or the brokerage services offered through Vanguard's brokerage companies, or the asset management and trust services offered through Vanguard's trust companies and registered investment advisors inside Vanguard.
- In certain instances, we may contract with nonaffiliated companies to perform services for us. Where necessary, we will disclose information we have about you to these third parties. In all such cases, we provide the third party with only the information necessary to carry out its assigned responsibilities, and only for that purpose. And we require these third parties to treat your private information with the same high degree of confidentiality that we do.
- Finally, we will release information about you if you direct us to do so, if we are compelled by law to do so, or in other legally limited circumstances (for example, to prevent fraud).

How We Protect Privacy Online

Our concern for the privacy of our shareholders naturally extends to those who use **vanguard.com**.

- Our website uses some of the most secure forms of online communication available, including data encryption, Secure Sockets Layer (SSL) protocol, and user names and passwords. These technologies provide a high level of security and privacy when you access your account information, initiate online transactions, or send secure messages.
- **Vanguard.com** offers customized features that require our use of "HTTP cookies" and similar data files—tiny pieces of information that we ask your browser to store. However, we make very limited use of these data files. We do not use them to pull data from your hard drive, to learn your e-mail address, or to view data in cookies or other similar data files created by other websites. We will not share the information in these data files or give others access to it—except to help us better serve your investment needs.
- When you visit our website, we may collect certain technical and navigational information, such as computer browser type, internet protocol address, pages visited, and average time spent on our websites. This information may be used, for example, to alert you to software compatibility issues or to resolve technical or service problems, or it may be analyzed to improve our web design and functionality and our ability to serve you and your accounts.

You can visit our website to read more details about our online security and privacy features.

How We Safeguard Your Personal Information

Within Vanguard, we restrict access to information about you to those Vanguard employees who need to know the information in order to perform their jobs, such as servicing your accounts or notifying you of new products and services. To protect your personal information, we maintain physical, electronic, and procedural safeguards in keeping with industry standards and practices, and we review and adjust these safeguards regularly in response to advances in technology.

What You Can Do

For your protection, we strongly recommend that you do not provide your account information, user name, or password to anyone. If you become aware of any suspicious activity relating to your account, it is your responsibility to contact us immediately.

We Will Keep You Informed

As required by federal law, we will notify you of our privacy policy annually. We reserve the right to modify this policy at any time, but rest assured that if we do change it, we will tell you promptly.

6. Lost Securities

If Your Account statement indicates that Securities and Other Property were forwarded to You and You have not received them, You should notify VBS immediately. If notification is received within one hundred and twenty (120) days after the mailing date, as reflected on Your Account statement, replacement will be made free of charge. Thereafter, a fee for replacement may apply.

7. SIPC Protection

Securities in Your Account are held in custody by VBS. Should VBS fail or if unauthorized trades are placed in Your Account, Your assets are protected through the Securities Investor Protection Corporation (SIPC), a nonprofit corporation established by Congress. SIPC covers securities with a value of up to \$500,000, of which \$250,000 may be in cash. The cash limits are subject to future adjustments for inflation.

To obtain information about SIPC, including an explanatory SIPC brochure, please contact SIPC at **sipc.org** or **202-371-8300**.

VBS maintains additional coverage secured through an independent issuer.

Account protection and coverage, either under SIPC or the additional insurance secured by VBS, does not cover fluctuations in the market value of Your investments. Positions held away are not in the custody or control of VBS, nor are they covered by SIPC or the additional insurance secured by VBS. If You have a Vanguard Brokerage Option Account through an employer-sponsored retirement plan, Your Settlement Fund Account is held in custody by VBS. For all other brokerage accounts, Your Settlement Fund is held through the Vanguard Group, Inc., and the assets in these accounts are not protected by SIPC.

8. Complaints

Complaints concerning services provided by VBS may be directed to:

Complaints
Vanguard Brokerage Services
P.O. Box 1170
Valley Forge, PA 19482-1170

9. Liens and Levies

If, for any reason, Your Account is subject to a lien or levy directed to VBS, VBS will abide by the directions of the federal, state, or other levying authority unless it receives a court order staying or quashing the lien or levy, or some other form of release from the levying authority. In the event VBS receives a lien or levy on Your Account, Your Account may be assessed a reasonable processing fee.

10. Dormant Accounts

If Your Account(s) has no activity in it for a period of time, Vanguard Brokerage may be required to transfer it to a state under the state's abandoned property law.

11. Fund Access Dollar-Cost-Averaging Transactions

Vanguard Brokerage acts as an agent on these transactions and receives compensation from the fund company.