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- Account application agreement
- Fund listing
- FundAccess[®] information

Vanguard Brokerage Account Kit

For opening a nonretirement account

Thank you for your interest in opening a Vanguard Brokerage account.

By bringing your assets to Vanguard—or by widening your investments beyond Vanguard funds—you will get the advantages and features you expect from a premium discount brokerage firm. Plus, you'll have the uncompromised integrity and reliability that Vanguard investors have enjoyed since our beginning in 1975.

It's easy to get started

This kit has everything you need to open your Vanguard Brokerage account.

- 1. Review the enclosed materials and obtain any necessary documents.
- 2. Complete the Brokerage Account Application.

Also complete the Brokerage Account Transfer Form if you're transferring assets from another financial institution to your new brokerage account.

- 3. Mail your Brokerage Account Application and documents to us in the attached postage-paid envelope.
- 4. Expect a Vanguard Brokerage Services[®] welcome kit once your account is opened.

You can also apply online at **vanguard.com**. It's the quickest and easiest way to open an account or begin your transfer.

Simplify the way you invest

Through your Vanguard Brokerage account, you can invest in stocks, bonds, options, exchange-traded funds (ETFs), and certificates of deposit (CDs). In addition, thousands of mutual funds are readily available to you from other fund companies through Vanguard's FundAccess® program.

You can take advantage of all these investments through Vanguard, a firm you can trust. You won't have to access multiple websites, call multiple phone numbers, or pay multiple fees. And you can invest online, through our automated phone service, or by calling a brokerage associate for expert personal assistance.

How a Vanguard Brokerage account works

As you review the Vanguard Brokerage Account Kit, you'll see that a Vanguard Brokerage account is actually a working combination of two accounts—one that holds your brokerage assets and a separate linked money market settlement account (also known as a "sweep" account). You set up both accounts at the same time.

You pay for, and receive proceeds from, your brokerage transactions through your settlement account. This settlement account is set up with The Vanguard Group, Inc.*

As you may know, Vanguard's money market funds have among the lowest costs and have had among the highest yields in the industry.**

Questions?

If you need assistance or have questions about Vanguard Brokerage Services, call our brokerage associates at **800-992-8327**. Or, you can get many of your questions answered at any time by visiting **vanguard.com**.

*Although the income from a municipal money market fund is exempt from federal tax, for some investors, a portion of the fund's income may be subject to state and local taxes, as well as to the federal Alternative Minimum Tax. Please note that your settlement account is held by The Vanguard Group, Inc., and the funds in these accounts are not protected by the Securities Investor Protection Corporation (SIPC).

**Source: Lipper Inc.

An investment in a money market fund is not insured or guaranteed by the Federal Deposit Insurance Corporation or any other government agency. Although a money market fund seeks to preserve the value of your investment at \$1 per share, it is possible to lose money by investing in such a fund.

Vanguard Brokerage Services commission and fee schedules

Effective January 2015

Stock and exchange-traded fund (ETF) commissions

Assets invested in Vanguard funds and Vanguard ETFs	Vanguard ETFs ¹	Stocks and non-Vanguard ETFs
Less than \$50,000 (Standard) ²	Free	Online. First 25 trades: \$7 ³ ; subsequent trades: \$20 By phone. All trades: \$25
\$50,000-\$500,000 (Voyager Services®)	Free	Online. All trades: \$7 By phone. All trades: \$25
\$500,000–\$1 million (Voyager Select Services®)	Free	Online and by phone. All trades: \$2
\$1 million–\$10 million (Flagship Services®)	Free	Online and by phone. First 25 trades: Free ³ ; subsequent trades: \$2
\$10 million and above (Flagship Select Services™)	Free	Online and by phone. First 500 trades: Free ³ ; subsequent trades: \$2

¹ If you buy and sell the same Vanguard ETF in a Vanguard Brokerage Account more than 25 times in a 12-month period, you may be restricted from purchasing that Vanguard ETF through your Vanguard Brokerage Account for 60 days.

² A \$20 account service fee is charged annually. The fee is waived for Voyager, Voyager Select, Flagship, and Flagship Select clients, as well as for any client who elects to receive statements and other important information electronically.

³ The reduced commission or commission-free transactions will apply to the first 25 transactions for Standard and Flagship clients and the first 500 transactions for Flagship Select clients in each calendar year to any combination of stocks and non-Vanguard ETFs. The number of these transactions is limited to 25 per Standard or Flagship client and 500 per Flagship Select client, as identified by the primary Social Security number on the account. Vanguard Brokerage reserves the right to end these offers at any time.

You may receive a discount from standard commissions and fees if you're an enrolled client of Vanguard Voyager Services[®], Vanguard Voyager Select Services[®], Vanguard Flagship Services[®], or Vanguard Flagship Select Services[™]. Other discounts and fee waivers from standard commissions may also be available.

Eligibility is based on total household assets held at Vanguard, with a minimum of \$50,000 to qualify for Vanguard Voyager Services, \$500,000 for Vanguard Voyager Select Services, \$1 million for Vanguard Flagship Services, and \$10 million for Vanguard Flagship Select Services. We determine eligibility by aggregating assets of all eligible accounts held by the investor and his or her immediate family members who reside at the same address, including investments in Vanguard mutual funds, Vanguard ETFs®, certain annuities through Vanguard, The Vanguard 529 Plan, and certain small-business accounts. Assets in employer-sponsored retirement plans for which Vanguard provides recordkeeping services may be included in determining eligibility if the investor also has a personal account holding Vanguard mutual funds. Vanguard ETFs and Vanguard mutual funds held in a Vanguard Brokerage Account are also included when determining a household's eligibility; other assets held in a brokerage account are not.

For further information, call Vanguard Brokerage Services® at 800-992-8327, or visit us at vanguard.com/brokerage.

Notes: A separate commission is charged for each security bought or sold. Orders that execute over multiple days are charged separate commissions. In addition, a separate commission is charged for each order placed for the same security on the same side of the market (buying or selling) on the same day. Orders that are changed by the client and executed in multiple trades on the same day are charged separate commissions. These commission and fee schedules are subject to change.

Options

Standard	Voyager Services	Voyager Select, Flagship, and Flagship Select Services
\$20 + \$1 per options contract ⁴	\$7+\$1 per options contract ⁴	\$2+\$1 per options contract ^{4, 5}

⁴ For Standard Services, options exercises and assignments resulting in a stock trade will be subject to a \$20 + \$0.01 per-share commission. For Voyager Services, options exercises and assignments resulting in a stock trade will be subject to a \$7 + \$0.01 per-share commission. For Voyager Select, Flagship, and Flagship Select Services, options exercises and assignments resulting in a stock trade will be subject to a \$2 + \$0.01 per-share commission. All options exercises and assignments resulting in a cash settlement are subject to a \$2 + \$1 per-contract commission.

⁵ Options transactions are included in the offer of commission-free transactions (25 for Flagship clients and 500 for Flagship Select clients) described in footnote 3. Subsequent transactions are at the rates shown in the options fee schedule.

Bonds and CDs

Vanguard Brokerage Services may act as an agent, executing your order at cost plus a commission, or as a principal, adding markups to purchase prices or subtracting markdowns from sales prices.⁶ When acting as a principal for a primary market issue, Vanguard Brokerage generally receives a fee concession from the issuer.

Security type	New issues	Existing issues
U.S. Treasury securities	Commission-free	Commission-free
U.S. government agency securities, corporate bonds, and certificates of deposit (CDs)	Commission-free ⁷	Standard and Voyager Services: \$2 per \$1,000 face amount (\$250 maximum) Voyager Select, Flagship, and Flagship Select Services: \$1 per \$1,000 face amount (\$250 maximum) Selling CDs prior to maturity: Commission-free
Municipal bonds	\$50 commission if a fee concession isn't available ⁷	Standard and Voyager Services: \$2 per \$1,000 face amount (\$250 maximum) Voyager Select, Flagship, and Flagship Select Services: \$1 per \$1,000 face amount (\$250 maximum)
Mortgage-backed securities and commercial paper	\$50 per transaction	\$50 per transaction
Unit investment trusts (UITs)	Not available	Selling UITs: \$35 per transaction

⁶ Bond and CD prices are available at vanguard.com and are price indications only. Online prices for all secondary-market bonds and CDs are before commissions.

⁷ Minimum purchase \$10,000, subject to dealer minimum.

Mutual funds from other companies: FundAccess

Our FundAccess® program gives you entry to thousands of mutual funds offered by hundreds of fund companies. We provide funds with and without transaction fees, and we also offer load funds (see next page).

Security type	Fee type	Amount
No-transaction-fee (NTF) funds	Transaction fee	None
	Minimum initial investment	For most funds: \$3,000 for nonretirement accounts and \$1,000 for IRAs ⁸
	Minimum additional investment	\$1,000 for any account type ⁸
	NTF redemption fee	\$50 for shares held less than or equal to 60 calendar days ⁹
	Dollar-cost-averaging transactions	No fee; minimum purchase \$100; minimum two transactions
Transaction-fee (TF) funds	Transaction fee	Standard: \$35 Voyager® and Voyager Select®: \$20 Flagship® and Flagship Select™: \$8 ¹⁰
		Fees apply per trade—purchases, sales, or exchanges— regardless of order size. Purchase fee is added to order cost. Sales fee is subtracted from order proceeds.
		If you exchange shares of a fund for another fund in the same fund family and share class, the transaction fee will be paid from your money market settlement fund.
	Initial and additional investments	\$1,000 ³
	Dollar-cost-averaging transactions	\$3 per transaction; minimum purchase \$100; minimum two transactions

⁸ NTF, TF, and load funds are subject to the greater of the FundAccess minimum investment requirements or those identified in the fund's prospectus. Vanguard Brokerage Services may negotiate fund minimum investment requirements that are greater than or less than the program standards noted above.

⁹ The holding period begins on the trade date of the purchase. The redemption fee calculation uses last in, first out to determine the holding period. Whether the NTF redemption fee applies is determined on the trade date of the redemption. The fee is not applied to shares transferred from other institutions, or to reinvested dividends or capital gains.

¹⁰TF fund transactions are included in the offer of commission-free transactions (25 for Flagship clients and 500 for Flagship Select clients) described in footnote 3. Subsequent transactions are at the rates shown in the fee schedule for TF funds above.

FundAccess

(continued)

Load funds

Security type	Fee type	Amount	
Class A shares	Front-end load (purchase fee)	Varies by fund or fund family and may be as high as 5.75%.	
	Discounts (breakpoints)	May be available if you make a large purchase, already hold other mutual funds offered by the same fund family (individually or combined with a spouse or other qualifying person), or commit to regularly purchasing the fund's shares.	
Class B shares	Back-end load (redemption fee)	Decreases to zero over a period of years. (Also known as a contingent deferred sales charge.)	
Class C shares	Back-end load (redemption fee)	Smaller than a Class B redemption fee, it decreases to zero after one year. (Also known as a contingent deferred sales charge.)	
All share classes	Sales charges and minimum purchases	The schedule for a specific load fund may vary, perhaps significantly, from the general description shown here. Check the fund's prospectus for details. Initial and additional investments \$1,000. ⁸	
	Fees	Vanguard Brokerage doesn't charge additional fees for a purchase, sale, or exchange of any load fund offered through FundAccess.	
	Dollar-cost-averaging transactions	Vanguard Brokerage doesn't charge a fee, but sales charges imposed by the fund still apply. Minimum transaction \$100; minimum two transactions.	

⁸NTF, TF, and load funds are subject to the greater of the FundAccess minimum investment requirements or those identified in the fund's prospectus. Vanguard Brokerage Services may negotiate fund minimum investment requirements that are greater than or less than the program standards noted above.

Note: Individual fund families may impose additional minimums, fees, or charges. For complete information, read the fund prospectus carefully before investing. The offering conditions of the various funds included in the FundAccess program are subject to change at any time, including, but not limited to, fee classification (NTF, TF, or load) and transfer eligibility.

Fees for other services

Fee type	Amount
Vanguard <i>Advantage®</i> account	Offered to clients of Voyager Select (\$30, charged annually), Flagship (free), and Flagship Select (free).
	Insufficient funds: \$20. Stop payment: \$15. Checkbook reorder: Voyager Select, \$9.95; Flagship, free; Flagship Select, free.
	Vanguard <i>Advantage</i> Billpay [®] service: Voyager Select, \$4.95 per month; Flagship, free; Flagship Select, free.
	Possible fees at automated teller machines not affiliated with PNC Bank.
Foreign securities transactions	\$50 processing fee for non-DTC-eligible securities (not applicable to American Depositary Receipts) plus commission. If a trade executes over multiple days, the commission will be charged for each day on which an execution occurs. Additional fees may apply for trades executed directly on local markets.
American Depositary Receipts (ADRs)	Banks that custody ADRs are permitted to charge ADR holders certain fees, as detailed in the ADR prospectuses. "Pass through" ADR fees are collected from Vanguard Brokerage Services by the Depository Trust Company (DTC) and will be automatically deducted from your brokerage account and shown on your account statement. Other fees, including dividend processing fees, may be withheld by the DTC from the amount paid by the issuer.
Wire transfers	Vanguard doesn't charge a fee to wire money to your bank. However, your bank may charge for receiving wires from your brokerage account or settlement fund.
Miscellaneous	Other securities transaction or maintenance fees may apply. Call us for additional information.

For more information about Vanguard funds, Vanguard ETF Shares, or non-Vanguard funds offered through Vanguard Brokerage Services, visit vanguard.com or call 800-992-8327 to obtain a prospectus. Investment objectives, risks, charges, expenses, and other important information are contained in the prospectus; read and consider it carefully before investing.

You must buy and sell Vanguard ETF Shares through a broker like Vanguard Brokerage Services (we offer them commission-free) or through another broker (you may incur commissions). Vanguard ETFs are not redeemable directly with an applicant fund other than in creation unit aggregations. Like stocks, ETFs are subject to market volatility. When buying or selling an ETF, you will pay or receive the current market price, which may be more or less than the net asset value.

All investing is subject to risk, including the possible loss of the money you invest.

Investments in bonds are subject to interest rate, credit, and inflation risk.

Options are a leveraged investment and are not suitable for every investor. Options involve risk, including the possibility that you could lose more money than you invest. Before buying or selling options, you must receive a copy of Characteristics and Risks of Standardized Options issued by OCC. A copy of this booklet is available at theocc.com. It may also be obtained from your broker, any exchange on which options are traded, or by contacting OCC, One North Wacker Drive, Suite 500, Chicago, IL 60606 (888-678-4667 or 888-OPTIONS). The booklet contains information on options issued by OCC. It is intended for educational purposes. No statement in the booklet should be construed as a recommendation to buy or sell a security or to provide investment advice. For further assistance, please call The Options Industry Council (OIC) helpline at 888-OPTIONS or visit optionseducation.org for more information. The OIC can provide you with balanced options education and tools to assist you with your options questions and trading.

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

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CMSCHP 092015



Brokerage Account Application

Effective February 2016

Use this application to open a nonretirement brokerage account.

Don't use this application to open a brokerage IRA.

Vanguard funds are registered for sale to U.S. residents only. You must provide your U.S. address on this application. See the most recent Vanguard Brokerage Services[®] commission and fee schedules for any fees that may apply.

Print in capital letters and use black ink.

1. Type of account Check only one.

Ouestions? Call 800-992-8327.

To complete this application online, go to vanguard.com/ serviceforms.

Verify that any registration you indicate here is valid in your state. If this box is > checked, you must	survivorship" unless you indicate other Joint account registration <i>e.g., tena</i>		
indicate a state below.	may only be used for the benefit of the minor. An adult custodian administers the account until the minor reaches the age of termination (or later age, if permitted by state law) for the state under whose law the gift or transfer is being made.		
	State	If you're opening an UGMA/UTMA account, you must provide the state under whose law the gift or transfer is being made.	
	 Guardian Account administered by a court-appointed guardian or conservator. Important: You must submit an original or certified (within 90 days) copy, with a raised seal, of the court appointment of the guardian or conservator. 		
Enter information > about the organization in Section 2.	Organization or other entity, including estate Account owned by an entity.		
Enter the trust information in Section 3 and the trustee information	Trust for an existing trust only Account established to invest assets held in a personal or retirement trust. Note: If this is an organizational trust (such as a foundation or endowment), check the Organization or other entity box instead.		
in Section 5. All currently serving trustees must sign in Section 12.	For trusts under will/testamentary: You must attach copies of the pages of the will that confirm the creation of the trust and those that contain the trustee name(s) and the testator's (decedent's) signature. The pages of the will should indicate it was filed with the probate court and include a court stamp (the stamp doesn't need to be original or include a date). If the will doesn't contain a court stamp, attach a copy of Letters Testamentary or court document appointing the trustee of the trust.		
	For all other types of trusts: You must attach copies of the pages of the trust agreement that contain the trust name and date, and a listing of the trustees' names and the signature page(s), signed by the persons who were required to sign under state law.		
Enter information > about the trust in Section 4.	Enter information > Retirement trust account about the trust Retirement account for which Vanguard doesn't act as trustee. Important: You must send us a copy		

If you check a box, you must send us a copy of the required documentation. In most cases, you must also complete

Resolution form and include a copy of the organization document identifying all authorized persons.

	Registration type Check one.	Required documentation
	Corporation	Articles of incorporation, state-issued charter, or certificate of good standing. <i>Check one. If you don't check a box, we'll treat your organization as an S corporation for tax-reporting purposes.</i>
	Endowment	Pages in the trust document that show the name of the endowment and a listing of all trustees and their signatures.
lf you check a box,	Estate*	Certified (within 90 days) copy of the court appointment of fiduciary, such as letters testamentary or letters of administration.
ou must send us a ppy of the required documentation.	Foundation	Articles of incorporation.
In most cases, you nust also complete	Partnership	Partnership agreement.
our Organization > Resolution form and include a copy	Professional association or corporation	Articles of association, certificate of organization, or similar document.
of the organization cument identifying all authorized persons.	 Limited liability company (LLC) 	 Articles of association, certificate of organization, or similar document. <i>Check one box to indicate federal tax classification of LLC.</i> C corporation S corporation Partnership Sole proprietorship/single member
	□ Sole proprietorship	Document filed to form the proprietorship.
	□ Unincorporated enterprise	Document evidencing the existence of the enterprise, such as the charter or resolution.
	□ Other <i>Specify type.</i>	Document filed to form the organization (if a legal entity), or organization bylaws or similar document (if not a legal entity).

2. Organization information organizations and other entities only

Organization description Check any that describe the organization.

□ Broker-dealer	National bank	
□ Mutual fund	□ State-regulated bank	
Government agency or instrumentality		
Publicly traded on Nasdaq (except small-c NYSE, or NYSE Arca	ap issues), Ticker symbol	

Identity of organization

Name of organization as shown on federal tax documents			
Employer ID number	If organization is exempt from backup withholding, provide the applicable exempt payee code from the list at the end of this section.	Code	

*For this registration type, you only need to complete our Organization Resolution form if the estate representative is an organization.

Country where organization was established

Tax residency

You must complete this entire section.

	U.S.		Other	
Cou	ntry	of tax	residence	if not U.S.

Note: Enter information about the organization representative(s) in Section 5.

Exempt payee codes for organizations

Country of establishment if not U.S.

U.S. Other*

If you're opening an account for an organization that's exempt from backup withholding, you must provide one of the following exempt payee codes where noted previously.

Type of organization	Exempt payee code
An organization exempt from tax under section 501(a), any IRA, or a custodial account under section 403(b)(7) if the account satisfies the requirements of section 401(f)(2).	1
The United States or any of its agencies or instrumentalities.	2
A state, the District of Columbia, a possession of the United States, or any of their political subdivisions, agencies, or instrumentalities.	3
A foreign government or any of its political subdivisions, agencies, or instrumentalities.	4
A corporation.	5
A dealer in securities or commodities required to register in the United States, the District of Columbia, or a possession of the United States.	6
A futures commission merchant registered with the Commodity Futures Trading Commission.	7
A real estate investment trust.	8
An entity registered at all times during the tax year under the Investment Company Act of 1940.	9
A common trust fund operated by a bank under section 584(a).	10
A financial institution.	11
A middleman known in the investment community as a nominee or custodian.	12
A trust exempt from tax under section 664 or described in section 4947.	13

The following chart shows types of payees that are exempt from backup withholding.

If the payment is for	Then the payment is exempt for
Interest and dividend payments	All exempt payees except for 7.
Broker transactions	Exempt payees 1 through 4 and 6 through 11 and all C corporations. S corporations must not enter an exempt payee code because they're exempt only for sales of noncovered securities acquired prior to 2012.
Payments over \$600 required to be reported	Generally, exempt payees 1 through 5.

*If the country of establishment is other than the U.S., you must complete an IRS Form W-8 electronically to certify your foreign status, and to claim treaty benefits if applicable. We'll mail you instructions for completing the electronic Form W-8 once your account has been established.

3. Trust information trust accounts only

Important:

- All current trustees must sign where indicated in Section 12.
- The employer ID number or Social Security number you provide below will be used for taxreporting purposes.
- If the trustee is an organization, you must complete our Organization Resolution form and mail it with this application.

Only grantor trusts may use the grantor's SSN. All other trusts must provide an EIN.			
Type of trust Check all that apply.			
☐ Trust under ☐ Trust under will/ ☐ Grantor trust agreement testamentary		Name of grantor if grantor trust	
	Country where trust was established	Tax residency	
You must complete	□ U.S. □ Other* Country of establishment <i>if not U.S.</i>	U.S. Other*	
You must complete this entire section.	Country of establishment if not U.S.	Country of tax residence if not U.S.	

Note: Enter information about the trustee(s) in Section 5.

4. Retirement trust account information for those accounts only

Nar	ne of plan or trust agreement
Ξmj	bloyer ID number
	Check here if the account is being opened for the purpose of participating in an employee benefit plan established under ERISA.

Note: Enter information about the trustee(s) in Section 5.

^{*}If the country of establishment or tax residence is other than the U.S., you'll be required to complete either an official IRS Form W-9 on paper to certify the trust's tax status as U.S. or a Form W-8 electronically to certify the trust's tax status as foreign, and to claim treaty benefits if applicable. We'll mail you instructions once your account has been established.

5. Account owner information

You must provide all of the requested information for each person to be registered on the account. If any account owner isn't of legal adult age for the state in which he or she resides (18 for most states, 19 in Alabama and Nebraska, and 21 in Mississippi), we can't open the account (unless the account is to be opened as a custodian account for a minor and the custodian is identified on page 7).

For trust accounts. The first mailing address listed below will be the primary address for any mailings. For trusts registered under an employer ID number, only the first trustee will be given authority to consent to electronic delivery of account-related information for the trust. Notice of availability of that information will be sent only to that trustee's e-mail address.*

For organization accounts. The first mailing address listed below will be the primary address for any mailings. Only the organization representative designated on the Organization Resolution form will be given authority to consent to electronic delivery of account-related information for the entity. Notice of availability of that information will be sent only to that individual's e-mail address.

For all other accounts. The first individual listed below will be named first in the account registration. This individual's Social Security number will be used for tax-reporting purposes, and his or her address will be used for any mailings.

Important: All owners, current trustees, and executors must sign this form.

Check here if, based on the information above, the account owner is a minor.

Owner, minor, trustee, executor, or organization representative

Provide the full, >	Name first, middle initial, last				
X . I.	Birth date mm/dd/yyyy	E-mail address	required f	for electronic d	delivery
You must complete this entire section.			Gender opti	onal 🗌 Female	
You must provide at least one > phone number.	Daytime phone area code, number	<i>, extension</i> ☐ Mobile	Evening ph	one area coo	le, number, extension □ Mobile
	Citizenship			Tax resider	ісу
You must complete	🗆 U.S. 🗌 Resident alien 🗌] Nonresident a	alien**	🗆 U.S. [Other
this entire section.	Country of citizenship if not U.S.		Country of ta	ax residence if not U.S.	
	Mailing address If you're a trust organization address.	tee, executor, or	organizatic	on representat	ive, use the trust/estate/
	Street or P.O. box				
	City, state, zip				Country <i>if not U.S.</i>

*If any trustee is an organization, e-delivery is NOT available for this account.

**If the account owner is a nonresident alien, you must complete an IRS Form W-8 electronically to certify your tax status, and to claim treaty benefits if applicable. For joint accounts where both owners are foreign, both must complete a Form W-8. We'll mail you instructions for completing the electronic Form W-8 once your account has been established.

Street address Address can be military APO or FPO. If you're a trustee, executor, or organization representative, use the trust/estate/organization address.

This is required if it's different from mailing address or if mailing address is a P.O. box.

Street P.O. box or rural route is NOT acceptable	
City, state, zip	Country <i>if not U.S.</i>

Employment of owner, trustee, executor, or organization representative *The following information is required by industry regulations. Leave blank if owner is a minor.*

□ Employed □ Self-employed □ Retired □ Not employed

If you checked	
Employed or	
Self-employed, you	
must complete this	
entire section. If you	2
don't, we won't be	
able to process	
your application.	

,	Occupation	
r I	Name of employer, or nature of your business if self-employed	
; , ,	Street address of employer or your business	
5	City, state, zip	Country if not U.S.

Association Check all that apply, regardless of employment or retirement status.

	Check this box if:	
	• an employee of FINRA,	
	 or a person associated with a member of a stock exchange, FINRA mem securities dealer ("associated person"), 	ber firm, or a municipal
	 or such associated person's spouse, or such associated person's minor children, 	
	will have a financial interest in or trading/discretionary authority over this a	ccount.
	If you check this box, you must provide a letter of account approval from a such member firm along with this application to open this account. Failure approval letter may delay the processing of your request to open this acco request of the member firm, we will automatically send the firm duplicate statements, and other information.	to include the required unt. Upon written
	By way of example, account approval is required whenever an employee of employee's spouse or minor children, seeks to open an account with us, of a custodian or trustee or granted investment authority under a power of at account approval letter isn't required for FINRA, NYSE, or Vanguard employed	or when such employee is storney for an account. An
	Check this box if you are, or if a household member is, a control of a public company, as defined in SEC Rule 144 (this would inclu 10% shareholders, policymaking executives, and members of the	ude, but isn't limited to
	If you check this box, you must provide the names and trading symbols of such person serves as a control person or an affiliate.	the companies for which
Nan	ne of company	Trading symbol

	Joint owner, custodian, co-t	rustee, co-e	xecutor,	or organiza	tion representative
	If you need more space to list addition a separate sheet.	onal owners, co	opy pages ?	7 and 8 or prov	vide the information
Provide the full, legal name. >	Name first, middle initial, last				
	Birth date mm/dd/yyyy	E-mail address			
You must complete this entire section.	Social Security number or individu	ıal taxpayer ID			ional □ Female
You must provide at least one > phone number.	at least one >			hone area coo	de, number, extension
	Citizenship			Tax resider	ncy
You must complete	🗆 U.S. 🗆 Resident alien 🗆 Nonresident alien		nt alien	U.S. Other	
this entire section. >	Country of citizenship if not U.S.			Country of tax residence if not U.S.	
I					
	Street address Address can be n	· · · · · · · · · · · · · · · · · · ·	FPO.		
	Street P.O. box or rural route is NOT acceptable				
	City, state, zip				Country <i>if not U.S.</i>
	Employment of joint owner, c representative The following info	ormation is requ	uired by ind	ustry regulation	
lf you checked	Occupation				
Émployed or Self-employed, you must complete this	Name of employer, or nature of your business if self-employed				
entire section. If you Adon't, we won't be able to process	Street address of employer or you	r business			
your application.	City, state, zip				Country if not U.S.

Ass	ASSOCIATION Check all that apply, regardless of employment or retirement status.					
	🗌 I am, or my spouse is, a Vanguard employee.					
	Check this box if:					
	 an employee of FINRA, or a person associated with a member of a stock exchange, FINRA members securities dealer ("associated person"), or such associated person's spouse, or such associated person's minor children, 	er firm, or a municipal				
	will have a financial interest in or trading/discretionary authority over this acc	count.				
If you check this box, you must provide a letter of account approval from a complia such member firm along with this application to open this account. Failure to include approval letter may delay the processing of your request to open this account. Upon request of the member firm, we will automatically send the firm duplicate copies of statements, and other information.		to include the required ount. Upon written				
	By way of example, account approval is required whenever an employee of employee's spouse or minor children, seeks to open an account with us, or a custodian or trustee or granted investment authority under a power of atte account approval letter isn't required for FINRA, NYSE, or Vanguard employ	when such employee is prney for an account. An				
	 Check this box if you are, or if a household member is, a control person or an affiliate of a public company, as defined in SEC Rule 144 (this would include, but is not limited 10% shareholders, policymaking executives, and members of the board of directors). If you check this box, you must provide the names and trading symbols of the companies for whether the symbols of the companies for whether the names and trading symbols of the companies for whether the symbols of the companies for whether the names and trading symbols of the companies for whether the symbols of the symbols of the companies for whether the symbols of t					
	such person serves as a control person or an affiliate.					
Na	me of company	Trading symbol				

Successor custodian if a custodian has been named

Upon the custodian's resignation, incapacity, or death, the successor custodian will be responsible for contacting Vanguard to initiate the change in custodianship. We'll also require the successor custodian to provide certain documentation, depending on the reason behind the change.

Complete this section only if you're establishing > an UGMA/UTMA account for a minor.

Name first, middle initial, last

Birth date *mm/dd/yyyy*

6. Your money market settlement fund

Clients of Vanguard Brokerage Services need two accounts, both of which you can open by using this application:

A brokerage account to hold your securities, including stocks, bonds, options, exchange-traded funds (ETFs), certificates of deposit (CDs), and non-Vanguard funds. (Vanguard fund shares can't be held in your brokerage account.)

A Vanguard money market settlement fund* that's registered identically to your brokerage account (i.e., same owner, account type, address, and Social Security or individual taxpayer ID number). This fund, which isn't subject to a minimum balance requirement after it's established, will reflect debits (such as payments for securities) and credits (such as sales proceeds).

Money market settlement fund Check only one.

We'll establish your settlement fund in Vanguard Federal Money Market Fund (0033) to pay for, and receive proceeds from, brokerage transactions. This fund isn't subject to a minimum balance requirement.

	□ My existing Federal I	Money Market Fund account
If you don't check a box, we'll establish your settlement > fund in your	Account number	If the registration of the account isn't identical to the registration you've indicated on this form, a new Vanguard Federal Money Market Fund that matches the requested registration will be established.
existing account.		

New account

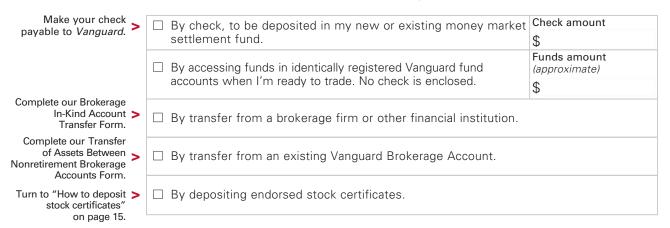
Note: Money recently added to your settlement fund by check or electronic bank transfer may not be immediately available to pay for certain brokerage transactions and may not be immediately available for withdrawal. Purchases by check or electronic bank transfer may take up to ten calendar days to be completed.

*Your settlement fund is held by The Vanguard Group, Inc. The funds in this account aren't protected by the Securities Investor Protection Corporation (SIPC).

7. How you'd like to make your initial investment

Combine any of the following methods to open and fund your accounts.*

We charge a \$20 annual account service fee for each Vanguard Brokerage Account. This fee is waived for our Voyager, Voyager Select, and Flagship clients, as well as for any client who elects to receive statements and other information electronically.



8. Dividends and other distributions

Indicate how you want us to apply cash dividends and other cash distributions from your securities and your money market settlement fund.

Brokerage account distributions

If you don't choose an option, reinvestment-eligible distributions will be reinvested in additional shares of the security.

> If you don't choose an option, all distributions will be reinvested in additional fund shares.

Reinvest earnings (at no charge) from my eligible securities in additional shares of those securities.

Deposit earnings from my securities into my money market settlement fund.

Money market fund distributions

- Reinvest distributions in additional shares of the fund.
 - □ Mail my distribution checks to the address of record.

9. Checkwriting optional

You should receive your checkbook in > two to three weeks.

	$\hfill\square$ I want to write checks on the money market settlement fund.	Number of signatures required on checks
>	Minimum amount per check is \$250. All registered account owners must sign in Section 12 exactly as the checks will be signed. For custodial or guardian accounts, only the custodian or guardian should sign.	

Note: If you don't indicate a number, the signature of only one account owner will be required.

*Money recently added to your account by check or electronic bank transfer may not be immediately available to pay for certain brokerage transactions and may not be immediately available to withdraw from the account.

10. Bank information

	Complete this section to add electronic market settlement fund. This will provic online between your bank account and	le you with	the flexibility to move	,	,
	Important: If the registrations and/or authorized signers on the bank account and your Vanguard account don't match, skip to Section 11 and complete the remainder of this application along with our Bank Transfer Service Form.				
	Required documentation. We must	eceive at l	east one of the follow	/ing:	
	• A voided check or preprinted deposit	slip (tape c	or clip below).		
	• A bank account statement that contain account (all other information can be			egistration of the ba	ank
	A letter from the bank on bank lettern number, account number, account reg				ng
	Important requirement: If the bank account is owned by and registered in the name of an organization or trust, and the name(s) of the authorized signer(s) or trustee(s) doesn't/don't appear in the registration on the voided check, preprinted deposit slip, or bank account statement, we MUST receive a letter from the bank. The letter must be on bank letterhead, be signed by a bank officer, and contain the routing number, account number, account registration, and your name(s) as the authorized signer(s) required to authorize debit and credit entries to the organization's or trust's bank account.				
Check this box if	Bank information. You must provide all of the following information.*				
you'd like Vanguard to make this the default bank account for future transaction	☐ Make this my primary bank.				
requests.	Bank name		Account type		
	Bank routing/ABA number Enter nine digits.		Bank account numb	er	
	Bank account registration List all names that appear on the bank account.				
	Voided check or preprinted deposi	t slip			
If providing a voided check or preprinted deposit slip, > tape it here.	J.A. Sample 123 Street Anywhere, USA 12345	BANK NAM CITY USA	ИЕ 	87654	
Don't staple.	PAY TO THE ORDER OF		\$		
	DOLLARS				
				VOID AFTER 60 DAYS	
	MEMO				
		18765432	1:II <u>87654</u>		
	Bank routing number Account	nt number	Check numbe	er	

*An electronic transfer can take several days, depending on the timing of your request. The bank, savings and loan, or credit union must be a member of the ACH network, and the account type must permit electronic transfers.

11. Duplicate documentation

If you want documentation of securities transactions sent to a third party—for instance, your employer or financial advisor—complete this section.

Duplicate statements	□ Duplicate confirmations	
Name of third party		
Mailing address		
City, state, zip		Country <i>if not U.S.</i>

12. Authorization of account owners

Important information about opening a new account. The Vanguard Group, Inc., and Vanguard Marketing Corporation are required by federal law to obtain from each person who opens an account certain personal information—including name, street address, and date of birth—that will be used to verify identity. If You don't provide Us with this information, We won't be able to open the account. If We're unable to verify Your identity, The Vanguard Group, Inc., and Vanguard Marketing Corporation reserve the right to close Your account or take other steps We deem reasonable.

Read the points in this section carefully, and sign on page 14 exactly as listed in Section 5. If the account is owned by a minor, only the custodian should sign.

By signing this Vanguard Brokerage Account Application (Application), You acknowledge that:

- 1. You have received and read a copy of the attached Vanguard Brokerage Application Agreement, which contains a predispute arbitration agreement. You acknowledge that Your signature signifies and constitutes Your agreement that this Account and Your relationship with Vanguard Brokerage Services (VBS®) will be governed by and consists of the terms set forth in the Vanguard Brokerage Application Agreement and incorporates by reference the terms set forth in the Vanguard Brokerage Account Agreement, which includes 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. You understand there are fees associated with establishing, maintaining, and engaging in transactions in and transferring assets out of this Account.
- 2. You have read and understand the money market settlement information in Section 6 of this Application and agree to and authorize the settlement terms indicated. You also acknowledge that by purchasing the applicable Vanguard money market fund, You have received and read the prospectus for that fund.
- 3. You, if You are using this form to add electronic bank transfer information, authorize The Vanguard Group, Inc., and Vanguard Marketing Corporation, and any affiliates or subsidiaries of either (individually or collectively, "Vanguard"), upon telephone or online request, to pay amounts representing redemptions or withdrawals made by You, or to secure payment of amounts invested by You, by initiating credit or debit entries to the bank named by You. You authorize the bank to accept any such credits or debits to Your account without responsibility for the correctness thereof. You acknowledge that the origination of ACH transactions to Your account must comply with U.S. law. You further agree that Vanguard will not incur any loss, liability, cost, or expense in connection with Your telephone or online request. You understand that this authorization may be terminated by You at any time by written notification to Vanguard and to the bank. The termination request will be effective as to Vanguard as soon as Vanguard has had a reasonable amount of time to act upon it. You represent and warrant to Vanguard that You are an owner or authorized signer on the bank account (other than the joint Vanguard account owner(s), if applicable) is required to sign in order to authorize the initiation of ACH entries to such bank account.

- 4. You, if You have chosen the checkwriting option, authorize Vanguard's custodian bank to honor checks drawn by You on Your Vanguard money market settlement fund and to effect a redemption of sufficient shares in the account to cover payment of such checks. You understand that (1) this privilege may be amended or terminated at any time by the fund or the bank, and neither shall incur any liability to You for such amendment or termination, or for honoring such checks, or for effecting redemptions to pay such checks, or for returning checks that have not been accepted; (2) checks drawn on a joint account will require the signature of one registered Account Owner unless indicated otherwise in Section 9 of this Application; (3) no check shall be issued or honored, or redemption effected, for any amounts represented by shares unless payment for such shares has been made in full and any checks given in such payment have been collected through normal banking channels; and (4) this privilege is subject to all the terms and conditions stated in the Vanguard fund's prospectus.
- 5. You understand that if an account is registered in more than one name, Vanguard may accept online or telephone instructions from any one of the Account Owners.
- 6. If You are signing as a trustee of a trust, You understand that You also must confirm the following by signing on the next page:
 - The trust is valid and in full force and effect as of the date on the next page.
 - The trustees have full authority under the trust document and applicable law to enter into investment transactions on behalf of the trust, including the purchase, sale, exchange, transfer, and redemption of mutual funds, trading in stocks, bonds, and other securities and contracts relating to same.
 - The trustees have full authority under the trust document and applicable law to engage in margin and option trading.
 - The trustees may issue general instructions.
 - The individuals listed and signing this form are all of the currently serving trustees.
- 7. You have full authority and legal capacity to purchase fund shares.
- 8. If You represent an organization, You confirm that the organization is in existence and that You have full authority to enter into investment transactions on behalf of the organization and to execute and deliver documents on its behalf.
- If You are signing as a custodian of an UGMA/UTMA account, You acknowledge that You
 understand that the assets in such account legally belong to the minor for whom the account is
 registered and may only be used for the benefit of said minor.

For purposes of this Application and the attached Vanguard Brokerage Application Agreement, the terms "You," "Your," and "Account Owner" refer to each person who signs this Application. The terms "We," "Us," "Our," and "VBS" refer to Vanguard Brokerage Services, a division of Vanguard Marketing Corporation, and its affiliates.

If I am a U.S. citizen, a U.S. resident alien, or a representative of a U.S. entity, I certify under penalties of perjury that:

- 1. The taxpayer ID number I have given on this form is correct (or I am waiting for a number to be issued to me).
- 2. I am not subject to backup withholding because (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding.

Important: Cross out item 2 if You have been notified by the IRS that You are currently subject to backup withholding because You have failed to report all interest or dividends on Your tax return.

- 3. I am a U.S. citizen or other U.S. person (as defined by the IRS in its Form W-9 instructions).
- 4. The Foreign Account Tax Compliance Act (FATCA) code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

If I am not a U.S. person, I will complete the appropriate Form W-8 electronically to certify my foreign status, including my FATCA status, and to claim treaty benefits if applicable.

The IRS does not require Your consent to any provision of this document other than the certification required to avoid backup withholding.

You must sign on the next page.

NOTE THAT SECTIONS 11 AND 12 ON PAGE 2 OF THE ATTACHED APPLICATION AGREEMENT CONTAIN A PREDISPUTE ARBITRATION CLAUSE.

All those listed in Section 5 (except minors and successor custodians) must sign and date here. >

> If additional signatures are required, photocopy this page.

	Signature of owner, custodian, trustee, executor, or organization representative Date mm/dd/yyyy
	X
>	Signature of joint owner, co-trustee, co-executor, or organization representative Date mm/dd/yvyy

Mailing information

Mail pages 1–14 of this application and any attached information in the enclosed postage-paid envelope.

If you don't have a postage-paid > P.O. Box 1170 envelope, mail to:

For registered or mail to:

Vanguard Brokerage Services Valley Forge, PA 19482-1170

Vanguard Brokerage Services certified mail, or overnight delivery, > 455 Devon Park Drive Wayne, PA 19087-1815

Reminders

Transferring assets from an existing VBS account. Complete our Transfer of Assets Between Nonretirement Brokerage Accounts Form and this application.

Transferring assets to VBS from another firm. Complete our Brokerage In-Kind Account Transfer Form and this application.

Options investing and margin trading. For options investing, complete our Brokerage Option Application. For margin trading, complete a Margin Account Application. Return the appropriate application(s) with this application so that we can consider any request.

Guardian account. Submit an original or certified (within 90 days) copy, with a raised seal, of the court appointment of the guardian or conservator.

For trusts under will/testamentary. You must attach copies of the pages of the will that confirm the creation of the trust and those that contain the trustee name(s) and the testator's (decedent's) signature. The pages of the will should indicate it was filed with the probate court and include a court stamp (the stamp doesn't need to be original or include a date). If the will doesn't contain a court stamp, attach a copy of Letters Testamentary or court document appointing the trustee of the trust.

For all other types of trusts. You must attach copies of the pages of the trust agreement that contain the trust name and date, and a listing of the trustees' names and the signature page(s), signed by the persons who were required to sign under state law.

Organization account. Attach a copy of the documentation required for registration and complete and submit our Organization Resolution form, if needed.

Electronic transfers and wire redemptions. If you want to add electronic bank transfer and/or wire redemption options to your account and the registrations and/or authorized signers on the bank account and your Vanguard account don't match, complete our Bank Transfer Service Form along with this application.

How to deposit stock certificates

To deposit stock certificates into your Vanguard Brokerage Account, endorse them as shown below and make a copy for your records. Then send us the certificates and Application by overnight courier or registered or certified mail with return receipt requested. (Don't include the certificates in the enclosed postage-paid envelope.)

Where to send

Endorse the securities to Vanguard Brokerage Services (of course, you remain the beneficial [actual] owner) and send them to:

Vanguard 455 Devon Park Drive Wayne, PA 19087-1815

If any name on a stock certificate differs *in any way* from the name or names on your Vanguard Brokerage Account—for example, if John Doe is transferring stock in his name to a jointly owned brokerage account in the names of John and Mary Doe—you'll need to include a letter of instruction with this form. In addition, both the letter and the certificates must be signed by all parties in the presence of an authorized member of the Medallion signature guarantee program, described at right.

Letter of instruction

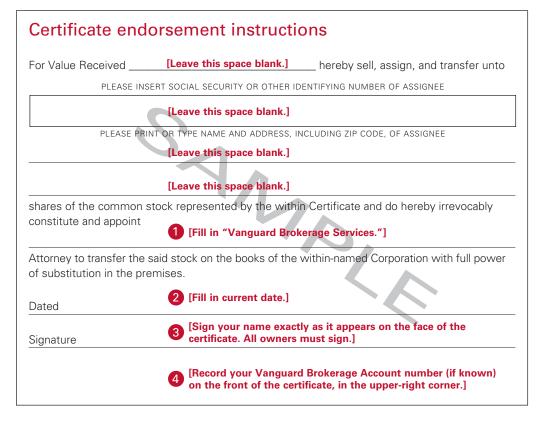
The letter of instruction tells us to deposit the certificates in your brokerage account. It must include:

- A statement such as the following: "I [We] understand that I [we] will be relinquishing title and may give up some or all ownership and rights."
- The name of the corporation, the security's CUSIP number (a unique identifier of a security), the number of shares as listed on the certificate, and the certificate number.
- The number of the account into which the stock will be deposited, if you already have an account. (Write it in the upper-right corner of each certificate.) If you're opening a new account, we'll deposit your stock once it's been approved.

Medallion signature guarantees

The letter of instruction and the certificates must be signed in the presence of an authorized officer of a bank, brokerage firm, or other acceptable financial institution that participates in the Medallion signature guarantee program to certify that signatures are genuine. A notary public can't provide a signature guarantee.

To avoid processing delays, sign (endorse) the back of each certificate exactly as the name or names appear on its face.



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Brokerage In-Kind Account Transfer Form

To transfer assets in kind to your Vanguard Brokerage Account

Use this form to transfer most types of retirement and nonretirement assets from another financial firm to your Vanguard Brokerage Account. You can also use this form to transfer Vanguard mutual funds currently held at another institution. (The shares will be held in a Vanguard mutual fund account and not in your Vanguard Brokerage Account.)

Don't use this form for either of these transactions:

- To transfer fund shares from your Vanguard mutual fund account to your Vanguard Brokerage Account.
- To exchange shares of one Vanguard mutual fund for shares of another; instead, call us or go to your account online.*

Important notes about your transfer

- For detailed signature requirements, see **Instructions for Sections 4, 5, and 6** on the next page.
- Processing time depends on the type of transfer. Most take one to two weeks; however, a transfer may take longer depending on your current custodian.
- Vanguard Brokerage doesn't charge account transfer fees. Check if your current firm charges such fees.

Assets you can transfer

You're requesting that assets from your current firm be transferred to Vanguard Brokerage Services[®] "in kind," which means moved directly to your Vanguard Brokerage Account without being liquidated. Assets you may transfer in kind include:

- Stocks.
- Bonds.
- Most options.
- Exchange-traded funds (ETFs).
- Unit investment trusts. (Please note: You won't be able to purchase additional trust shares or roll over the trust shares at maturity.)
- Certificates of deposit (CDs) held in a brokerage account.
- Most mutual funds (although money market funds, including your current money market sweep account, will be sold and transferred as cash).**

Assets you can't transfer

You can't transfer the following assets in kind:

- CDs held directly with a bank.
- Certain options.
- Limited partnerships and private placements.
- Certain mutual funds and other investment products offered exclusively by your current firm.
- Certain low-priced securities traded over the counter (OTC) or on the pink sheets market.
- Commodities.
- Annuities.
- Life insurance policies.

Margin and option accounts

If you're holding margined securities, submit our Margin Account Application along with this form for approval. If you're holding fully paid securities in the margin portion of your account, move these securities to the "cash" portion of the account before submitting this form.

If you want to transfer options, submit our Brokerage Option Application along with this form.

Both forms are available for download at vanguard.com/serviceforms.

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

^{*}Log on to your account at vanguard.com. From the My Accounts dropdown, select Balances & holdings. Choose the Vanguard fund from which you want to make an exchange, then click Exch and follow the instructions.

^{**}If you're transferring funds from more than one money market fund, consider consolidating the funds into your money market sweep account before this transfer.

Instructions for Sections 4, 5, and 6

Read these instructions carefully before signing this form.

If a Medallion signature guarantee is required in Section 6, do NOT sign in Section 4 (or Section 5, if applicable) until you're in the presence of an authorized officer of a bank, brokerage firm, trust company, or other financial institution that participates in the Medallion signature guarantee program. A notary public can't provide a signature guarantee.

Section	Who should complete	Signature guarantee requirements
4	ALL owners on the account at the transferring firm MUST SIGN.	Since many firms require a Medallion signature guarantee for ANY type of transfer, check with your current firm about its signature guarantee requirements before signing this section.
5	If the account owners and/or registration types on the Vanguard account and the current firm account DON'T MATCH , you MUST complete this section and have ALL owners of the Vanguard account and the current firm account sign.	You MUST obtain a Medallion signature guarantee for all signatures in this section.

Mailing information

Make a copy of your completed form for your records.

Mail ALL pages of your completed form along with a recent account statement (dated within the past 90 days) from the current financial institution in the enclosed postage-paid envelope.

If you don't have a postage-paid envelope, mail to:

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

For overnight delivery, mail to:

Vanguard Brokerage Services 455 Devon Park Drive Wayne, PA 19087-1815

Brokerage In-Kind Account Transfer Form



Use this form to transfer assets in kind to your Vanguard Brokerage Account. Use a separate form for each account you're transferring. If you have more than one Vanguard Brokerage Account, use a separate form for each receiving brokerage account.

Make sure you've removed any restrictions on your account, paid any fees, and settled your margin debt, outstanding trades, and other debits.

Print in capital letters and use black ink.

1. Vanguard Brokerage Account information

If you haven't already set up a Vanguard Brokerage Account, submit our Brokerage Account Application along with this form (on which we'll record your new account number).

If the account owners
and/or registration types
on the Vanguard account
and the current firm
account don't match,
Sections 5 and 6 must be
completed.

Name of account owner	
Name of joint account owner	

Type of account Check only one box.

Nonretirement:	_	_		Organization	UGMA/UTMA
Retirement:	Traditional	IRA	Rollover IRA	🗌 Roth IRA	SEP-IRA
	□ Inherited If	RA	Inherited Ro	th IRA	□ Other

2. Current firm account information

N/ MULOTIN L					
You MUST include a complete account statement from your current firm – dated within the past 90 days and showing your name, address, and account number, and all assets you plan to transfer.	Statement date mm/dd/yyyy				
	Account number only one per form Primary Social Securi		v or employer ID number		
	Firm name				
	Contact name	Phone number an	ea code, number, extension		
You MUST provide a street address.	Address A P.O. box is NOT acceptable.				
	City, state, zip		Country <i>if not U.S.</i>		



Questions? Call 800-662-2739.

To complete this form online, go to **vanguard.com/serviceforms**.

3. Transfer instructions

If you need more

space to list additional brokerage assets or to specifically identify

Check only one box to indicate the type of firm where the assets are now, and provide the requested information. If transferring assets from a brokerage or mutual fund company, call us at 800-662-2739 after your transfer is completed to ensure that your distribution instructions for dividends and capital gains will be handled appropriately.

From a brokerage firm Check one.

Note: Most assets will be transferred in kind. Money market funds will be liquidated and transferred in cash.

□ Transfer *all* the assets from this account.

to specifically identify shares to transfer, attach a separate sheet dated and signed exactly as listed on the account at the current firm.	 Transfer only the assets listed below from this account as follows: Note: If you're transferring part of an account, you may specifically identify which shares to transfer. 				
	Name of asset	☐ Transfer all shares <i>or</i>	☐ Transfer this number of shares:		
	Name of asset	Transfer all shares or	☐ Transfer this number of shares:		

□ From a mutual fund company Indicate the funds you want to transfer and how you want us to distribute dividends and capital gains.

Note: Most funds will be transferred in kind. Money market funds will be liquidated and transferred in cash

	Na
If you need more space to list additional funds, attach a separate sheet dated and signed exactly as listed on the account at the current firm.	Di

If you don't choose an dividends or capital gains, they'll be reinvested.

Note. Most fullus will be transferred in kind	u. Money market fund	is will be liquidated		
Name of money market fund	🗌 Liquidate all	shares <i>or</i>	☐ Liquidate this number of shares:	
Name of mutual fund	□ Transfer all s	hares or	Transfer this number of shares:	
Dividends:		Capital gains distributions:		
□ Reinvest □ Pay in cash		Reinvest Pay in cash		
Name of mutual fund		hares or	☐ Transfer this number of shares:	
Dividends:		Capital gains distributions:		
□ Reinvest □ Pay in cash		Reinvest Pay in cash		

□ From a bank, savings and loan, credit union, or insurance company Check one and initial, if applicable.

□ Transfer all the cash from my IRA. □ Transfer this cash from my IRA: \$				
Transfer all the proceeds from my life insurance policy or annuity redemption.				
Transfer proceeds from the redemption of my CD as follows: Note: To transfer proceeds from a maturing bank CD, send us this form at least 14 days, but not more than 30 days, before the maturity date to ensure we have time to process your request. To liquidate a bank CD prior to maturity and transfer the proceeds, initial where indicated to show that you're aware of any penalty for early withdrawal.				
Prior to maturity			Your initials	
At maturity At maturity date mm/dd/yyyy			Your initials	

4. Your authorization Important: Before completing Sections 4, 5, and 6, refer to the instructions at the beginning of this document for details about who must sign and whether a Medallion signature guarantee is required.

To the current firm: I understand that by signing below, I am authorizing Vanguard Marketing Corporation (VMC) to instruct you to transfer the assets identified in Section 3 of this form to my Vanguard Brokerage Account held with VMC. If the assets to be transferred are part of a retirement plan, I represent that I have opened a retirement plan with Vanguard Fiduciary Trust Company as the successor custodian/trustee and VMC as the broker. I understand that upon receipt of these transfer instructions, you will cancel all open orders in my account and will contact me regarding any account assets that are not transferable. I understand that I am responsible for returning or destroying credit/debit cards and any unused checks issued in connection with my current securities account. I understand that to the extent that any assets in my account are not readily transferable, with or without penalties, such assets may not be transferred within the time frames as set by FINRA Rule 11870.

I authorize you to transfer all assets in my account, except as noted above. I authorize you to liquidate any nontransferable proprietary money market fund assets in my account and transfer the credit balance. I authorize you to deduct any outstanding fees due from my credit balance; if the credit balance is insufficient to cover any outstanding fees, I authorize you to liquidate assets in my account to satisfy the obligation. I authorize you to transfer physical certificates or other instruments in my account in good deliverable form (including affixing any necessary tax waivers) to allow VMC to register them in street name for the purpose of sale when and as directed by me. I understand that any fractional shares of stock are nontransferable and will be liquidated; any liquidation of such shares may constitute a taxable event.

To VMC: If an account transfers to VMC with a debit balance, I understand that I am responsible for satisfying the debit balance and that VMC may settle the debit balance via a sweep transaction from my Vanguard Brokerage Account's money market settlement fund. I also understand VMC may liquidate assets in my account if there are insufficient funds in my money market settlement fund to satisfy the debit balance.

Sign here. All those I	isted
at the current firm (ex	kcept
minors) must	sign.

If additional signatures are required, attach a separate sheet.

	Signature of account owner X	Date mm/dd/yyyy
2	Signature of joint account owner X	Date mm/dd/yyyy

Letter of authorization to Vanguard Brokerage Services

Complete this section if the account owners and/or registration types on the Vanguard account and the current firm account don't match.

Transfer from:		
Name of transferring firm	Account number	
Name(s) of account owner(s)		
Turneferrater		

Transfer to:

Vanguard Brokerage Account number	Name(s) of account owner(s)

Signatures of all owners of the transferring and Vanguard accounts

I/We understand that this transfer constitutes a change in the ownership of the assets and that the new registered account owners will have exclusive rights to the assets.

Note: Completing this form does NOT guarantee acceptance of these instructions by the transferring firm. Contact that firm to confirm that it will accept this letter of authorization and to determine whether it requires additional documentation

guarantee program. >

Medallion signature guarantee

You can get a Medallion
signature guarantee from
an authorized officer of
a bank, a broker, and
many other financial
institutions.

All owners must sign in the presence of an authorized officer in the Medallion signature

If additional signatures are required, attach a separate sheet.

A notary public CANNOT provide a signature guarantee.

Signature of transferring account owner	Date	mm/dd/yyyy
X		
Signature of Vanguard account owner	Date	mm/dd/yyyy
X		

Authorized officer's title Signed guarantee stamp Name of institution > Date mm/dd/yyyy Applies to signatures in Sections 4 and 5.

For Vanguard Brokerage use. Vanguard IRA® authorization: Vanguard Fiduciary Trust Company hereby represents that it has established for the above-named individual an IRA that qualifies under Section 408 or Section 408A of the Internal Revenue Code and will apply the proceeds of the above-described IRA asset transfer to such IRA upon receipt.

Authorized signature Vanguard Fiduciary Trust Company	Date mm/dd/yyyy	Broker clearing number	
			ACAT Non-ACAT

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Vanguard Brokerage Account Application Agreement

Effective December 2, 2011

This Vanguard Brokerage Account Application Agreement (Application Agreement) relates to Your Account and is part of the Vanguard Brokerage Account Agreement (Account Agreement) between each Account Owner and Vanguard Brokerage Services (VBS). Defined terms in the Application Agreement have the same meaning as in the Account Agreement. Please read and retain for Your records.

Definition

"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.

Section 1: Scope of Agreement.

Your agreement with VBS will be governed by and consists of the terms set forth in this Application Agreement and incorporates by reference the terms set forth in the *Vanguard Brokerage Account Agreement*, which includes the *Vanguard Brokerage Services Commission and Fee Schedules, Vanguard Brokerage Account Application*, and the other disclosures, terms, and agreements relating to Your Account or to particular features or services offered in connection with Your Account. The Account Agreement is provided with this Application or at the opening of Your Account (the Agreement). You agree to contact VBS if You do not receive the Account Agreement and disclosures, terms, and agreements that pertain to certain account types, features, or services. References to the Agreement. Include these supplemental disclosures, terms, and agreements. You agree to read the Agreement carefully and retain copies for Your records.

Section 2: Acceptance of Agreements and Disclosures.

You agree that the Agreement governs all aspects of Your relationship with VBS, including all transactions between VBS and You and all products and services now or in the future offered through VBS. VBS may rely on Your use of VBS's products and services as evidence of Your continued acceptance of the Agreement.

Section 3: Your Representations and Warranties.

You represent and warrant that: (a) You are of legal age in the state in which You live and You are authorized to enter into the Agreement; (b) You have supplied accurate information in Your Vanguard Brokerage Account Application (Account Application); (c) no one except the Account Owners listed on the Account Application (and if community property is held, the Account Owners' spouses) has an interest in the Account; (d) no additional authorizations from third parties are required for You to open the Account and effect transactions therein; (e) except as You have otherwise indicated on Your Account Application or in writing to Us, (i) You are not an employee of or affiliated with any securities exchange or member firm of any exchange, the Financial Industry Regulatory Authority (FINRA), the Municipal Securities Rulemaking Board (MSRB), or any securities firm, bank, trust company, or insurance company, and (ii) You are not a director, 10% beneficial shareholder, policy-making officer, or otherwise an "affiliate" (as defined in Rule 144 under the Securities Act of 1933) of a publicly traded Company; and (f) the Agreement, as amended from time to time, is a legal, valid, and binding obligation, enforceable against You in accordance with its terms.

Section 4: Account Handling.

VBS will automatically hold all of Your securities purchased, sales proceeds, dividends, and interest. VBS will also release Your name, address, and securities positions to companies in which You hold securities upon request, unless You notify us otherwise in writing. If You maintain more than one account at VBS, You authorize VBS to transfer assets between Your accounts when no written authorization is requested.

Section 5: Responsibility for Investment Decisions.

You agree that You and any agent under a power of attorney or Investment Advisor (if You have one) are solely responsible for investment decisions in Your Account, including whether to buy or sell a particular security. Your obligation includes an affirmative duty to monitor and stay informed about Your Account and Your investments and respond to changes as You deem appropriate.

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 acknowledge that VBS does not provide tax or legal advice.

Section 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. 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's 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's 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.

Section 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.

Section 8: Liquidations.

Whenever it is necessary for Our protection or to satisfy a margin deficiency, debit, or other obligation owed Us, We may (but are not required to) sell, assign, and deliver all or any part of the property securing Your obligations, or close any or all transactions in Your Account or in any of Your accounts with Our affiliates. We may choose which property to buy or sell, which transactions to close, and the sequence and timing of liquidation. We may take such actions on whatever exchange or market and in whatever manner that We choose in the exercise of Our business judgment. You agree not to hold Us liable for the choice of which

property to buy or sell or of which transactions to close or for timing or manner of liquidation or any tax consequences from such actions.

We may transfer property from any brokerage account or in any of Your accounts with Our affiliates in which You have an interest to any other brokerage accounts in which You have an interest, regardless of whether there are other Account Owners on either account, if We determine that Your obligations are not adequately secured or to satisfy a margin deficiency or other obligation. You agree to pay on demand any Account deficiencies after liquidation, whether liquidation is complete or partial.

All of the above may be done without demand for margin or notice of purchase, sale, transfer, or cancellation to You. No demand for margin or notice shall impose on VBS any obligation to make such demand or provide such notice to You in the future. Any such notice or demand is hereby expressly waived, and no specific demand or notice shall invalidate this waiver.

Section 9: Terms of Agreement.

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.

On prior or concurrent written 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. Amendments will not 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 VBS employee or agent can amend or modify this written agreement.

Waivers of rights 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.

VBS can close Your Account, or terminate any feature, at any time, for any reason, and without prior notice. Such termination may include order rejections 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.

Section 10: Verification.

You authorize VBS to inquire from any source, including a consumer reporting agency, as to Your identity (as required by federal law), creditworthiness, and ongoing eligibility for the Account of the Account Owners, any other person referred to on this Application, or any person whom VBS is later notified is associated with or has an interest in the Account (as well as such persons' spouses if they live in a community-property jurisdiction) at Account opening, at any time throughout the life of the Account, and thereafter for debt collection or investigative purposes. 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.

Section 11: 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.

Section 12: Arbitration Agreement.

You agree to settle by arbitration any controversy between or among You and VBS arising out of or relating to VBS's 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.

Section 13: 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).

Section 14: 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's electronically stored copy of such documents in any proceeding between You and VBS.

Section 15: Information about SIPC.

To obtain information about the Securities Investor Protection Corporation (SIPC), including an explanatory SIPC brochure, please contact SIPC at www.sipc.org or 202-371-8300.



Vanguard Brokerage Services FundAccess Shareholder Servicing, Networking, and 12b-1 Fees

I. FundAccess[®] shareholder servicing fees

Vanguard Brokerage Services[®] may receive fees for the provisioning of various shareholder services in connection with the participation of certain mutual funds in the FundAccess program. These fees may be considered revenue sharing and represent a significant source of revenue. Determined in accordance with an asset-based formula, these payments may equal up to 0.40% of a mutual fund's assets under management at Vanguard Brokerage Services on an annual basis.

II. FundAccess networking fees

Vanguard Brokerage Services may also receive operational payments from mutual funds in the form of networking or per-position processing fees of up to \$20 for each customer position in a mutual fund on an annual basis. These fees are reimbursed to Vanguard Brokerage Services 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.

III. 12b-1 fees

Vanguard Brokerage Services receives 12b-1 payments from certain mutual funds, which may equal up to 1% of a mutual fund's assets under management at Vanguard Brokerage Services on an annual basis.

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

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When you open a Vanguard Brokerage account, you'll have the confidence that comes from dealing with Vanguard, the investment management company known for our unwavering focus on clients, exceptional value, and plain talk.



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

Connect with Vanguard[®] > vanguard.com > 800-992-8327

For more information about Vanguard funds and non-Vanguard funds offered through Vanguard Brokerage Services, visit vanguard.com, or call 800-992-8327, to obtain a prospectus. Investment objectives, risks, charges, expenses, and other important information are contained in the prospectus; read and consider it carefully before investing.

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