

PART I OF IV — INSTRUCTIONS

PLEASE READ THE FOLLOWING IMPORTANT INFORMATION CAREFULLY BEFORE EXECUTING THIS POA FOR YOUR TIAA BROKERAGE ACCOUNT. (RETAIN A COPY OF THIS DOCUMENT FOR YOUR RECORDS.)

- Use this POA form to grant the following authorities to an authorized Agent (also known as an attorney-in-fact):
 - Trading Authority (Also known as limited Power of Attorney (LPOA)).
 - Trading and Limited Disbursement Authority with optional Check Writing and Billsuite™ Authority (Also known as Full Power of Attorney (FPOA)). (TIAA Brokerage account must have a Cash Solutions Account (CSA) feature for Check Writing and Billsuite™ Authority, which allows agent authority to write checks and pay bills. A new Cash Solutions Account application is also required to allow the Agent this authority.)
- All authorities expressed within this agreement are principally held and being granted to an Agent. The principal still holds full authority over his/her account.
- All information required on this form must be completed in full and signatures must be notarized. TIAA Brokerage reserves the right to reject this form if not complete.
- This POA applies only to the brokerage account you specify under Step 1 of this form. You must complete a separate POA for each brokerage account for which you wish to name an Agent.
- If there is anything about this POA you do not understand, you should consult an attorney.
- As the Account owner, you have the right to revoke or terminate the POA at any time by providing written notice to TIAA Brokerage.
- This POA cannot be used on Brokerage UTMA/UGMA custodial accounts.
- In order to name an Agent to act on behalf of a TIAA Brokerage Trust account, the trust document must provide the trustees with the authority to delegate powers and appoint agents. Please review the trust document to ensure that an Agent may be added to the Account. You will be asked to certify that the trust document permits you to appoint the agent. You will also be asked to certify that the trust document permits the Agent to exercise the authorities set forth in this form.
- This form is not a Durable Power of Attorney. As a result, the Agent's authority will expire upon subsequent mental disability, incompetence, incapacity or death of the Account holder.
- This POA grants only the powers stated herein. Among other things, it does not allow the Agent to enter into a new agreement on behalf of the Account owner, change Account addresses, change beneficiary designations or make third-party withdrawals (except as permitted under check writing and bill pay online authority).
- By signing this form, Agent is subject to TIAA Brokerage policies, including written authorization for certain transactions.
- The Account owner(s) is responsible for providing all Account agreements to the Agent, and the Agent is subject to the terms of the agreements.
- TIAA Brokerage, at its sole discretion, may contact the Account owner for verification and/or request additional documentation from the Account owner prior to the execution of any transactions and/or effecting instructions given by the Agent.
- TIAA Brokerage, at its sole discretion, may refuse to accept this Power of Attorney Form and Agreement from you and can terminate this Power of Attorney with or without notice.





PART II OF IV — APPOINTMENT OF AGENT AND AUTHORIZATION

Questions? Please call a TIAA Brokerage representative at 800-927-3059, Monday - Friday, 8 a.m. - 7 p.m. (ET).

STEP 1: BROKERAGE ACCOUNT INFORMATION (REQUIRED)

Brokerage Account Number

Brokerage Account Owner Name(s)

STEP 2: AGENT AUTHORITY INSTRUCTIONS

I hereby appoint the individual named in Step 3 to be my agent and attorney-in-fact ("Agent") with the authority to exercise the express and incidental rights and powers indicated below with respect to my brokerage account identified in Step 1 above ("Account").

NOTE: Please select one. If you do not indicate a choice, then only Trading Authority will be granted.

A. Trading Authority (aka LPOA)

This authorization will grant your Agent the ability to:

- Access your Account information
- Buy and sell securities in your Account
- Incur margin debt, if your Account is approved for margin
- Trade options, if your Account is approved for options trading

B. Trading and Limited Disbursement Authority (and optional check writing and BillSuite™ authority) (aka FPOA):

This authorization will grant your Agent the ability to:

- Perform all activities contemplated by Trading Authority (see above)
- Remove cash from the Account, either by sending checks to the address of record for the Account or by transferring cash to a bank account on record through the Automated Clearing House (ACH) system pre-authorized by the Account owner(s)
- Transfer cash or assets to other TIAA Brokerage accounts held by the same Account owner(s)
- Initiate IRA disbursements if the Account is an Individual Retirement Account (disbursements made to you may result in a taxable event)

Check here for optional Check Writing and Online Bill Pay Authority through BillSuite™. A new CSA application will be required if this option is chosen. **NOTE:** This authorization will grant your Agent the ability to write checks against your Account, including checks to the Agent and third parties.

ADDITIONAL AUTHORIZATION FOR YOUR AGENT (OPTIONAL)

By checking the boxes below, you request TIAA Brokerage to provide your Agent with the additional options noted below. (Check all that apply):

Duplicate mailing of Account: Statements Confirmations

Online access to your Account





STEP 3: AGENT INFORMATION (REQUIRED)

Agent's First Name M.I. Last Name

Social Security Number Date of Birth (mm/dd/yyyy) / / Mother's Maiden Name (Only required for check writing/bill pay authority)

U.S. Residential Address (Required) City State Zip Code

U.S. Mailing Address (If different than residential address) City State Zip Code

Country of Citizenship (If other than U.S.) Email Address

Home Telephone Number Business Telephone Number

EMPLOYMENT INFORMATION FOR AGENT

If Unemployed or Retired
 If Employed, Self-Employed or Consultant, complete the following:

Employer's Name Occupation/Title/Type of Business

Business Street Address City State Zip Code

Complete if applicable

Agent is, and/or an immediate family member is, a director, a 10% shareholder, or a policymaking executive of a publicly traded company.

Name of Person Company Name/Symbol

Agent is, or an immediate family member is, affiliated with or working for another member firm, stock exchange, or FINRA, including TIAA or as an affiliated person will have any financial interest in or discretionary authority over this Account.

Relationship to Person Name of Person Name of Firm

Agent is, or a person with interest in this Account is (i) a senior military, governmental or political official in a non-U.S. country, or (ii) closely associated with or an immediate family member of such an official.





STEP 4: AGENT SIGNATURE AND NOTARY REQUIREMENT (REQUIRED)

By signing below, Agent: (1) acknowledges that he/she has read, understands, and agrees to the terms and conditions of Parts I to III of this TIAA Brokerage Power of Attorney (POA) Authorization form and the account agreements between the Account owner and TIAA-CREF Individual & Institutional Services, LLC ("TIAA Brokerage") including, but not limited to, the TIAA Brokerage Customer Agreement and the Margin Agreement and Margin Disclosure Statement which details the risk associated with a margin account. Agent further acknowledges that he/she has read and understands the credit terms explained in the Margin Disclosure Statement. Agent further agrees to be bound by the current and future terms of all agreements, and by any applicable disclosures, between the Account owner(s) and TIAA Brokerage and/or Pershing LLC. **Agent further acknowledges that he/she has received and read the Predispute Arbitration Clause contained in the TIAA Brokerage Customer Agreement on page 2, paragraph 13.**

Applicable to state of New York residents ONLY: If you are executing this POA in the state of New York, Agent acknowledges that he/she has read and understands the New York Power of Attorney Disclosures incorporated into this form.

Agent's Signature Print Agent's Name Today's Date (mm/dd/yyyy) / / 20

NOTARIZATION OF AGENT SIGNATURE (REQUIRED)

On the date below, the undersigned, personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose value is subscribed to the within instrument, personally appeared before me and acknowledged to me that he/she executed the same in his/her capacity, and that by his/her signature on the instrument, the individual or the person upon behalf of which the individual acted executed the instrument.

Print Name of the Signature that has been Notarized

State County Notary Expiration Date (mm/dd/yyyy) / / 20

On the date noted below, the subscriber known to me to be the person described in and who executed the foregoing instrument and acknowledged to me that he/she executed the same.

Notary Public's Signature

Today's Date (mm/dd/yyyy) / / 20

In this space, the Notary Public must provide his/her notarial number and the date the appointment expires. Provide the notarial seal if outside New York state.





STEP 5: ACCOUNT OWNER(S)/TRUSTEE(S) SIGNATURE AND NOTARY REQUIREMENT (REQUIRED)

By signing below, you: (1) acknowledge that you read, understand, and agree to the terms and conditions of Parts I to III of this TIAA Brokerage Power of Attorney (POA); (2) authorize TIAA-CREF Individual & Institutional Services, LLC and Pershing LLC to act on the instructions provided in this form; (3) designate the individual identified in Step 3 of this form as an authorized Agent for the Account, granting that individual the authorities over the Account as indicated on this form; (4) acknowledge that all instructions provided by the Agent with respect to your Account, including but not limited to transactions executed by the Agent, are fully binding; (5) acknowledge that you have provided all account agreements to the Agent for his or her record; (6) if this form was executed by you in the state of New York, you acknowledge that you have read and understand the New York State Power of Attorney Disclosure contained in Part IV of this form; and (7) if the Account is a trust account, you certify that the trust document permits the appointment of the Agent by you and Agent's exercise of the authorizations indicated in this form over the Account.

Note: Please be aware that if you sign this document in New York and you give your agent check writing authority in Step 2, you must sign this document in the presence of two witnesses and the witnesses must sign where indicated

Account Owner's/Trustee's Signature

Print Name of Account Owner/Trustee

Today's Date (mm/dd/yyyy)

 / / 20

Joint Owner's/Trustee's Signature

Print Name of Joint Owner/Trustee

Today's Date (mm/dd/yyyy)

 / / 20

NOTARIZATION OF ACCOUNT OWNER(S)/TRUSTEE(S) SIGNATURE (REQUIRED)

On the date below, the undersigned, personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose value is subscribed to the within instrument, personally appeared before me and acknowledged to me that he/she executed the same in his/her capacity, and that by his/her signature on the instrument, the individual or the person upon behalf of which the individual acted executed the instrument.

Print Name of the Signature that has been Notarized

State

County

Notary Expiration Date (mm/dd/yyyy)

 / / 20

On the date noted below, the subscriber known to me to be the person described in and who executed the foregoing instrument and acknowledged to me that he/she executed the same.

Notary Public's Signature

Today's Date (mm/dd/yyyy)

 / / 20

In this space, the Notary Public must provide his/her notarial number and the date the appointment expires. Provide the notarial seal if outside New York state.





STEP 6: SIGNATURE OF WITNESSES

Note: Please complete this section only if the Account holder signs this document in the state of New York and gives agent Check Writing and online bill paying through Billsuite™ in Step 2.

By signing as a witness, I acknowledge that the principal signed this TIAA Brokerage Power of Attorney Form in my presence and the presence of the other witness, or that the principal acknowledged to me that the principal's signature was affixed by him or her or at his or her direction. I also acknowledge that the principal has stated that this TIAA Brokerage Power of Attorney Form reflects his or her wishes and that he or she has signed it voluntarily.

The witnesses must be individuals who are unlikely to receive any distributions of property from the above-mentioned Account.

Witness #1's Signature

Witness #2's Signature

Today's Date (mm/dd/yyyy)

 / / 20

Today's Date (mm/dd/yyyy)

 / / 20

Print Witness #1's Name

Print Witness #2's Name

RETURN COMPLETED FORM(S)

Upload your documents easily from your mobile device or computer.

Use the TIAA mobile app to quickly upload your completed documents. It's as simple as taking a picture:

- Tap the **Message Center** icon in the upper-right corner of your main screen.
- Select the **Files** header and tap **Upload**. That's it!

Haven't downloaded the TIAA mobile app? Get it today in the **App Store** or **Google Play**.

Don't have a smartphone? It's still easy. From your personal computer, here's what you'll need to do:

- Log in to your **TIAA.org** account and select the **Actions** tab.
- Choose **Upload documents** from the options presented.
- Select **Upload Files** and follow the step-by-step instructions.

Faxing a document or using standard or overnight mail are also available, but can take more time. If you prefer one of these methods, use the information provided below to complete the process.

FAX:

800-914-8922 (within U.S.)

STANDARD MAIL:

TIAA
P.O. Box 1280
Charlotte, NC 28201-1280

OVERNIGHT:

TIAA
8500 Andrew Carnegie Blvd.
Charlotte, NC 28262





PART III OF IV — POWER OF ATTORNEY AGREEMENT

This agreement (“Agreement”) sets forth the terms and conditions of the TIAA Brokerage Power of Attorney Authorization form (“POA Form”).

Definitions: The term “Account” refers to the brokerage account identified in Step 1 of the POA Form. The terms “you” and “Account owner(s)” refer to all registered owners of the Account. The term “Agent” refers to the authorized agent appointed by the Account owner(s) in Step 3 of the POA Form.

ACCOUNT OWNER TERMS AND CONDITIONS

By signing in the appropriate place in the POA Form, you acknowledge that you have read this Agreement and that you understand and agree to its terms.

TIAA Brokerage is authorized to take such actions as it deems necessary to carry out the instructions it receives from you and/or Agent with respect to the Account. TIAA Brokerage, in its sole discretion and for whatever reason, may request additional documentation from you prior to effecting any instruction, including but not limited to executing any transaction, requested by Agent.

You accept full responsibility for determining whether any investment or strategy is appropriate for you, based on your investment objects and financial resources. You further accept full responsibility for understanding the risks associated with granting the authorities set forth in this form, and assume sole liability for the financial, tax and other consequences of all actions and instructions of Agent. TIAA Brokerage, assumes no responsibility for reviewing or monitoring any investment decision or activity of Agent. TIAA Brokerage, does not provide tax or legal advice.

All orders, transactions and instructions shall be governed by the terms and conditions of all account agreements as applicable to the Account.

You agree to notify TIAA Brokerage, immediately in writing of revocation of POA or upon the mental disability, incompetence, incapacity or death of the Agent.

Trading Authority

Trading Authority allows Agent to inquire into your Account and to place orders in your Account based on the authority conferred through this POA form (and without your separate direct instructions). This may include orders to buy, sell, exchange, convert, tender, or otherwise acquire or dispose of securities, such as stocks, bonds, and other investments, and options. If your Account has been, or is in the future, approved for margin, Agent may trade on margin and otherwise cause credit to be extended through the Account, and to secure the performance of obligations in the Account with the assets of the Account.

Trading and Limited Disbursement Authority

Trading and Limited Disbursement Authority grants Agent all of the capabilities of Trading Authority as well as the authority to remove money or assets from the Account, provided they are delivered to you at the address of record for the Account, transferred to another TIAA Brokerage account held by the same Account owner(s) or transferred to a bank account pre-authorized by the Account owner(s). If the Account is an Individual Retirement Account, any such disbursements made to you may constitute a taxable distribution.

Check Writing Authority

Check writing authority provides Agent with unlimited authority to write checks against the Account. This includes the ability of the Agent to write checks to himself/herself and to third parties.





PART III OF IV — POWER OF ATTORNEY AGREEMENT

Duplicate Copies

If you have checked the boxes in Step 2 with respect to duplicate Account statements and/or confirmations, you authorize TIAA Brokerage to mail duplicate copies of Account statements and/or confirmations to Agent. If Agent is associated with a securities firm of the Financial Industry Regulatory Authority (“FINRA”), TIAA Brokerage is authorized to deliver information concerning the brokerage account identified in Step 1 of this form (the “Account”), including duplicate Account statements and confirmations, to such firm upon request.

Indemnification

You hereby ratify and confirm any and all transactions, trades or dealings effected in or for the Account by Agent. You agree to indemnify and hold harmless TIAA Brokerage, its affiliates and their directors, trustees, officers, employees and agents (collectively, for purposes of this indemnity provision, “TIAA Brokerage”) from and against all claims, actions, judgments, settlement amounts, costs and liabilities, including attorneys’ fees, arising out of or relating to their reliance on the POA Form and this Agreement; TIAA Brokerage’s execution of Agent’s instructions; and; TIAA Brokerage’s execution of disbursement instruction received from Agent pursuant to the authorizations granted by you in the POA Form. You further agree to indemnify and hold TIAA Brokerage harmless from, and to pay TIAA Brokerage promptly upon demand for, any and all losses or financial obligations which may arise from the acts or omissions of Agent with respect to the Account.

AGENT TERMS AND CONDITIONS:

By signing the POA Form, Agent acknowledges that he/she has received and read this Agreement and that he/she understands and agrees to its terms.

Agent agrees to act on the Account only as specifically authorized by the Account owner(s) and in compliance with all applicable laws, regulations and TIAA Brokerage policies. Agent is solely responsible to the Account owner(s) for all investment decisions, trading strategies, and instructions and orders placed on the Account.

Agent must notify TIAA Brokerage immediately in writing upon the mental disability, incompetence, incapacity or death of the Account owner(s).

Agent authorizes TIAA Brokerage to obtain credit information, verify information Agent has provided and/or perform a background check on Agent.

TIAA Brokerage may reject or remove Agent as authorized Agent for the Account at any time and for any reason TIAA Brokerage believes, in TIAA Brokerage’s sole discretion, provides sufficient cause for such rejection or removal.

Agent agrees to indemnify and hold harmless TIAA Brokerage, its affiliates and their directors, trustees, officers, employees and agents from and against all claims, actions, judgments, settlement amounts, costs and liabilities, including attorneys’ fees, arising out of or related to any breach by Agent of any provision of this Agreement, the performance or non-performance of the Agent’s services and any dispute involving Agent and the Account owner(s).





PART III OF IV — POWER OF ATTORNEY AGREEMENT

ACCOUNT OWNER AND AGENT ADDITIONAL TERMS AND CONDITIONS.

The authorities granted by the Account owner(s) to Agent through the POA Form will remain in effect until any of the following occur: (1) TIAA Brokerage receives written notice signed by any Account owner(s) withdrawing such authorities; (2) TIAA Brokerage receives written notice of resignation from Agent; (3) TIAA Brokerage receives notice of the death, incompetency, incapacity or mental disability of the Account owner(s) or Agent; or (4) TIAA Brokerage becomes aware of circumstances which it believes, in its sole judgment, provide sufficient cause to remove the Agent.

This Agreement adds to, and does not replace, any of the terms and conditions of the TIAA Brokerage Customer Agreement and any other agreement between the Account owner(s) and TIAA Brokerage. If any of the terms of this Agreement should conflict with those of any other agreements that apply to the Account, as they are amended from time to time, the terms of this Agreement will control with respect to the issues relevant to this Agreement.

TIAA Brokerage may amend or terminate this Agreement at any time and for any reason without notice to Account holder(s) or Agent. Excepting any such changes by TIAA Brokerage, no provision of this Agreement can be amended or waived except in writing by an authorized representative of TIAA Brokerage.

TIAA Brokerage may transfer its interests in this Agreement to any of its successors and assigns, whether by merger, consolidation, or otherwise. Account owner(s) and Agent may not transfer their interests without TIAA Brokerage's written consent. This Agreement is binding and will inure to the benefit of each party's successors, heirs, legal representatives and permitted assigns.

The laws of the state of New York (but not the conflicts of law doctrines) shall govern this Agreement and its enforcement.



PART IV OF IV — STATE OF NEW YORK DISCLOSURE
(APPLICABLE IF THIS POA FORM IS EXECUTED IN NEW YORK)

If the Account owner(s) execute this POA Form in the State of New York, the following disclosures are required to be provided to the Account owner(s) and Agent under Article 5, Title 15 of the New York General Obligations Law.

CAUTION TO THE PRINCIPAL: Your Power of Attorney is an important document. As the “principal,” you give the person whom you choose (your “agent”) authority to spend your money and sell or dispose of your property during your lifetime without telling you. You do not lose your authority to act even though you have given your agent similar authority.

- When your agent exercises this authority, he or she must act according to any instructions you have provided or, where there are no specific instructions, in your best interest. “Important Information for the Agent” at the end of this document describes your agent’s responsibilities.
- Your agent can act on your behalf only after signing the Power of Attorney before a notary public.
- You can request information from your agent at any time. If you are revoking a prior Power of Attorney by executing this Power of Attorney, you should provide written notice of the revocation to your prior agent(s) and to the financial institutions where your accounts are located.
- You can revoke or terminate your Power of Attorney at any time for any reason as long as you are of sound mind. If you are no longer of sound mind, a court can remove an agent for acting improperly.
- Your agent cannot make healthcare decisions for you. You may execute a “Health Care Proxy” to do this.
- The law governing Powers of Attorney is contained in the New York General Obligations Law, Article 5, Title 15. This law is available at a law library, or online through the New York State Senate or Assembly websites, www.senate.state.ny.us or www.assembly.state.ny.us.
- If there is anything about this document that you do not understand, you should ask a lawyer of your own choosing to explain it to you.

IMPORTANT INFORMATION FOR THE AGENT:

When you accept the authority granted under this Power of Attorney, a special legal relationship is created between you and the principal. This relationship imposes on you legal responsibilities that continue until you resign or the Power of Attorney is terminated or revoked. You must:

- (1) act according to any instructions from the principal, or, where there are no instructions, in the principal’s best interest;
- (2) avoid conflicts that would impair your ability to act in the principal’s best interest;
- (3) keep the principal’s property separate and distinct from any assets you own or control, unless otherwise permitted by law;
- (4) keep a record of all receipts, payments, and transactions conducted for the principal; and
- (5) disclose your identity as an agent whenever you act for the principal by writing or printing the principal’s name and signing your own name as “agent” in either of the following manner: (Principal’s Name) by (Your Signature) as Agent, or (your signature) as Agent for (Principal’s Name).

You may not use the principal’s assets to benefit yourself or give major gifts to yourself or anyone else unless the principal has specifically granted you that authority in this Power of Attorney or in a Statutory Major Gifts Rider. If you have that authority, you must act according to any instructions of the principal or, where there are no such instructions, in the principal’s best interest. You may resign by giving written notice to the principal and to any co-agent, successor agent, monitor if one has been named in this document, or the principal’s guardian if one has been appointed. If there is anything about this document or your responsibilities that you do not understand, you should seek legal advice.

Liability of Agent:

The meaning of the authority given to you is defined in New York’s General Obligations Law, Article 5, Title 15. If it is found that you have violated the law or acted outside the authority granted to you in the Power of Attorney, you may be liable under the law for your violation.

