



TIAA BROKERAGE SERVICES AUTOMATED CLEARING HOUSE (ACH) AUTHORIZATION AGREEMENT

TIAA-CREF Individual & Institutional Services, LLC ("TIAA Brokerage") offers the Automated Clearing House Service ("ACH Service"), which allows you to electronically transfer funds between your TIAA Brokerage Services Account(s) ("TIAA Brokerage Account") and the third-party financial institution account designated by you (the "Third-Party Account") using the Automated Clearing House Service Authorization. These electronic funds transfers, when related to a TIAA Brokerage Account that is owned by a natural person and used strictly for personal, family or household purposes, are subject to the Electronic Funds Transfer Act of 1978. This Automated Clearing House Agreement ("Disclosure and Agreement") governs the ACH Services involving your TIAA Brokerage Account. The terms and conditions of your TIAA Brokerage Account, including all charges, rules, regulations, agreements and policies governing your TIAA Brokerage Account, and the agreements and terms of use governing your use of the TIAA Brokerage website are hereby incorporated in this Disclosure and Agreement by reference. For purposes of this Disclosure and Agreement, the words "you" and "your" refer to each owner of the applicable TIAA Brokerage Account.

General Terms and Conditions

The ACH Services are performed by TIAA Brokerage in accordance with the rules of the National Automated Clearing House Association ("NACHA") as such rules are amended from time to time. The ACH Service includes the transmission of electronic credit and/or debit entries initiated by you and processed through us from your TIAA Brokerage Account(s). This service is established solely for your convenience. You understand and agree that this service may be amended, changed, modified or terminated at any time without prior notice by either TIAA Brokerage or our clearing firm, Pershing LLC ("Pershing"). Your continued use of the ACH Service constitutes your acceptance of any such amendment, change or modification, as the case may be. You also acknowledge and agree that this authorization will continue until terminated by any owner of the TIAA Brokerage Account(s) by either deleting such authorization online or by written notification to TIAA Brokerage or Pershing. Termination will be effective as soon as TIAA Brokerage or Pershing has had reasonable time to act after receipt of such notification. You acknowledge that you are authorized to enter into this ACH Agreement and to electronically transfer funds between your TIAA Brokerage Account(s) and your Third-Party Account, whether such Third-Party Account is owned individually or jointly.

Fees and Costs

TIAA Brokerage may charge a fee in accordance with our fee schedule, as amended from time to time, for providing the ACH Service and/or for each ACH transfer. TIAA Brokerage may also charge a fee should any ACH transfer be rejected by the transferring Third-Party Institution for any reason, including but not limited to, a closed account or an account with insufficient funds at the Third-Party Institution.

Indemnification

You agree to indemnify, defend and hold harmless TIAA Brokerage, Pershing and each of their respective affiliates, employees, officers, directors, agents and representatives from and against all third-party claims, demands, proceedings, suits, actions, liabilities, penalties, fines, expenses and reasonable attorneys' fees and costs (including fees and costs incurred in enforcing TIAA Brokerage' or Pershing's right to indemnification) (collectively "Claims") in connection with or arising out of the ACH Services and ACH transfer described herein. For purposes of this Section, "third party" shall include any joint account holder of your account at a Third-Party Institution. In no event shall TIAA Brokerage, Pershing or each of their respective affiliates, employees, officers, directors, agents and representatives be liable for consequential damages. All terms shall be binding upon your heirs, representative and assigns. You agree to release TIAA Brokerage, Pershing and their respective affiliates, employees, officers, directors, agents and representatives in the event that TIAA Brokerage or Pershing makes an error which underpays or overpays your account. You authorize TIAA Brokerage or Pershing to debit or credit your account(s),

as necessary, to correct any error in accordance with TIAA Brokerage's procedures for such error correction, as may be amended from time to time. You acknowledge that neither TIAA Brokerage nor Pershing is responsible for the verification or success of any ACH transaction request or the receipt or rejection of funds from any Third-Party Institution.

Consent to Electronic Delivery of Information

You acknowledge and consent to receiving electronically all information relating to the ACH Service, including without limitation, the status of any bank setup, deposits and withdrawals requests, and any other information related to your requested transaction(s). You understand and acknowledge that accessing documents electronically may involve additional costs that are not associated with receiving paper versions, including but not limited to Internet subscription access fees from your Internet service provider and printing costs.

Restrictions on ACH Services

Not all account types are eligible for the ACH Service, and not all Third-Party Institutions accept ACH transaction requests. TIAA Brokerage Services reserves the right to limit the amount of funds that can be deposited to or withdrawn from your account(s) and can change these limits at any time without notification. Funds cannot be drawn from certain Third-Party Accounts, such as a business account (even if like-titled accounts). The amount withdrawn from your TIAA Brokerage Account cannot exceed the cash available for withdrawal in your account. You may withdraw funds prior to settlement in a margin account; however, funds withdrawn before the settlement date will incur additional fees and/or interest charges. Funds cannot be withdrawn prior to settlement in a cash account. The withdrawal amount cannot reduce your margin account equity below required minimum equity levels. If the account is in a margin call, a withdrawal is subject to rejection. TIAA Brokerage may restrict, limit, or remove access to ACH requests at any time without notification.

Acknowledgment and Consent

I/We consent to the terms and conditions of this Agreement. I/We acknowledge that each TIAA Brokerage Account Owner has the authority to (1) establish the ACH Service with the designated third-party financial institution, and (2) authorize each ACH transfer, including any Third Party Account held jointly with an individual that is not a TIAA Brokerage Account Owner (3) TIAA and Pershing may rely upon these representations.

I/We authorize Pershing, LLC to establish on my behalf the bank named in this request as an authorized bank profile for the purpose of making electronic transfers into or withdrawals from my account at TIAA Brokerage Services. These transfers may include one-time or recurring instructions. These instructions will remain in full force and effect until TIAA Brokerage Services has received prompt written or online notification from me (or either of us) of its termination in such time and manner as to afford TIAA Brokerage Services, Pershing LLC, and the above-named bank, a reasonable time to act upon it. In consideration of accepting one or more accounts and in consideration of accepting these instructions, I hereby acknowledge that I have read and understand and agree to the terms set forth in this Agreement I agree to indemnify and hold harmless TIAA Brokerage Services, Pershing LLC and their affiliates for any loss, damage or claim arising from these instructions.