

Changes to the TIAA Brokerage Customer Account Agreement (Retail)

- **Effective March 21, 2022**, TIAA Brokerage will be making changes to the Customer Account Agreement (CAA), which governs Retail brokerage accounts.
- In this document you will find the current CAA for Retail brokerage and the updated version (starting on page 25), which will become effective March 21, 2022.
- Please review the March 2022 CAA in its entirety for all changes related to the agreement. We have summarized the revisions below and provided page reference for your convenience.
- If you have any questions, please contact TIAA online or by calling 800-842-2252, weekdays, 8 a.m. to 7 p.m. (ET).

CAA revision	Location in the March 2022 CAA
Change of TIAA Brokerage phone number to 800-842-2252	Throughout
Clarification of available mutual fund share classes	Paragraph 14, page 28
Disclosure of Financial Transaction Tax (FTT) Ordinary and ADR for Spanish securities	Section IV, page 42
Disclosure of pass through fees for foreign security transactions and foreign accounts (non-US)	Section IV, page 44
Disclosure of tax return filing and processing fee for Unrelated Business Taxable Income (UBTI)	Section IV, page 44
Update of the Foreign Currency Deposit Fee “Free Credit Balance Interest Charge”	Section IV, page 44
Updates to the Margin and Options Agreements Updates to the Cash Solutions Account Terms & Conditions	Agreement provided separately at TIAA.org/Brokerage_CAA within the Agreements & Disclosures section

TIAA BROKERAGE

Addendum to the TIAA Brokerage Customer Account Agreement (Retail)

Effective October 27, 2021, addendum information is as follows:

Paragraph 14 on page 3 of the Customer Account Agreement (Retail) now reads as follows:

- 14.** Unless otherwise specified in writing in connection with an advisory program, you acknowledge that you may be charged a commission on applicable transactions and other account-related fees including, but not limited to, service fees and Cash Solutions Account fees in accordance with the standard TIAA Commission and Fee Schedule, as in effect from time to time. TIAA receives remuneration in connection with the mutual funds that you invest in, including, but not limited to, money market funds and exchange traded funds, including 12b-1 fees and other compensation from Pershing, or a mutual fund's distributor, transfer agent or investment adviser for marketing, shareholder services and/or distribution services. Additionally, Teachers Advisors, Inc., the investment adviser to TIAA-CREF Funds, and the advisory entities of TIAA's wholly owned subsidiary, Nuveen Fund Advisors, LLC, the investment adviser to the Nuveen Funds, receive fees from the mutual funds for investment advisory and/or fund administration services. See the respective mutual funds' prospectus or statement of additional information for mutual fund payment information. With certain exceptions, TIAA limits the mutual funds available for purchase through your account to mutual funds, or share classes of a mutual fund, that include a minimum level of compensation to TIAA. In some cases, TIAA makes available for purchase multiple share classes of mutual funds, including multiple share classes of the Nuveen Funds and TIAA-CREF Funds. However, not all share classes of all mutual funds may be available for purchase, including in some cases, the lowest cost share classes of mutual funds. Mutual fund purchases are subject to the initial and subsequent minimum investment amounts as set forth in the mutual funds' prospectuses. You may also be able to purchase other share classes of the mutual funds from the mutual funds directly or through other providers. The mutual funds available through the Platform, including available share classes of particular mutual funds, may change over time at TIAA's discretion. The fees charged with respect to any mutual fund classes that are now or in the future are made available through the Platform may also change over time at TIAA's discretion or by the mutual fund itself. For more information on how TIAA gets paid for its products and services, please refer to our "Regulation Best Interest-Form CRS" located at the bottom of the home page of our website at https://www.tiaa.org/public/pdf/support/regbi/TIAA_FormCRS.pdf.

TIAA Brokerage, a division of TIAA-CREF Individual & Institutional Services, LLC, reserves the right to change this fee and commission schedule at its discretion, subject to notification in accordance with applicable laws and regulations.

TIAA Brokerage, a division of TIAA-CREF Individual & Institutional Services, LLC, Member FINRA and SIPC, distributes securities. Brokerage accounts are carried by Pershing, LLC, a subsidiary of The Bank of New York Mellon Corporation, Member FINRA, NYSE, SIPC.

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TIAA Brokerage Customer Account Agreement (Retail)

Effective February 2021



TIAA Brokerage Customer Account Agreement (Retail)

Brokerage accounts are provided by TIAA Brokerage, a division of TIAA-CREF Individual & Institutional Services, LLC, Member FINRA and SIPC, and are carried by Pershing LLC ("Pershing"), Member FINRA, NYSE, SIPC, a subsidiary of The Bank of New York Mellon Corporation.

I. General terms and conditions

By signing the TIAA Brokerage Services Account Application ("Account Application"), you agree to be bound by the following terms and conditions, as well as the terms and conditions set forth in Sections II to VII of this Agreement (collectively, with the Account Application, this "Agreement" or "agreement").

If you are signing this Agreement in connection with a managed account advisory program with Advice & Planning Services, LLC ("APS"), a division of TIAA-CREF Individual & Institutional Services, LLC, you will not be bound by certain sections and provisions of this agreement while enrolled in the program, including Margin Agreements, Options Contracts and Commission and Transaction Fees (related to trading directed by APS). For certain services that you request in connection with your managed account, you will be charged the applicable account maintenance fee in accordance with the Commission and Fee Schedule at the end of this Agreement. See your managed account advisory program's disclosure brochure and advisory agreement for more information about your managed account and the associated fees. If your management is terminated in accordance with your managed account advisory program's advisory agreement, and your assets are transferred to a brokerage account with TIAA Brokerage Services (TBS), you will be bound by all the terms and conditions of this Agreement.

1. "You," "your" or "Account holder" refers to all of the individual(s) who sign the Account Application for individual and joint Accounts and refers to the corporation, limited liability company, partnership, trust or other legal entity for corporate, limited liability company, partnership, trust or other legal entity Accounts.
2. "TIAA" refers to TIAA Brokerage, a division of TIAA-CREF Individual & Institutional Services, LLC. "Custodian" refers to the Custodian or trustee, as applicable, of your Account. "Account" or "Accounts" refers to the cash or margin account opened in your name with custody at Pershing.
3. If there is more than one Account holder, each joint Account holder's obligations under this Agreement shall be joint and several (i.e., are the responsibility of each Account owner, both individually and jointly). Each joint Account holder has authority, acting individually and without notice to any other Account holder, to deal with TIAA as fully and completely as if the joint Account holder is the sole Account holder.
4. TIAA is authorized, but not obligated, to follow the instructions of any joint Account holder and to deliver funds, securities or other assets to any joint Account holder. TIAA is not responsible for determining the purpose or propriety of any instruction received from a joint Account holder or for the disposition of payments or deliveries among joint Account holders.
5. Any notice TIAA sends to one joint Account holder will be deemed notice to all joint Account holders. Any debts of a joint Account may be offset against any Accounts held individually by a joint Account holder.

TIAA Brokerage Customer Account Agreement (Retail)

6. You represent that the information you have provided on your Account Application is accurate. You will notify TIAA of any change to the information provided on your Account Application within 30 days of such change.
7. You will promptly notify TIAA within 10 days if you become a director, 10% beneficial shareholder or an affiliate of a publicly traded company, or if you become a member firm or an employee of any securities exchange, or a self-regulatory organization or a corporation of which security exchange owns a majority of the capital stock.
8. You are responsible for determining the suitability of your Account transactions in light of your stated investment objectives and financial situation. TIAA has no responsibility for any such determination unless TIAA has otherwise specifically agreed in writing in connection with an advisory program or a TIAA representative has given advice directly to you that is clearly identified as a TIAA recommendation for you to buy, sell or hold a particular security or securities, or use a particular investment strategy, for your Account.
9. If TIAA makes such a recommendation, TIAA believes it is suitable for you at the time of the recommendation. TIAA has no ongoing duty to ensure the recommendation continues to be suitable for you. You have an affirmative duty to monitor for profits and losses in your Account and to modify your trading decisions accordingly. Furthermore, unless TIAA has otherwise specifically agreed in writing in connection with an advisory program, you acknowledge that: (a) TIAA does not have discretionary authority over your Account or an obligation to review or make recommendations for the investment of securities or cash in your Account; (b) you will rely on multiple sources of information in making investment decisions for your Account; (c) any information TIAA may provide will not serve as the primary basis for any investment decision you make or made on your behalf; and (d) TIAA does not provide investment advice or otherwise act as a “fiduciary” as that term is defined in the Employee Retirement Income Security Act of 1974, as amended, or Section 4975 of the Internal Revenue Code.
10. You acknowledge that TIAA offers many different Account types and you are responsible for selecting the type most appropriate for your needs. TIAA provides no subaccounting recordkeeping services or similar support for Accounts beneficially held by more than one owner.
11. TIAA may provide you with market data or research relating to securities and securities markets but does not guarantee the accuracy, completeness or timeliness of such information. Such market data or research is not personalized or in any way tailored to your personal financial circumstances or investment objectives, unless TIAA has otherwise specifically agreed in writing in connection with an advisory program.
12. You understand that none of TIAA, Pershing and Custodian provide legal, tax or accounting advice and none of their employees are authorized to give any legal, tax or accounting advice, and you will not solicit or rely upon any such advice from TIAA, Pershing or the Custodian or their employees, whether in connection with transactions in or for your Account or otherwise.
13. **You acknowledge this Agreement contains a predispute arbitration clause. By signing an arbitration agreement, the parties agree as follows:**
 1. All parties to this 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.
 2. Arbitration awards are generally final and binding; a party’s ability to have a court reverse or modify an arbitration award is very limited.
 3. The ability of the parties to obtain documents, witness statements and other discovery is generally more limited in arbitration than in court proceedings.
 4. 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.

5. The panel of arbitrators may include a minority of arbitrators who were or are affiliated with the securities industry.
6. 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.
7. The rules of the arbitration forum in which the claim is filed, and any amendments thereto, shall be incorporated into this Agreement.

ANY CONTROVERSY THAT SHALL ARISE BETWEEN THE ACCOUNT HOLDER AND TIAA, TIAA's AFFILIATES, PERSHING AND/OR THE CUSTODIAN (INCLUDING, BUT NOT LIMITED TO, CONTROVERSIES CONCERNING ANY ACCOUNT, ORDER OR TRANSACTION, OR THE CONTINUATION, PERFORMANCE OR BREACH OF THIS OR ANY OTHER AGREEMENT BETWEEN THE ACCOUNT HOLDER AND TIAA, TIAA's AFFILIATES, PERSHING AND/OR THE CUSTODIAN, WHETHER ENTERED INTO OR ARISING BEFORE, ON OR AFTER THIS ACCOUNT IS OPENED) SHALL BE SUBMITTED TO ARBITRATION BEFORE AND ONLY BEFORE THE FINANCIAL INDUSTRY REGULATORY AUTHORITY. 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 INDICATING THE ARBITRATION TRIBUNAL. NO PERSON SHALL BRING 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 THIS AGREEMENT EXCEPT TO THE EXTENT STATED HEREIN. ANY ARBITRATION AWARD SHALL BE FINAL AND BINDING, AND ANY COURT HAVING JURISDICTION MAY ENTER JUDGMENT THEREON.

14. Unless otherwise specified in writing in connection with an advisory program, you acknowledge that you will be charged a commission on all transactions and other Account-related fees including, but not limited to, service fees and Cash Solutions Account fees in accordance with the standard TIAA Commission and Fee Schedule, as in effect from time to time. TIAA receives remuneration in connection with the mutual funds that you invest in, including, but not limited to, money market funds and exchange traded funds, including 12b-1 fees and other compensation from Pershing, or a mutual fund's distributor, transfer agent or investment adviser for marketing, shareholder services and/or distribution services. Additionally, Teachers Advisors, Inc., the investment adviser to the TIAA Funds, and the advisory entities of TIAA's wholly owned subsidiary, Nuveen Fund Advisors, LLC, the investment adviser to the Nuveen Funds, receive fees from the funds for investment advisory and/or fund administration services. See the respective fund's prospectus or statement of additional information for fund payment information. TIAA generally limits the funds available for purchase through your Account to funds, or share classes of a fund, that include a minimum level of compensation to TIAA. You may be able to purchase other share classes of the funds from the funds directly or through other providers. The funds available through the Platform, including available share classes of particular funds, may change over time at TIAA's discretion. The fees charged with respect to any fund classes that are now or in the future are made available through the Platform may also change over time at TIAA's discretion or by the fund itself. For more information on how TIAA gets paid for its products and services, please refer to our brochure titled "Getting to know TIAA's individual financial solutions and its financial professionals" located at the bottom of the home page of our secure website at <https://www.tiaa.org/public/pdf/GettingtoknowTIAA.pdf>.
15. TIAA may suspend or terminate your Account at any time, for any reason and without prior notice to you. If you do not fund your Account within 30 days of Account opening or your account remains unfunded and inactive (no statement is generated) during any three-month consecutive period, TIAA reserves the right to close your Account without prior notice to you. Once your account is closed, for any reason, TIAA Brokerage reserves the right to reject any new account application submitted by you or on your behalf. In addition, if you maintain a small balance in your Account

TIAA Brokerage Customer Account Agreement (Retail)

(for example, \$100 or less), during any three-month consecutive period, TIAA reserves the right to close your Account without prior notice to you. A check will be mailed to you after your account is closed. You shall have 30 days from receiving notice of termination of your Account to transfer all holdings from within your Account to another broker/dealer of your choosing. Should you fail to complete this transfer within 30 days, TIAA may liquidate all holdings within your Account and mail you a check for any proceeds. This may result in a taxable event. In the event your Account is liquidated, you agree to be liable for any resulting losses and costs incurred by TIAA. You may close your Account at any time by giving TIAA notice.

16. You acknowledge that, at the time you place a trade, you are solely responsible for ensuring that you have sufficient funds in your Account to cover your purchase. You also acknowledge that TIAA may review, reject, cancel or modify any securities transactions that you have entered at any time, for any reason and without prior notice to you.
17. You acknowledge that you will pay in full for securities you purchase by the settlement date. For transactions not paid for by the settlement date, TIAA shall have the right, without notice to you, to sell the securities purchased.
18. You authorize TIAA to accept your oral or electronic instructions for the purchase and sale of securities. You acknowledge that such instructions must be placed through designated TIAA channels. TIAA will not accept orders or instructions sent via electronic or postal mail (including, but not limited to, U.S. mail or overnight delivery).
19. When you change any instruction on a limit order, you are responsible for any open order, and any actions by you that modify or impact an open order. If you fail to do so, you understand that you will be responsible for any loss, including applicable commission charges. You are responsible for knowing the status of your pending orders, and any duplication by you of a pending order will be considered authorized by you. You understand and acknowledge that all Good Till Canceled (GTC) orders entered will expire in 90 days.
20. You acknowledge that to deter frequent trading within mutual funds, a short-term redemption fee may be assessed against any transaction that results in mutual fund shares being held for less than six months. This fee is in addition to any short-term redemption fee or restriction the underlying mutual fund may independently assess against the same transaction. Each of TIAA, Pershing and/or Custodian reserves the right to restrict access to the purchase of mutual fund shares within any account deemed at their sole discretion to engage in excessive or abusive short-term trading patterns. Additionally, in the event Pershing or Custodian, as the case may be, is instructed by the issuer of a mutual fund to restrict your access to such mutual fund's shares, such a restriction may remain in place until Pershing or Custodian receives notice from the issuer to remove the restriction.
21. You agree that TIAA, Pershing and or Custodian may place trading, disbursement or other restrictions on your account as deemed necessary, including but not limited to, the following circumstances: pursuant to a court order, tax levy, or garnishment; at the request of a government agency or law enforcement authority; in the event that your account is restricted (including, but not limited to, trading or trade-related violations, or termination of custodianship at the age of termination); or in the event of a dispute between joint tenants. You agree to abide by any such restriction and not to initiate trades or transactions which would violate the restriction. You agree to allow us to liquidate securities in your account to satisfy any court order, garnishment, tax levy, or other legal obligation imposed by a court or government agency. You agree not to hold TIAA, Pershing or Custodian liable for any trading losses, lost profits, tax obligation, or other damages resulting from liquidations or trading or disbursement restrictions imposed on your account in connection with a court order, tax levy, garnishment or other legal proceeding.
22. You understand that "penny stocks" (generally defined as any equity security priced below \$5 a share) are generally considered high-risk investments and should be purchased purely for speculation. You acknowledge that any order you place for penny stocks was not solicited by TIAA and was solely your decision.
23. If at any time you shall enter into any transaction for the purchase or resale of an option contract, you hereby agree to abide by the rules of any national securities association, registered securities exchange or clearing organization applicable to the trading of option contracts and, acting alone or in concert, will not violate the position or exercise limitation rules of any such association or exchange or of the Options Clearing Corporation or other clearing organization.

TIAA Brokerage Customer Account Agreement (Retail)

24. Exercise assignment notices for options contracts are allocated among short positions pursuant to a procedure that randomly selects from all short options positions, including positions established on the day of the assignment, those contracts that are subject to exercise. A more detailed description of this random allocation procedure is available on request. All short options positions are liable for assignment at any time.
25. Some account types may permit trading in a limited range of securities (e.g., mutual funds) and you acknowledge that you must follow TIAA procedures to obtain expanded trading privileges for such accounts. TIAA, Pershing and/or Custodian, in their sole discretion, may eliminate or restrict your ability to purchase particular securities, investments or other property due to volatility or other factors.
26. You acknowledge that TIAA will send all communications to you at the mailing address you provided on your Account Application, or at such other address, as you may subsequently provide to TIAA in writing, and that all communications so sent in writing shall be deemed delivered, whether actually received or not.
27. You acknowledge that federal law requires that TIAA verify your identity by obtaining, among other information, your name, date of birth, address and government-issued identification number before opening your Account. This information is necessary to help the government fight the funding of terrorism and money laundering activities. TIAA may gather and verify this information with respect to any other person authorized to effect transactions in your Account. For certain entities, such as trusts, estates, corporations, partnerships or other organizations, TIAA may require additional identifying documentation. TIAA may restrict and/or close your Account if TIAA cannot verify this information. TIAA will not be responsible for any loss, costs and/or expenses resulting from your failure to provide this information, or from any related restriction or closing of your Account.
28. You authorize us to exchange credit information about you and your Account with others. As required by law, you are notified that any negative credit report reflecting on your credit record may be submitted to a credit reporting agency if you fail to fulfill the terms of your credit obligations. We may request a credit report on you, and upon request, we will state the name and address of the consumer reporting agency that furnished it. If we extend, update, review or renew your credit, we may request a new credit report without notifying you.
29. You acknowledge that any person acting as a trustee, Custodian or fiduciary for your Account is liable for all activity within the Account. TIAA will not review any action or inaction taken by a trustee, Custodian or fiduciary with respect to your Account. You agree to indemnify and hold harmless TIAA, its directors, employees, agents, affiliates and assigns from and against any and all losses, claims or financial obligations (including reasonable attorney's fees) that may arise from any act or omission it may suffer from the activity of any trustee, Custodian or fiduciary you appoint with respect to your Account.
30. You acknowledge that where you provide TIAA with written notice that an unaffiliated third-party advisor has discretionary authority over your Account, TIAA and its affiliates bear no liability or responsibility for any action taken by the third-party advisor. TIAA may rely and act upon any direction given by the third-party advisor, unless and until TIAA receives written notice from you revoking the third-party advisor's discretionary authority. You are responsible for confirming that such written revocation has been received and processed. You agree to indemnify and hold harmless TIAA, its directors, employees, agents, affiliates and assigns from and against any and all losses, claims or financial obligations (including reasonable attorney's fees) it may suffer from the activity of any unaffiliated third-party advisor you appoint with respect to your Account.
31. You understand that the Internal Revenue Service ("IRS") generally requires TIAA to report annually, on Form 1099-B (the "1099-B Annual Information Report"), any gross proceeds you receive from the sale of securities, your "cost basis" for securities sold, whether any gain or loss on a security is long term or short term, and whether any reported loss is disallowed due to the application of wash sale rules.
32. In order to calculate the gain or loss on the sale of a covered security, a tax lot relief method (also called a cost accounting method) must be selected. A tax lot relief method is a way of computing the realized gain or loss for an asset sold in a taxable transaction. It determines which lot of a security, as well as its associated cost basis

and the holding period, is used in computing the gain or loss. TIAA's default tax lot relief method is First In, First Out ("FIFO"). You should consult with your personal tax advisor or financial planner to determine your specific reporting requirements and which tax lot relief method makes sense for you. To make a change to TIAA's default method, you must select a different method by submitting your request in writing to TIAA. All cost basis identification methods, including specific lot selection, must be made prior to the settlement date of your transaction. TIAA and its affiliates shall have no liability for any damages you may incur as a result of (i) TIAA providing the required 1099-B Annual Information Report to the IRS, or (ii) any differences in the cost basis reported by TIAA to the IRS and your actual adjusted cost basis.

33. TIAA, Pershing and/or Custodian may charge certain fees, including an annual fee, to your Account for the financial services provided to you under this Agreement. Your Account may also incur service charges based upon Account activity, items returned unpaid, stop-payment orders, garnishments, levies, copies or images of cancelled checks or for other Account services related to your Account. The fees and charges are set forth in the Commission and Fee Schedule at the end of this Agreement, and they are subject to change with notice or advance notice provided to you only if required by applicable law.

You agree to repay TIAA, Pershing and/or Custodian all of their respective expenses, including attorneys' fees and legal expenses, to collect money you owe to Pershing, Custodian, Administrator, Bank, Check Free and/or TIAA because of your Account or for any dispute relating to your Account.

34. All of your securities and other property in any Account (margin or cash) in which you have an interest or which at any time are in your possession or under your control other than retirement Accounts, such as IRAs, shall be subject to a lien for the discharge of any and all indebtedness or any other obligations you may have to TIAA. Securities and other property held in retirement accounts, such as IRAs, are not subject to this lien, and are not used as security for the payment of your obligations or indebtedness for other Accounts (cash or margin) that you maintain with TIAA. In enforcing the lien, TIAA may, at its sole discretion, determine which securities and other property held in your Account are to be sold or which contracts are to be closed, except where prohibited by law.
35. TIAA may also transfer securities or other property from any of your Accounts, whether individual or joint, to any of your other Accounts in order to satisfy deficiencies in any of your Accounts, except where prohibited by law. You grant TIAA the right of set-off in satisfaction of any debt in your Account, except where prohibited by law. You agree to pay any costs or expenses incurred by TIAA, including reasonable attorney's fees, that result from your failure to properly settle any securities transactions or pay any debt, or otherwise satisfy your obligations under this Agreement. You acknowledge that your Account may be subject to interest on any debit balances resulting from your failure to make payment in full for securities purchased from proceeds of sales paid prior to settlement date, or for other charges that may be made to the Accounts.
36. You acknowledge that TIAA may, at its discretion, allow certain holdings and/or positions not held in custody by Pershing to be reflected on your Account brokerage statement. Where TIAA permits this, TIAA reports these held-away holdings and/or positions based solely upon information provided by a third party. TIAA is not responsible for the accuracy of any information regarding held-away holdings and/or positions, and does not verify or use a third party to verify the accuracy of such holdings and/or positions. In connection with annuities sold to you through TIAA or TIAA Insurance Agency that are reflected on your Account brokerage statement but not held in custody by Pershing, TIAA and TIAA Insurance Agency receive remuneration from issuers of the annuities, including commissions.
37. Your Account includes a Sweep Program feature which automatically transfers available uninvested cash balances in your Account at the end of each Business Day to a money market fund or bank sweep deposit account (each a "Sweep Vehicle" and together the "Sweep Program") and facilitates the redemption of available shares of any such money market funds or the transfer of available cash balances from any such bank sweep deposit accounts to your Account to cover purchases of securities and other debits in your Account. Available Sweep Vehicles vary based on

account type. You direct us to use the Sweep Vehicle indicated on your Account Application as the Sweep Vehicle for your Account and, if you fail to indicate a Sweep Vehicle, you direct us to use the default Sweep Vehicle indicated therein. If your account type includes only one Sweep Vehicle, you acknowledge that the Sweep Vehicle set forth in the Account Application will serve as the sweep option in which all available uninvested cash balances in your Account will be allocated at the end of each Business Day. Different Sweep Vehicles may have different rates of return and different terms and conditions, including, but not limited to, requiring minimum cash balances in your Account before such balances may be swept to a Sweep Vehicle. Money market mutual funds are securities that are registered with the U.S. Securities and Exchange Commission ("SEC") under the Investment Company Act of 1940 and the Securities Act of 1933. Although money market funds attempt to maintain a stable net asset value of \$1 per share, there is no guarantee that the fund will in fact maintain a \$1 per share stable net asset value. Money market funds are not insured by the Federal Deposit Insurance Corporation ("FDIC"). Money market funds are, however, securities subject to protection by the Securities Investor Protection Corporation ("SIPC") in the event of insolvency of Pershing, LLC as the brokerage firm holding your Account and cash or securities owed to you. SIPC is a non-profit member corporation funded primarily by member securities brokerage firms registered with the SEC, which protects customers up to certain limits in the event of the failure of a brokerage firm where cash and securities are owed to customers. See the TIAA Brokerage Services SIPC Asset Protection Guide for more information. SIPC does not protect against loss due to market fluctuation or failure of the issuer of a money market fund. More specific information about a particular money market mutual fund, including applicable fund restrictions, fees and expenses and other important information, can be found in the fund's prospectus. Bank sweep options are deposit accounts held at one or more banks. Deposit accounts pay interest on deposits pursuant to the terms and conditions in the disclosure document for the applicable bank sweep option. Interest rates may fluctuate and may vary among banks. Deposit accounts are not subject to SIPC protection. They are subject to FDIC insurance up to applicable limits. FDIC insurance protects against loss of deposit amounts in the event the bank holding the deposits fails. More specific information about particular bank sweep options, including applicable FDIC insurance limits, interest amounts and other important information can be found in the applicable bank sweep disclosure document. Prospectuses or similar disclosure documents for the Sweep Vehicle option(s) available for your Account are available by calling **800-927-3059**. You agree to review these disclosure documents prior to opening your Account. TIAA may change the terms and conditions of the Sweep Program and the Sweep Vehicle options available for your Account, at its sole discretion. TIAA will provide you with written notice in advance of adding, changing or deleting Sweep Vehicle options for your Account or making other changes to the Sweep Program to the extent required by applicable law. TIAA may receive 12b-1 and similar service fee payments from Sweep Vehicles. Please consult the prospectus or similar disclosure document for each Sweep Vehicle for more information concerning such fees. TIAA, FSB, a TIAA affiliate, holds deposits in connection with the TIAA Bank Brokerage Sweep Vehicle bank sweep option described in Paragraph 38 below and in connection therewith earns net income from the difference TIAA, FSB pays on the deposit accounts and the income it earns on loans, investments and other assets.

- 38.** As set forth in Paragraph 37 above, Sweep Vehicle options vary by account type. The following paragraph applies to account types with a bank deposit option.

The TIAA Bank Brokerage Sweep Account. The following describes your bank sweep option if your Account Application indicates that the Sweep Vehicle for your Account is the TIAA Bank Brokerage Sweep Account; if you have selected the TIAA Bank Brokerage Sweep Account as your Sweep Vehicle; if you have failed to select a Sweep Vehicle on your Account Application and the TIAA Bank Brokerage Sweep Account is the default sweep vehicle for the account; or if TIAA has notified you that TIAA is replacing the existing bank Sweep Vehicle for your Account with the TIAA Bank Brokerage Sweep. The TIAA Bank Brokerage Sweep comprises two separate Sweep Vehicles used in combination: (1) the TIAA Bank Brokerage Sweep Vehicle which automatically sweeps eligible cash balances in an Account up to the Maximum Deposit Amount (defined below) into interest-bearing deposit accounts at TIAA, FSB (a TIAA affiliate);

TIAA Brokerage Customer Account Agreement (Retail)

and (2) the Liquid Insured Deposits (“LIDs”) Sweep Vehicle which is used as an overflow Sweep Vehicle to automatically sweep eligible cash balances in excess of the Maximum Deposit Amount into interest-bearing deposit accounts with participating banks unaffiliated with TIAA (“LIDs banks”). The TIAA Bank Brokerage Sweep Vehicle will serve as the primary bank Sweep Vehicle for eligible cash balances in an Account up to a maximum deposit amount set by TIAA, FSB. The Maximum Deposit Amount for an Account is currently \$248,500 and is subject to change by TIAA, FSB with notice to you. Interest that accumulates in your account may cause your balance to exceed the Maximum Deposit Amount; however, in no event will the balance exceed the then-current FDIC insurance limits for deposit amounts held at a bank in the same right and capacity. The LIDs Sweep Vehicle will be used as an overflow sweep for eligible cash deposits in an Account which exceeds the Maximum Deposit Amount (“Excess Balances”) plus any interest accrued. Only Excess Balances in an Account are eligible to use the LIDs Sweep Vehicle. By way of example, if an Account holds \$300,000 in eligible cash balances, the first \$248,500 will be automatically swept into interest-bearing deposit accounts with TIAA, FSB through the TIAA Bank Brokerage Sweep. The remaining \$51,500 in eligible cash balances will be automatically swept into interest-bearing accounts with participating banks unaffiliated with TIAA through the LIDs Sweep Vehicle. By way of further example, if the Account instead holds \$248,500 or less in eligible cash balances, such eligible cash balances will be automatically swept into interest-bearing deposit accounts with TIAA, FSB through the TIAA Bank Brokerage Sweep. Please review the separate disclosure documents for the TIAA Bank Brokerage Sweep Vehicle and the LIDs Sweep Vehicle carefully.

Other Bank Sweep Options. For some Accounts, TIAA may make the Liquid Insured Deposits Sweep Vehicle on its own (i.e., not in combination with the TIAA Bank Brokerage Sweep Vehicle described above). TIAA may change this option by replacing it with the TIAA Bank Brokerage Account Sweep Vehicle described above or otherwise adding or deleting bank sweep options. TIAA will provide prior written notice to such Account holders as set forth in Paragraph 37 above prior to making any such changes.

It is your sole responsibility to monitor the total balances you have across your accounts with TIAA, FSB and/or the LIDs banks to ensure that your deposit amounts held at any bank in the same right and capacity, directly or indirectly (with the bank or through your account), do not exceed \$250,000, which currently is the maximum amount eligible for FDIC insurance coverage for a single bank. Amounts you hold at any bank, including TIAA, FSB or a LIDs bank, in excess of \$250,000 will not receive FDIC insurance coverage. For example, if you have a deposit account and a certificate of deposit (“CD”) with the same bank, the aggregate dollar amount of the deposit account and the CD including accrued interest in excess of \$250,000 will not be FDIC-insured. A list of participating LIDs banks can be viewed online by going to https://www.pershing.com/_global-assets/pdf/liquid-insured-bank-list.pdf or by contacting TIAA for a written copy. Once you have investment within the LIDS sweep, you may opt out of having funds swept to a participating LIDs bank by contacting us at 800-927-3059 weekdays, 8 a.m. to 7 p.m. (ET); a representative can take such instructions over the phone.

39. You acknowledge TIAA is obligated by federal securities laws to provide your name, address and holdings information to issuers of those securities upon request, unless you instruct TIAA in writing not to do so.
40. For the parties’ mutual protection, you understand, agree and expressly consent to our electronic recordation of any of your telephone conversations with us and to our monitoring of your electronic communications with us, including, but not limited to, email and facsimile transmission.
41. You acknowledge receipt of the TIAA Privacy Notices.
42. Securities which are held for your Account and which are in “street name,” or are being held by a securities depository, are commingled with the same securities being held for other customers of TIAA and for Pershing’s own customers. Your ownership of these securities is reflected in Pershing’s records. You have the right at any time to require delivery to you of any such securities that are fully paid for or are in excess of margin requirements. The terms of many bonds allow the issuer to partially redeem or “call” the issue prior to maturity date. Certain preferred

stocks are also subject to being called by the issuer. Whenever any such security being held by Pershing is partially "called," Pershing will determine through a random selection procedure as prescribed by the New York Stock Exchange rules, the ownership of the securities to be submitted for redemption. In the event that such securities owned by you are selected and redeemed, your Account will be credited with the proceeds. Should you not wish to be subject to this random selection process, you must instruct TIAA to have Pershing deliver your securities to you. Delivery will be effected provided, of course, that your position is unencumbered or had not already been called by the issuer as described, prior to receipt by Pershing of your instructions. The probability of one of your securities being called is the same whether they are held by you or by Pershing for you.

43. You acknowledge that various federal and state laws or regulations may be applicable to transactions in your Account regarding restricted securities, as defined by applicable securities laws and regulations. It is your responsibility to notify TIAA if your Account contains restricted securities and to ensure that any transaction you effect will comply with all applicable laws and regulations. You understand that transactions in restricted securities may take longer to process than transactions involving unrestricted securities. Notwithstanding the foregoing, TIAA may, at its sole discretion, refuse to permit restricted securities within your Account.
44. You acknowledge your responsibility to review your brokerage Account statements for accuracy and to notify TIAA, Pershing and/or Custodian within 30 days of receipt of any error or omission. If you fail to notify TIAA, Pershing and/or Custodian of any error or omission within this time frame, your brokerage Account statement shall be presumed accurate. You acknowledge your responsibility to review all confirmation statements for accuracy and notify TIAA, Pershing and Custodian immediately of any error or omission.

If your periodic customer statement indicates that securities were forwarded to you and you have not received them, you should notify TIAA or Pershing immediately. If notification is received within 120 days after the mailing date, as reflected on your periodic statement, replacement will be made free of charge. Thereafter, a fee for replacement may apply.

45. You acknowledge that if any provision or condition of this Agreement is held invalid or unenforceable for any reason by any court, or regulatory or self-regulatory agency or body, such provision or condition shall be fully severable, and this Agreement shall be enforced and construed as if such provision or condition had never comprised a part of this Agreement.
46. You acknowledge that this Agreement cannot be modified by conduct and/or the failure of TIAA, Pershing and/or Custodian at any time to enforce its rights hereunder to the greatest extent permitted by law, and shall not be deemed to waive, modify or relax any of the rights granted to TIAA, Pershing and/or Custodian herein, including any right to deal with collateral on all loans advanced to you.
47. You acknowledge that this Agreement constitutes the full and entire understanding between the parties with respect to the provisions herein, and that there are no oral or other agreements in conflict herewith. You acknowledge that each of TIAA, Pershing and/or Custodian reserves the right to amend this Agreement, by modifying or rescinding any of its existing provisions or by adding any new provision at any time upon written notice to you on your brokerage Account statement(s), trade confirmation(s), or such other written or electronic notification, including, but not limited to, posting notice of such amendment(s) and/or the amended Agreement on the TIAA Brokerage website. The amended Agreement will be effective as of the date established by TIAA, Pershing and/or Custodian (the "Effective Date"). You agree that any future amendments made to the Agreement shall apply to your Account and to any subsequent Accounts you ask TIAA to establish for you in the future. The use of your Account after the Effective Date of the amendment(s) shall constitute your acknowledgment and agreement to be bound thereby. You are responsible for regularly checking for updates. You understand additional restrictions may apply to the brokerage services provided hereunder and additional documentation may be required by applicable law or TIAA, Pershing and/or Custodian's policies and procedures. You agree to comply with any such restrictions and promptly provide any documents or information requested.

TIAA Brokerage Customer Account Agreement (Retail)

48. This Agreement or any subsequently modified agreement shall cover all aspects of the Account(s) you may open or reopen with Pershing through TIAA, including, but not limited to, Account(s) with brokerage, Check-writing privileges, Card services and associated ACH Transactions and BillSuite Services, and shall inure to the benefit of each of our successors whether by merger, consolidation or otherwise, and assigns, and each of us may transfer your Account to our respective successors and assigns, and this Agreement shall be binding upon your heirs, executors, administrators, successors and assigns.
49. TIAA Brokerage and Pershing, in their capacity as clearing firm, may make the Account communications available in an electronic form instead of mailing them in paper form; according terms and conditions will be stated within the Electronic Delivery Terms and Conditions.
50. You acknowledge that telephone, Internet or any other electronic system, and software provided for use in accessing your Account information, is used at your sole risk and that neither TIAA, its vendors providing data, information or other services, including, but not limited to, any exchange (collectively, "service providers"), warrant that the service will be uninterrupted or error-free and that neither TIAA nor any such service providers will make any warranty as to the results that may be obtained from any of these systems. You further acknowledge that telephone, Internet and other electronic systems are provided on an as-is and as-available basis, without warranties of any kind, either expressed or implied, including, without limitation, those of merchantability and fitness for a particular purpose, other than those warranties which are implied by and incapable of exclusion, restriction or modification under applicable laws and regulations. None of TIAA, any service provider, Pershing or Custodian will be liable in any way to you or any other person for any inaccuracy, error or delay in, or omission of, any data, information or message, or the transmission or delivery of any data, information or message, or any loss or damages arising from or occasioned by: any inaccuracy, error, delay or omission, nonperformance, interruption in data due to neglect or omission by any service provider, any "force majeure" (i.e., loss caused directly or indirectly by flood, fire, war, terrorism, civil unrest, strikes, natural disaster, extraordinary weather conditions, earthquake or other acts of God, government restrictions or actions, interruptions of communications, exchanges or market rulings, suspension of trading or other conditions beyond TIAA's control, failure, or equipment or software malfunction) or any other cause beyond the reasonable control of any service provider.
51. You acknowledge that complaints regarding your Account are to be mailed to TIAA Brokerage, P.O. Box 1280, Charlotte, North Carolina 28201, or you may call **800-927-3059**.
52. 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), provided, however, that the Banking Services Agreement and the BillSuite™ Agreement set forth in Part IV will be governed by the laws of such state(s) as indicated in Part IV.
53. You agree that TIAA may assign this Agreement (in part or in full, and including assigning the role of clearing broker and custodian for the Account) to any third party or any subsidiary, affiliate or successor of TIAA. You hereby delegate and grant to TIAA the power and authority to make these changes on your behalf. TIAA will provide you with at least 30 days prior written notice of such assignment and you will be deemed to have consented to the assignment if you conduct any transactions in your Account or keep your Account open subsequent to receiving such a notice.

II. Role of Pershing

TIAA retained Pershing to act as a clearing broker for TIAA and provide certain recordkeeping and operational services, which may include execution and settlement of securities transactions, custody of securities and cash balances, and extension of credit on margin transactions. These services are provided under a written Clearing Agreement between Pershing and TIAA. The respective roles of Pershing and TIAA, as defined within the Clearing Agreement, are outlined below.

1. In general, Pershing is only responsible for those services provided at the request or direction of TIAA as contemplated by the Clearing Agreement.
2. Pershing will create computer-based account records on the Account holder's behalf in such name(s) and with such address(es) as TIAA directs.
3. Pershing will process orders for the purchase, sale or transfer of securities for the Account as TIAA directs. Pershing is not obligated to accept orders for securities transactions directly from the Account holder and will do so only in exceptional circumstances.
4. Pershing will receive and deliver cash and securities for the Account and will record such receipts and deliveries according to information provided either by TIAA or directly, in writing, by the Account holder.
5. Pershing will hold in custody securities and cash received for the Account, and will collect and disburse dividends and interest and process reorganization and voting instructions with respect to securities held in custody. Pershing is responsible for the custody of cash and securities only after it comes into Pershing's physical possession or control.
6. Pershing will prepare and transmit to the Account holder or provide facilities to TIAA for the preparation and transmission of confirmations of trades. Pershing will prepare and transmit to the Account holder periodic Account statements summarizing the transaction history.
7. If TIAA opens a Margin Account for an Account holder, Pershing will loan the Account holder money for the purpose of purchasing or holding securities subject to the terms of Pershing's written Margin Agreement as set forth in Section III below or in a separate document and Pershing margin policies and applicable margin regulations. TIAA is responsible for obtaining the initial margin as required by Regulation T. Thereafter, Pershing will calculate the amount of maintenance margin required. Pershing will advise the Account holder of those requirements, usually through TIAA. Pershing will also calculate the interest charged on the debit balance, if any.
8. In connection with all of the functions that Pershing performs, Pershing maintains the books and records required by law and by business practice. Pershing will provide TIAA with written reports of all transactions processed for the Account to enable it to carry out its responsibilities under the Clearing Agreement. Pershing will assist the Account holder and TIAA with any discrepancies or errors that may occur in the processing of transactions for the Account.
9. PERSHING DOES NOT CONTROL, AUDIT OR OTHERWISE SUPERVISE THE ACTIVITIES OF TIAA OR ITS EMPLOYEES. PERSHING DOES NOT VERIFY INFORMATION PROVIDED BY TIAA REGARDING THE ACCOUNT OR TRANSACTIONS PROCESSED FOR THE ACCOUNT NOR UNDERTAKE RESPONSIBILITY FOR REVIEWING THE APPROPRIATENESS OF TRANSACTIONS ENTERED BY TIAA ON THE ACCOUNT HOLDER'S BEHALF. PERSHING MAY ACCEPT FROM TIAA, WITHOUT INQUIRY OR INVESTIGATION, (I) ORDERS FOR THE PURCHASE OR SALE OF SECURITIES AND OTHER PROPERTY ON MARGIN OR OTHERWISE, AND (II) OTHER INSTRUCTIONS CONCERNING YOUR ACCOUNTS. NOTICES TO YOU CONCERNING MARGIN REQUIREMENTS OR OTHER MATTERS RELATED TO YOU WILL GO THROUGH TIAA; HOWEVER, DIRECT CONTACT BY PERSHING MAY OCCUR IF MARKET CONDITIONS, TIME CONSTRAINTS OR OTHER CIRCUMSTANCES REQUIRE IT. PERSHING SHALL NOT BE RESPONSIBLE OR LIABLE FOR ANY ACTS OR OMISSIONS

BY TIAA OR ITS EMPLOYEES. YOU UNDERSTAND THAT PERSHING PROVIDES NO INVESTMENT ADVICE NOR DOES PERSHING GIVE ADVICE OR OFFER ANY OPINION WITH RESPECT TO THE SUITABILITY OF ANY TRANSACTION OR ORDER. YOU UNDERSTAND THAT TIAA IS NOT ACTING AS THE AGENT OF PERSHING AND YOU AGREE THAT YOU WILL IN NO WAY HOLD PERSHING, ITS OTHER DIVISIONS, AND ITS OFFICERS, DIRECTORS AND AGENTS LIABLE FOR ANY TRADING LOSSES INCURRED BY YOU. YOU AUTHORIZE PERSHING TO ACT AS YOUR AGENT TO PURCHASE AND REDEEM FOR YOUR ACCOUNT SHARES OF THE FUNDS, AS PREVIOUSLY DEFINED, AND YOU AGREE THAT YOU SHALL NOT HOLD PERSHING, ITS OTHER DIVISIONS, AFFILIATES, OFFICERS, DIRECTORS OR AGENTS LIABLE FOR ANY TRADING LOSSES INCURRED.

10. The Clearing Agreement does not encompass transactions in commodities futures contracts or investments other than marketable securities, which Pershing normally processes on recognized exchanges and over-the-counter markets.
11. In furnishing its services under the Clearing Agreement, Pershing may use and rely upon the services of clearing agencies, automatic data processing vendors, proxy processing, transfer agents, securities pricing services and other similar organizations.
12. This statement addresses the basic allocation of functions regarding the handling of the Account. It is not meant as a definitive enumeration of every possible circumstance, but only as a general disclosure.

III. Trusted Contacts

TIAA is committed to helping you protect your account(s) and information. One way to protect your interests is to appoint a Trusted Contact. A Trusted Contact is someone over the age of 18 whom you know and trust. This person will serve as a point of contact should we have questions concerning your overall well-being, whereabouts, or if we suspect you may be the victim of fraud or exploitation. The individual(s) you select may not take any action on your account and will not replace or affect existing powers of attorney. You should notify those you appoint as Trusted Contacts.

To appoint your Trusted Contact(s), log into your account at **TIAA.org**, then go to your Profile icon at the top of the page. Within *More profile options*, click *Trusted Contacts* and complete the required Trusted Contact information, or contact us at **800-842-2252** to request a form to name a Trusted Contact.

Please note that TIAA, and its affiliates and representatives are authorized to contact the Trusted Contact(s) and disclose information about your account(s) to address possible financial exploitation, to confirm the specifics of your current contact information, health status, or the identity of any legal guardian, executor, trustee, or holder of a power of attorney, or as otherwise permitted under FINRA Rule 2165. Except as is required by FINRA Rule 2165, TIAA is under no obligation to interact with Trusted Contact(s).

IV. Margin Agreement

General margin policies

The amount of credit that may be extended by Pershing and the terms of such extension are governed by rules of the Federal Reserve Board and the Financial Industry Regulatory Authority. Within the guidelines of these rules and subject to adjustment required by changes in such rules and Pershing's business judgment, Pershing establishes certain policies with respect to Margin Accounts. If the market value of securities in a Margin Account declines, Pershing may require the deposit of additional collateral. Margin Account equity is the current market value of securities and cash deposited as security less the amount owed to Pershing for credit extended at its discretion. It is Pershing's general policy to require Margin Account holders to maintain equity in their Margin Accounts of the greater of 30% of the current market value or \$3.00 per share for common stock purchased on margin. Pershing applies other

standards for other types of securities. For example, securities may be ineligible for margin credit from time to time. For information with respect to general margin maintenance policy as to municipal bonds, corporate bonds, listed United States Treasury notes and bonds, mutual funds and other securities, as well as information about the eligibility of particular securities for margin credit, please contact TIAA. Notwithstanding the above general policies, Pershing reserves the right, at its discretion, to require the deposit of additional collateral and to set required margin at a higher or lower amount with respect to particular accounts or classes of accounts as it deems necessary. In making this determination, Pershing may take into account various factors including, but not limited to, (i) issues as to your securities such as, among others, the liquidity of a position and concentrations of securities in an Account, (ii) considerations as to your status, including, but not limited to, a decline in creditworthiness, (iii) the size of the Account, (iv) the general condition of the market, (v) considerations as to the ability of Pershing to obtain financing, and (vi) regulatory interpretations or guidance. If the Account holder fails to meet a margin call in a timely manner, some or all of the Account holder's positions may be liquidated.

Please note that approval of margin privileges is subject to review by TIAA. To apply for margin privileges, please contact a TIAA Brokerage representative. The following terms and conditions shall govern all Margin Accounts:

1. You acknowledge that Margin Accounts, which allow the purchase of securities on credit, enable you to increase the buying power of your equity and thus increase the potential for profit or loss. A portion of the purchase price is deposited when buying securities on margin and Pershing extends credit for the remainder. You understand this loan appears as a debit balance on your monthly account statement. Pershing charges interest on the debit balance and requires you to maintain securities, cash or other property to secure repayment of funds advanced and interest due. You understand that interest will be charged for any credit extended to you for the purpose of buying, trading or carrying any securities, for any cash withdrawals made against the collateral of securities, or for any other extension of credit. When funds are paid in advance of settlement on the sale of securities, interest will be charged on such amount from date of payment until settlement date. In the event that any other charge is made to the Account for any reason, interest may be charged on the resulting debit balances. You authorize TIAA to transfer securities held in your cash Account to your Margin Account. Any assets in your Account that are eligible as margin will be transferred to your Margin Account upon the opening of your Margin Account. This transfer will only happen upon the opening of your Margin Account and that any further transfers will require you to communicate with TIAA to effect them.
2. All margin transactions shall be subject to the constitution, rules, regulations, customs and usages of the exchange or market and its clearing house, if any, where executed by Pershing or its agents, including its subsidiaries and affiliates.
3. For purposes of this Agreement, "securities and other property," as used herein, shall include, but not be limited to, money and securities of every kind and nature and all contracts and options relating thereto, whether for present or future delivery.
4. All securities and other property which Pershing may at any time be carrying for you, or which may at any time be in Pershing's possession or under Pershing's control, shall be subject to a general lien and security interest in Pershing's favor for the discharge of all your indebtedness and other obligations to Pershing, without regard to Pershing having made any advances in connection with such securities and other property and without regard to the number of Accounts you may have with Pershing. In enforcing its lien, Pershing shall have the discretion to determine which securities and property are to be sold and which contracts are to be closed. Securities and other property held in your retirement Account(s) maintained by Pershing, which may include IRAs or qualified plans, are not subject to this general lien and such securities or other property may only be used to satisfy the undersigned's indebtedness or other obligations to TIAA and/or Pershing related to your retirement Account(s).

5. If, at Pershing's discretion, Pershing considers it necessary for Pershing's protection to require additional collateral or in the event that a petition in bankruptcy or for appointment of a receiver is filed by or against you, or an attachment is levied against your accounts, or in the event of your death, Pershing shall have the right to sell any or all securities, commodities and other property in the Accounts Pershing has established for you, whether carried individually or jointly with others, to buy any or all securities, commodities and other property which may be short in such Accounts, to cancel any open orders, and to close any or all outstanding contracts, all without demand for margin or additional margin, notice of sale or purchase or other notice or advertisement. Any such sales or purchases may be made at Pershing's discretion on any exchange or other market where such business is usually transacted, or at a public auction or private sale and Pershing may be the purchaser for its own Account. It is understood that a prior demand, or call, or prior notice of the time and place of such sale or purchase shall not be considered a waiver of Pershing's right to sell or buy without demand or notice.
6. You shall at all times be liable for the payment upon demand of any debit balance or other obligations owing in any of your Accounts, and shall be liable to Pershing for any deficiency remaining in any such Accounts in the event of the liquidation thereof, in whole or in part, by either Pershing or you; and you shall make payments of such obligations and indebtedness upon demand. The reasonable cost and expense of collection of the debit balance, recovery of securities and any unpaid deficiency in your Accounts with Pershing, including, but not limited to, attorney's fees incurred and payable or paid by Pershing shall be payable to Pershing by you.
7. All securities and other property now or hereafter held, carried or maintained by Pershing in its possession in any of your Accounts may be pledged, repledged, hypothecated or rehypothecated by Pershing from time to time, without notice to you, either separately or in common with other such securities and other property for any amount due in the Accounts, or for any greater amount, and Pershing may do so without retaining into its possession or control for delivery a like amount of similar securities or other property.
8. You will at all times maintain such securities and other property in the Accounts for margin purposes as Pershing shall require from time to time via a margin call or other request, and the monthly debit balances or adjusted balances in the Accounts with Pershing shall be charged, in accordance with Pershing practice, with interest at a rate permitted by laws of the State of New York. The interest charge made to the Account at the close of a charge period will be added to the opening balance for the next charge period unless paid.
9. You acknowledge receipt of the Disclosure Statement that explains the conditions under which interest can be charged to the Account, the annual rate of interest, how debit balances are determined and the methods of computing interest.
10. In regard to margin calls, whether for maintenance or any other margin call, in lieu of immediate liquidations, Pershing, through TIAA, may permit you a period of time to satisfy a call. This time period shall not in any way waive or diminish Pershing's right, in its sole discretion, to shorten the time period in which you must satisfy the call, including one already outstanding, or to demand that a call be satisfied immediately. Nor does such practice waive or diminish the right of Pershing and/or TIAA to sell out positions to satisfy the call, which can be as high as the full indebtedness owed. Margin requirements may be established and changed by Pershing, at its sole discretion and judgment, without notice to you. You should contact TIAA for the latest information on margin requirements.
11. Pershing and/or TIAA may exchange credit information about you with others. Pershing and/or TIAA may request a credit report, and upon request, Pershing and/or TIAA will state the name and address of the consumer reporting agency that furnished it. If Pershing and/or TIAA extends, updates or renews your credit, Pershing and/or TIAA may request a new credit report without notice to you.
12. If this is a Margin Agreement for a trust or other similar fiduciary account, you certify that the use of a Margin Account and the borrowing and lending of securities is authorized by the trust instrument and/or applicable law.

13. You agree that TIAA is a third-party beneficiary under the terms and conditions of the Margin Agreement and that any rights that Pershing has under this Margin Agreement, including, but not limited to, the right to collect any debit balance or other obligations owing in any of the Accounts, may be assigned to TIAA so that TIAA may collect from the Account holder independently or jointly with Pershing or enforce any other rights granted to Pershing under this Agreement.
14. This Agreement cannot be modified by conduct and no failure on the part of Pershing at any time to enforce its rights hereunder to the greatest extent permitted shall in any way be deemed to waive, modify or relax all of the rights granted to Pershing herein, including those rights vested in Pershing to deal with collateral on all loans advanced to the Account holder.
15. By signing the Account Application, you acknowledge that securities not fully paid for by you may be loaned to Pershing or loaned out to others, and as permitted by law, certain securities in your Account may be used for, among other things, settling short sales and lending the securities for short sales, and as a result Pershing and TIAA may receive compensation in connection therewith. Pershing and TIAA do not lend fully paid-for securities without your written permission. Fully paid-for securities held in a cash Account (unless otherwise agreed in a separate written agreement) and fully paid-for securities held in a Margin Account in which there is no debit balance are not loaned. Account owner(s) should contact TIAA with any questions.
16. In the event your securities have been loaned by Pershing on the record date of a shareholder vote involving those securities, you agree that your vote may be reduced to reflect the total amount of your securities loaned by Pershing.

V. Interest Rate Disclosure Pursuant to Section 10b-16 of the Securities and Exchange Act of 1934

The following information applies to charges in connection with any credit that we may extend to you.

For Margin Accounts, interest will be charged on any credit extended to you for the purpose of purchasing, carrying or trading in securities. The annualized rate of interest will be based on the amount of the debit balance during the interest calculation period. The rates are subject to revision without notice, in accordance with any changes in the Pershing Base Lending Rate. Interest rates charged on any debit balances in cash Accounts or credit extended in Margin Accounts may be up to 3.00 percentage points above the Pershing Base Lending Rate. The Pershing Base Lending Rate will be set with reference to commercially recognized interest rates, industry conditions relating to the extension of credit and general credit market conditions. The Pershing Base Lending Rate will change without prior notice. When the Pershing Base Lending Rate changes during an interest period, interest will be calculated according to the number of days each rate is in effect during that period. If the rate of interest charged to you is changed for any other reason, you will be notified at least 30 days in advance. Interest period begins on the 20th of each month and ends on the 19th of the following month. Accordingly, the interest charges for the period as shown on your monthly statement are based only on the daily net debit and credit balances for the interest period.

The method of interest computation is as follows. At the close of each interest period during which credit was extended to you, an interest charge is computed by multiplying the average daily debit balance by the applicable schedule rate and by the number of days during which a debit balance was outstanding, and then dividing by 360. If there has been a change in the Pershing Base Lending Rate, separate computations will be made with respect to each rate of charge for the appropriate number of days at each rate during the interest period. The interest charge for credit made to your Account at the close of the interest period is added to the opening debit balance for the next interest period, unless paid.

With the exception of credit balances in your short Account, all other credit and debit balances in all of your Accounts will be combined daily and interest will be charged on the resulting average daily net debit balances for the interest period. If there is a debit in the cash Account (type 1) and there is a Margin Account (type 2), interest will be calculated on the combined debit balance and charged to the Margin Account. Any credit balance in the short Account is disregarded because such credit collateralizes the stock borrowed for delivery against the short sale.

Such credit is disregarded even if you should be long in the same position in your Margin Account (i.e., short against the box). If the security that you sold short (or sold short against the box) appreciates in market price over the selling price, interest will be charged on the appreciation in value. Correspondingly, if the security that you sold short depreciates in market price, the interest charged will be reduced since your average debit balance will decline. This practice is known as “**marking-to-market**.” The daily closing price is used to determine any appreciation or depreciation of the security sold short.

If your Account is short shares of stock on the record date of a dividend or other distribution, however such short position occurs, your Account will be charged the amount of dividend or other distribution on the following Business Day.

Interest rate table

Average Debit Balance	Interest Rate Above Pershing Base Lending Rate
\$0 - \$ 9,999	1.25%
\$10,000 - \$29,999	0.75%
\$30,000 - \$49,999	0.50%
\$50,000 +	0.25%

VI. Cash Solutions Account

An Account with Cash Solutions features consists of three parts: (a) a conventional brokerage Account which is either a cash or Margin Account, or both; (b) access to funds in the Account via Cards, Checks and ACH Transactions; and (c) a choice of Funds. Enrollment in the Cash Solutions feature is through an additional and separate application. Full terms, conditions and fee schedule can be reviewed within the Cash Solutions Account Terms and Conditions.

VII. Commission and Fee Schedule

Online/Mobile
TIAA.org/brokerage

Automated Telephone System (ATS)
800-842-2252

Client Service Assistance
800-927-3059

Equities and Exchange-Traded Funds (ETFs)

(All commissions and fees are per transaction, unless otherwise indicated.)

Equity and Transaction-Fee ETFs	No charge	\$35	\$55
No-Transaction-Fee (NTF) ETFs	<ul style="list-style-type: none"> NTF-eligible ETFs will have a \$0.00 commission, regardless of order size or holding period. Any ETF shares purchased prior to January 26, 2018, and now identified as an NTF ETF will still be charged a commission when the shares are sold, when placing the trade through the ATS or Client Service Assistance. A commission will be charged for NTF ETFs sold prior to settlement. NTF-eligible ETFs should not be purchased on margin. If purchased on margin, the ETF is no longer NTF eligible. NTF-eligible ETFs can be moved to margin after 30 days. 		
Equity Notes	<ul style="list-style-type: none"> Fees shown reflect stock prices greater than \$1 per share. Orders to buy shares priced under \$1, restricted shares, non-permitted Cannabis Related Business (CRB) securities, foreign securities, privately held securities, shares without a market price or no bid/ask will not be accepted. Orders to sell shares priced under \$1 are handled via Client Service Assistance at the online commission rate, given above, based on eligibility. 		
Financial Transaction Tax (FTT) Ordinary and ADR	<ul style="list-style-type: none"> All opening transactions in FTT-eligible French companies will be subject to the French FTT at a rate of 0.30% of the total transaction cost. All opening transactions in FTT-eligible Italian companies will be subject to the Italian FTT at a rate between 0.10% and 0.20% of the total transaction cost. 		
ADR Agent Servicing Fee	<ul style="list-style-type: none"> Fee will generally range from \$0.01 to \$0.03 per share. Amounts will differ by ADR. Please refer to the ADR prospectus for specific fee and other information. 		
Securities and Exchange Commission (SEC) Section 31 Transaction Fee	<ul style="list-style-type: none"> Varies per transaction. Visit SEC.gov for the current rate. 		

Fixed Income

	Bonds and CDs are available for purchase online. For assistance, call 800-927-3059.
U.S. Treasury Securities	
New Issues (primary, at auction)	\$50 per transaction
Existing Issues (secondary, already trading)	\$1 per \$1,000 face amount (\$50 minimum)
Other Fixed Income	
Municipal Bonds, Government Agency Bonds, Unlisted (Over-the-counter, or OTC) Corporate Bonds, and Mortgage-backed Securities ¹	\$50 + \$2 per bond
Certificates of Deposit - New Issues	Purchase minimums of \$5,000, no commission (interest rate reflects issuing bank's fee)

¹ TIAA may execute certain fixed-income transactions for your Account on either an agency or principal basis. If we execute on an agency basis, the commissions listed above will apply. If we execute on a principal basis, we will sell a fixed-income product to you (or buy it from you), which we contemporaneously purchase from (or sell to) a dealer. If so, the net compensation earned by TIAA will include a mark-up. If we sell a fixed-income product to you, the mark-up is the difference between the sales price to you and the price we pay to purchase the product from a dealer. If we buy a fixed-income product from you, the mark-up is the difference between the sales price to the dealer and the price we pay to purchase the security from you.

VII. Commission and Fee Schedule (continued)

Online/Mobile
TIAA.org/brokerage

Automated Telephone System (ATS)
800-842-2252

Client Service Assistance
800-927-3059

Options

(All commissions and fees are per transaction, unless otherwise indicated.)

Commissions and Fees	No charge	\$35 + \$2.00 per contract	\$55 + \$2.50 per contract
Options Exercise/Assignment	\$25	\$25	\$25
Options Regulatory Fee	Varies by contract. Visit https://www.theocc.com for the current fee schedule.		

Mutual Funds

No-Transaction-Fee (NTF) Funds	<ul style="list-style-type: none"> Minimum initial investment for mutual funds: The greater of either the listed amount in the fund's prospectus or \$500. Additional investments are the greater of either the listed amount in the fund's prospectus or \$100. Purchases placed below the stated minimum amount will be charged the appropriate transaction fee. Different minimums may apply for managed accounts. Transactions of NTF funds for amounts less than the \$500 minimum stated above will be subject to the appropriate transaction fee. Dollar cost averaging transactions are excluded. Short-term redemption fee: \$50 minimum for shares held less than six months (waived for shares transferred from another brokerage firm or financial institution). Additional redemption fee may apply as set forth in each fund's prospectus. Dollar cost averaging transactions, no fee; minimum transaction \$100.
Transaction-Fee (TF) Funds	<ul style="list-style-type: none"> Transaction fee, regardless of order size: <ul style="list-style-type: none"> \$50 per trade \$35 per trade for customers that receive a financial planning solution from their Wealth Management Advisor. Minimum initial investment for mutual funds: The greater of either the listed amount in the fund's prospectus or \$500. Additional investments are the greater of either the listed amount in the fund's prospectus or \$100. Purchases placed below the stated minimum amount will be charged the appropriate transaction fee. Different minimums may apply for managed accounts. Dollar cost averaging transactions, no fee; minimum transaction \$100.

Account Maintenance Fees

(All fees are per transaction, unless otherwise indicated.)

Account Research	\$20 per hour
ACH Return Fee	\$25
Alternate Investment Transaction/Processing Fee	\$50
Certificate Cancellation Fee for certificates deposited outside of the transfer agent	\$3+ (pass-through fee, varies by transfer agent)
Custody/Safekeeping Fee for Physical Securities	\$10 per account, per position, per month
Direct Registration System (DRS) Incoming Transfer Fee—Shares sent directly from some transfer agents	\$15 – \$20 (pass-through fee, varies by transfer agent)
Direct Registration System (DRS) Outgoing Transfer Fee—Shares sent directly back to the transfer agent*	\$30 per security, per account

VII. Commission and Fee Schedule (continued)

Foreign Securities	Up to \$75 for each order (not applicable to American Depositary Receipts) + transaction fees and commission
Foreign Security Receive and Deliver Fee	\$75
Incoming Account Transfer/IRA Termination/Account Closure Fee	Varies by sender (pass-through fee)
International Overnight Check Delivery Fee	\$28
IRA Termination Fee**	\$130
Margin Extensions	\$15
NSF/Return Check Deposit Fee	\$25
Outgoing Wired Funds Fee	\$25 (waived for account in an advisory program)
Overnight Check Delivery Fee	\$12
Post-Effective Reorganizations—Voluntary	\$75
Reorganizations—Voluntary	\$25
Saturday Delivery—Overnight Check Delivery Fee	\$18
Special Product Fee—Registered REITs	\$35 per position, charged at transfer and then annually
Special Product Fee—Unregistered REITs	\$125 per position, charged at transfer and then annually
Stop-Payment Order Fee	\$15
Transfers of Gifted Securities or Checks Mailed Regular Delivery*	No charge
Transfers—Accommodation*	\$80 per transfer
Transfers—Automated Clearing House (ACH)	No charge
Transfers—GNMA, Restricted, Legal*	\$140 per transfer
Transfers—Outgoing Full Account*	\$50 per transfer, no charge for partial transfers
Transfers—Register, Transfer and Ship*	\$80 per transfer, plus any third-party charges, including a DTCC charge of \$500

* Checks in the amount of \$250,000 or more for transfers or payments will be sent via overnight delivery and a delivery fee of \$12 will be charged to the account.

** Note: Termination fee does not apply to the TIAA IRA or Investment Solutions IRA self-directed brokerage account, or if the assets from a TIAA IRA account are transferred to a new or existing TIAA IRA account.

Foreign Currency Deposit Fee “Free Credit Balance Interest Charge”

(Monthly rate subject to change. Call TIAA Brokerage for current rates.)

Currency	Rate for Balance Below Daily Exception Balance	Daily Exception Balance	Rate for Balance Above Daily Exception
Swiss Franc (CHF)	2.00%	\$100,000	4.25%
Danish Krone (DKK)	1.30%	\$1,000,000	1.80%
Swedish Krona (SEK)	.85%	\$2,000,000	1.25%
Euro (EUR)	.75%	\$86,000	1.05%
Japanese Yen (JPY)	.35%	\$100,000,000	.65%

VII. Commission and Fee Schedule (continued)

Retail Brokerage IRA Resource Checking

(All fees are per transaction, unless otherwise indicated.)

Copy of Cancelled Check	\$3.75 per copy
NFS/Return Check Fee	\$25
Stop Payment Fee	\$25

Cash Solutions Account (CSA)

(All fees are per account and per transaction, unless otherwise indicated.)

Fees	Silver Tier	Gold Tier	Platinum Tier
Annual Fee	\$25	\$95	\$145
ATM In-network Withdrawal Fee Visa® or Plus®	N/A	None	None
ATM Out-of-network Fee	N/A	None	None
ATM Out-of-network Surcharge Fee* (charged by ATM owner)	N/A	Various	Various
Bill Payment Through BillSuite	Free	Free	Free
Business Style Check Reorder	\$50	\$50	\$50
Business Style Checks—Initial Order, Includes Binder	\$60	\$60	\$60
Cash Advance Fee (Non-ATM)	N/A	.25% of transaction (\$2.50 minimum)	.25% of transaction (\$2.50 minimum)
Check Reorder	\$15	\$10	Free
Copy of Cancelled Check or Visa® Draft	\$3.75 per copy	\$3.75 per copy	\$3.75 per copy
CSA Checks and Debit Card—Overnight Delivery	\$40	\$40	\$40
Foreign Transaction Fee	N/A	1% of transaction	1% of transaction
Initial Check Order (includes checkbook cover, check register, deposit tickets and 40 checks)	Free	Free	Free
Lost or Stolen Checkbook Replacement	\$25	\$25	\$25
Returned Check or Automated Clearing House (ACH) Transaction (for any reason)	\$25	\$25	\$25
Stop Payments (on checks)	\$25	\$25	Free

*Surcharge may be imposed for ATM usage including transactions and balance inquiries.

Note: Silver Tier annual fee is waived for accounts that have \$25,000 or more in average month-end closing cash sweep balances.



TIAA Brokerage, a division of TIAA-CREF Individual & Institutional Services, LLC, reserves the right to change this fee and commission schedule at its discretion, subject to notification in accordance with applicable laws and regulations.

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TIAA Brokerage Customer Account Agreement (Retail)

Effective March 2022



TIAA Brokerage Customer Account Agreement (Retail)

Brokerage accounts are provided by TIAA Brokerage, a division of TIAA-CREF Individual & Institutional Services, LLC, Member FINRA and SIPC, and are carried by Pershing LLC ("Pershing"), Member FINRA, NYSE, SIPC, a subsidiary of The Bank of New York Mellon Corporation.

I. General terms and conditions

By signing the TIAA Brokerage Services Account Application ("Account Application"), you agree to be bound by the following terms and conditions, as well as the terms and conditions set forth in Sections II to VII of this Agreement (collectively, with the Account Application, this "Agreement" or "agreement").

If you are signing this Agreement in connection with a managed account advisory program with Advice & Planning Services, LLC ("APS"), a division of TIAA-CREF Individual & Institutional Services, LLC, you will not be bound by certain sections and provisions of this agreement while enrolled in the program, including Margin Agreements, Options Contracts and Commission and Transaction Fees (related to trading directed by APS). For certain services that you request in connection with your managed account, you will be charged the applicable account maintenance fee in accordance with the Commission and Fee Schedule at the end of this Agreement. See your managed account advisory program's disclosure brochure and advisory agreement for more information about your managed account and the associated fees. If your management is terminated in accordance with your managed account advisory program's advisory agreement, and your assets are transferred to a brokerage account with TIAA Brokerage Services (TBS), you will be bound by all the terms and conditions of this Agreement.

1. "You," "your" or "Account holder" refers to all of the individual(s) who sign the Account Application for individual and joint Accounts and refers to the corporation, limited liability company, partnership, trust or other legal entity for corporate, limited liability company, partnership, trust or other legal entity Accounts.
2. "TIAA" refers to TIAA Brokerage, a division of TIAA-CREF Individual & Institutional Services, LLC. "Custodian" refers to the Custodian or trustee, as applicable, of your Account. "Account" or "Accounts" refers to the cash or margin account opened in your name with custody at Pershing.
3. If there is more than one Account holder, each joint Account holder's obligations under this Agreement shall be joint and several (i.e., are the responsibility of each Account owner, both individually and jointly). Each joint Account holder has authority, acting individually and without notice to any other Account holder, to deal with TIAA as fully and completely as if the joint Account holder is the sole Account holder.
4. TIAA is authorized, but not obligated, to follow the instructions of any joint Account holder and to deliver funds, securities or other assets to any joint Account holder. TIAA is not responsible for determining the purpose or propriety of any instruction received from a joint Account holder or for the disposition of payments or deliveries among joint Account holders.
5. Any notice TIAA sends to one joint Account holder will be deemed notice to all joint Account holders. Any debts of a joint Account may be offset against any Accounts held individually by a joint Account holder.
6. You represent that the information you have provided on your Account Application is accurate. You will notify TIAA of any change to the information provided on your Account Application within 30 days of such change.

TIAA Brokerage Customer Account Agreement (Retail)

7. You will promptly notify TIAA within 10 days if you become a director, 10% beneficial shareholder or an affiliate of a publicly traded company, or if you become a member firm or an employee of any securities exchange, or a self-regulatory organization or a corporation of which security exchange owns a majority of the capital stock.
8. You are responsible for determining the suitability of your Account transactions in light of your stated investment objectives and financial situation. TIAA has no responsibility for any such determination unless TIAA has otherwise specifically agreed in writing in connection with an advisory program or a TIAA representative has given advice directly to you that is clearly identified as a TIAA recommendation for you to buy, sell or hold a particular security or securities, or use a particular investment strategy, for your Account.
9. If TIAA makes such a recommendation, TIAA believes it is suitable for you at the time of the recommendation. TIAA has no ongoing duty to ensure the recommendation continues to be suitable for you. You have an affirmative duty to monitor for profits and losses in your Account and to modify your trading decisions accordingly. Furthermore, unless TIAA has otherwise specifically agreed in writing in connection with an advisory program, you acknowledge that: (a) TIAA does not have discretionary authority over your Account or an obligation to review or make recommendations for the investment of securities or cash in your Account; (b) you will rely on multiple sources of information in making investment decisions for your Account; (c) any information TIAA may provide will not serve as the primary basis for any investment decision you make or made on your behalf; and (d) TIAA does not provide investment advice or otherwise act as a “fiduciary” as that term is defined in the Employee Retirement Income Security Act of 1974, as amended, or Section 4975 of the Internal Revenue Code.
10. You acknowledge that TIAA offers many different Account types and you are responsible for selecting the type most appropriate for your needs. TIAA provides no subaccounting recordkeeping services or similar support for Accounts beneficially held by more than one owner.
11. TIAA may provide you with market data or research relating to securities and securities markets but does not guarantee the accuracy, completeness or timeliness of such information. Such market data or research is not personalized or in any way tailored to your personal financial circumstances or investment objectives, unless TIAA has otherwise specifically agreed in writing in connection with an advisory program. Other than in limited circumstances, TIAA limits the research available regarding mutual funds to certain mutual funds and shares classes of mutual funds that provide TIAA with a minimum level of compensation. You may be able to obtain research on such other mutual funds through other providers.
12. You understand that none of TIAA, Pershing and Custodian provide legal, tax or accounting advice and none of their employees are authorized to give any legal, tax or accounting advice, and you will not solicit or rely upon any such advice from TIAA, Pershing or the Custodian or their employees, whether in connection with transactions in or for your Account or otherwise.
13. You acknowledge this Agreement contains a pre-dispute arbitration clause. By signing an arbitration agreement, the parties agree as follows:
 - a. All parties to this 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.
 - b. Arbitration awards are generally final and binding; a party’s ability to have a court reverse or modify an arbitration award is very limited.
 - c. The ability of the parties to obtain documents, witness statements and other discovery is generally more limited in arbitration than in court proceedings.
 - d. 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.

- e. The panel of arbitrators may include a minority of arbitrators who were or are affiliated with the securities industry.
- f. 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.
- g. The rules of the arbitration forum in which the claim is filed, and any amendments thereto, shall be incorporated into this Agreement.

ANY CONTROVERSY THAT SHALL ARISE BETWEEN THE ACCOUNT HOLDER AND TIAA, TIAA's AFFILIATES, PERSHING AND/OR THE CUSTODIAN (INCLUDING, BUT NOT LIMITED TO, CONTROVERSIES CONCERNING ANY ACCOUNT, ORDER OR TRANSACTION, OR THE CONTINUATION, PERFORMANCE OR BREACH OF THIS OR ANY OTHER AGREEMENT BETWEEN THE ACCOUNT HOLDER AND TIAA, TIAA's AFFILIATES, PERSHING AND/OR THE CUSTODIAN, WHETHER ENTERED INTO OR ARISING BEFORE, ON OR AFTER THIS ACCOUNT IS OPENED) SHALL BE SUBMITTED TO ARBITRATION BEFORE AND ONLY BEFORE THE FINANCIAL INDUSTRY REGULATORY AUTHORITY. 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 INDICATING THE ARBITRATION TRIBUNAL. NO PERSON SHALL BRING 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 THIS AGREEMENT EXCEPT TO THE EXTENT STATED HEREIN. ANY ARBITRATION AWARD SHALL BE FINAL AND BINDING, AND ANY COURT HAVING JURISDICTION MAY ENTER JUDGMENT THEREON.

14. Unless otherwise specified in writing in connection with an advisory program, you acknowledge that you will be charged a commission on applicable transactions and other account-related fees including, but not limited to, service fees and Cash Solutions Account fees in accordance with the standard TIAA Commission and Fee Schedule, as in effect from time to time. TIAA receives remuneration in connection with the mutual funds that you invest in, including, but not limited to, money market funds and exchange traded funds, including 12b-1 fees and other compensation from Pershing, or a mutual fund's distributor, transfer agent or investment adviser for marketing, shareholder services and/or distribution services. Additionally, Teachers Advisors, Inc., the investment adviser to TIAA-CREF Funds, and the advisory entities of TIAA's wholly owned subsidiary, Nuveen Fund Advisors, LLC, the investment adviser to the Nuveen Funds, receive fees from the mutual funds for investment advisory and/or fund administration services. See the respective mutual funds' prospectus or statement of additional information for mutual fund payment information. With certain exceptions, TIAA limits the mutual funds available for purchase through your account to mutual funds, or share classes of a mutual fund, that include a minimum level of compensation to TIAA. In some cases, TIAA makes available for purchase multiple share classes of mutual funds, including multiple share classes of the Nuveen Funds and TIAA-CREF Funds. However, not all share classes of all mutual funds may be available for purchase, including in some cases, the lowest cost share classes of mutual funds. Mutual fund purchases are subject to the initial and subsequent minimum investment amounts as set forth in the mutual funds' prospectuses. You may also be able to purchase other share classes of the mutual funds from the mutual funds directly or through other providers. The mutual funds available through the Platform, including available share classes of particular mutual funds, may change over time at TIAA's discretion. The fees charged with respect to any mutual fund classes that are now or in the future are made available through the Platform may also change over time at TIAA's discretion or by the mutual fund itself. For more information on how TIAA gets paid for its products and services, please refer to our "Regulation Best Interest-Form CRS" located at the bottom of the home page of our website at https://www.tiaa.org/public/pdf/support/regbi/TIAA_FormCRS.pdf.

TIAA Brokerage Customer Account Agreement (Retail)

15. TIAA may suspend or terminate your Account at any time, for any reason and without prior notice to you. If you do not fund your Account within 30 days of Account opening or your account remains unfunded and inactive (no statement is generated) during any three-month consecutive period, TIAA reserves the right to close your Account without prior notice to you. Once your account is closed, for any reason, TIAA Brokerage reserves the right to reject any new account application submitted by you or on your behalf. In addition, if you maintain a small balance in your Account (for example, \$100 or less), during any three-month consecutive period, TIAA reserves the right to close your Account without prior notice to you. A check will be mailed to you after your account is closed. You shall have 30 days from receiving notice of termination of your Account to transfer all holdings from within your Account to another broker/dealer of your choosing. Should you fail to complete this transfer within 30 days, TIAA may liquidate all holdings within your Account and mail you a check for any proceeds. This may result in a taxable event. In the event your Account is liquidated, you agree to be liable for any resulting losses and costs incurred by TIAA. You may close your Account at any time by giving TIAA notice.
16. You acknowledge that, at the time you place a trade, you are solely responsible for ensuring that you have sufficient funds in your Account to cover your purchase. You also acknowledge that TIAA may review, reject, cancel or modify any securities transactions that you have entered at any time, for any reason and without prior notice to you.
17. You acknowledge that you will pay in full for securities you purchase by the settlement date. For transactions not paid for by the settlement date, TIAA shall have the right, without notice to you, to sell the securities purchased.
18. You authorize TIAA to accept your oral or electronic instructions for the purchase and sale of securities. You acknowledge that such instructions must be placed through designated TIAA channels. TIAA will not accept orders or instructions sent via electronic or postal mail (including, but not limited to, U.S. mail or overnight delivery).
19. When you change any instruction on a limit order, you are responsible for any open order, and any actions by you that modify or impact an open order. If you fail to do so, you understand that you will be responsible for any loss, including applicable commission charges. You are responsible for knowing the status of your pending orders, and any duplication by you of a pending order will be considered authorized by you. You understand and acknowledge that all Good Till Canceled (GTC) orders entered will expire in 90 days.
20. You acknowledge that to deter frequent trading within mutual funds, a short-term redemption fee may be assessed against any transaction that results in mutual fund shares being held for less than six months. This fee is in addition to any short-term redemption fee or restriction the underlying mutual fund may independently assess against the same transaction. Each of TIAA, Pershing and/or Custodian reserves the right to restrict access to the purchase of mutual fund shares within any account deemed at their sole discretion to engage in excessive or abusive short-term trading patterns. Additionally, in the event Pershing or Custodian, as the case may be, is instructed by the issuer of a mutual fund to restrict your access to such mutual fund's shares, such a restriction may remain in place until Pershing or Custodian receives notice from the issuer to remove the restriction.
21. You agree that TIAA, Pershing and or Custodian may place trading, disbursement or other full or partial restrictions on your account as deemed necessary, including but not limited to, the following circumstances: pursuant to a court order, tax levy, or garnishment; at the request of a government agency or law enforcement authority; in the event that your account is restricted (including, but not limited to, trading or trade-related violations, or termination of custodianship at the age of termination); in the event that a deposit has not yet settled; or in the event of a dispute between joint tenants. You agree to abide by any such restriction and not to initiate trades or transactions which would violate the restriction. You agree to allow us to liquidate securities in your account to satisfy any court order, garnishment, tax levy, or other legal obligation imposed by a court or government agency. You agree not to hold TIAA, Pershing or Custodian liable for any trading losses, lost profits, tax obligation, or other damages resulting from liquidations or trading or disbursement restrictions imposed on your account in connection with a court order, tax levy, garnishment or other legal proceeding.
22. You understand that "penny stocks" (generally defined as any equity security priced below \$5 a share) are generally considered high-risk investments and should be purchased purely for speculation. You acknowledge that any order you place for penny stocks was not solicited by TIAA and was solely your decision.

TIAA Brokerage Customer Account Agreement (Retail)

23. If at any time you shall enter into any transaction for the purchase or resale of an option contract, you hereby agree to abide by the rules of any national securities association, registered securities exchange or clearing organization applicable to the trading of option contracts and, acting alone or in concert, will not violate the position or exercise limitation rules of any such association or exchange or of the Options Clearing Corporation or other clearing organization.
24. Exercise assignment notices for options contracts are allocated among short positions pursuant to a procedure that randomly selects from all short options positions, including positions established on the day of the assignment, those contracts that are subject to exercise. A more detailed description of this random allocation procedure is available on request. All short options positions are liable for assignment at any time.
25. Some account types may permit trading in a limited range of securities (e.g., mutual funds) and you acknowledge that you must follow TIAA procedures to obtain expanded trading privileges for such accounts. TIAA, Pershing and/or Custodian, in their sole discretion, may eliminate or restrict your ability to purchase particular securities, investments or other property due to volatility or other factors.
26. You acknowledge that TIAA will send all communications to you at the mailing address you provided on your Account Application, or at such other address, as you may subsequently provide to TIAA in writing, and that all communications so sent in writing shall be deemed delivered, whether actually received or not.
27. You acknowledge that federal law requires that TIAA verify your identity by obtaining, among other information, your name, date of birth, address and government-issued identification number before opening your Account. This information is necessary to help the government fight the funding of terrorism and money laundering activities. TIAA may gather and verify this information with respect to any other person authorized to effect transactions in your Account. For certain entities, such as trusts, estates, corporations, partnerships or other organizations, TIAA may require additional identifying documentation. TIAA may restrict and/or close your Account if TIAA cannot verify this information. TIAA will not be responsible for any loss, costs and/or expenses resulting from your failure to provide this information, or from any related restriction or closing of your Account.
28. You authorize us to exchange credit information about you and your Account with others. As required by law, you are notified that any negative credit report reflecting on your credit record may be submitted to a credit reporting agency if you fail to fulfill the terms of your credit obligations. We may request a credit report on you, and upon request, we will state the name and address of the consumer reporting agency that furnished it. If we extend, update, review or renew your credit, we may request a new credit report without notifying you.
29. You acknowledge that any person acting as a trustee, Custodian or fiduciary for your Account is liable for all activity within the Account. TIAA will not review any action or inaction taken by a trustee, Custodian or fiduciary with respect to your Account. You agree to indemnify and hold harmless TIAA, its directors, employees, agents, affiliates and assigns from and against any and all losses, claims or financial obligations (including reasonable attorney's fees) that may arise from any act or omission it may suffer from the activity of any trustee, Custodian or fiduciary you appoint with respect to your Account.
30. You acknowledge that where you provide TIAA with written notice that an unaffiliated third-party advisor has discretionary authority over your Account, TIAA and its affiliates bear no liability or responsibility for any action taken by the third-party advisor. TIAA may rely and act upon any direction given by the third-party advisor, unless and until TIAA receives written notice from you revoking the third-party advisor's discretionary authority. You are responsible for confirming that such written revocation has been received and processed. You agree to indemnify and hold harmless TIAA, its directors, employees, agents, affiliates and assigns from and against any and all losses, claims or financial obligations (including reasonable attorney's fees) it may suffer from the activity of any unaffiliated third-party advisor you appoint with respect to your Account.

TIAA Brokerage Customer Account Agreement (Retail)

31. You understand that the Internal Revenue Service (“IRS”) generally requires TIAA to report annually, on Form 1099-B (the “1099-B Annual Information Report”), any gross proceeds you receive from the sale of securities, your “cost basis” for securities sold, whether any gain or loss on a security is long term or short term, and whether any reported loss is disallowed due to the application of wash sale rules.
32. In order to calculate the gain or loss on the sale of a covered security, a tax lot relief method (also called a cost accounting method) must be selected. A tax lot relief method is a way of computing the realized gain or loss for an asset sold in a taxable transaction. It determines which lot of a security, as well as its associated cost basis and the holding period, is used in computing the gain or loss. TIAA’s default tax lot relief method is First In, First Out (“FIFO”). You should consult with your personal tax advisor or financial planner to determine your specific reporting requirements and which tax lot relief method makes sense for you. To make a change to TIAA’s default method, you must select a different method by submitting your request in writing to TIAA. All cost basis identification methods, including specific lot selection, must be made prior to the settlement date of your transaction. TIAA and its affiliates shall have no liability for any damages you may incur as a result of (i) TIAA providing the required 1099-B Annual Information Report to the IRS, or (ii) any differences in the cost basis reported by TIAA to the IRS and your actual adjusted cost basis.
33. TIAA, Pershing and/or Custodian may charge certain fees, including an annual fee, to your Account for the financial services provided to you under this Agreement. Your Account may also incur service charges based upon Account activity, items returned unpaid, stop-payment orders, garnishments, levies, copies or images of cancelled checks or for other Account services related to your Account. The fees and charges are set forth in the Commission and Fee Schedule at the end of this Agreement, and they are subject to change with notice or advance notice provided to you only if required by applicable law.
- You agree to repay TIAA, Pershing and/or Custodian all of their respective expenses, including attorneys’ fees and legal expenses, to collect money you owe to Pershing, Custodian, Administrator, Bank, Check Free and/or TIAA because of your Account or for any dispute relating to your Account.
34. All of your securities and other property in any Account (margin or cash) in which you have an interest or which at any time are in your possession or under your control other than retirement Accounts, such as IRAs, shall be subject to a lien for the discharge of any and all indebtedness or any other obligations you may have to TIAA. Securities and other property held in retirement accounts, such as IRAs, are not subject to this lien, and are not used as security for the payment of your obligations or indebtedness for other Accounts (cash or margin) that you maintain with TIAA. In enforcing the lien, TIAA may, at its sole discretion, determine which securities and other property held in your Account are to be sold or which contracts are to be closed, except where prohibited by law.
35. TIAA may also transfer securities or other property from any of your Accounts, whether individual or joint, to any of your other Accounts in order to satisfy deficiencies in any of your Accounts, except where prohibited by law. You grant TIAA the right of set-off in satisfaction of any debt in your Account, except where prohibited by law. You agree to pay any costs or expenses incurred by TIAA, including reasonable attorney’s fees, that result from your failure to properly settle any securities transactions or pay any debt, or otherwise satisfy your obligations under this Agreement. You acknowledge that your Account may be subject to interest on any debit balances resulting from your failure to make payment in full for securities purchased from proceeds of sales paid prior to settlement date, or for other charges that may be made to the Accounts.
36. You acknowledge that TIAA may, at its discretion, allow certain holdings and/or positions not held in custody by Pershing to be reflected on your Account brokerage statement. Where TIAA permits this, TIAA reports these held-away holdings and/or positions based solely upon information provided by a third party. TIAA is not responsible for the accuracy of any information regarding held-away holdings and/or positions, and does not verify or use a third party to verify the accuracy of such holdings and/or positions. In connection with annuities

TIAA Brokerage Customer Account Agreement (Retail)

sold to you through TIAA or TIAA Insurance Agency that are reflected on your Account brokerage statement but not held in custody by Pershing, TIAA and TIAA Insurance Agency receive remuneration from issuers of the annuities, including commissions.

37. Your Account includes a Sweep Program feature which automatically transfers available uninvested cash balances in your Account at the end of each Business Day to a money market fund or bank sweep deposit account (each a “Sweep Vehicle” and together the “Sweep Program”) and facilitates the redemption of available shares of any such money market funds or the transfer of available cash balances from any such bank sweep deposit accounts to your Account to cover purchases of securities and other debits in your Account. Available Sweep Vehicles vary based on account type. You direct us to use the Sweep Vehicle indicated on your Account Application as the Sweep Vehicle for your Account and, if you fail to indicate a Sweep Vehicle, you direct us to use the default Sweep Vehicle indicated therein. If your account type includes only one Sweep Vehicle, you acknowledge that the Sweep Vehicle set forth in the Account Application will serve as the sweep option in which all available uninvested cash balances in your Account will be allocated at the end of each Business Day. Different Sweep Vehicles may have different rates of return and different terms and conditions, including, but not limited to, requiring minimum cash balances in your Account before such balances may be swept to a Sweep Vehicle. Money market mutual funds are securities that are registered with the U.S. Securities and Exchange Commission (“SEC”) under the Investment Company Act of 1940 and the Securities Act of 1933. Although money market funds attempt to maintain a stable net asset value of \$1 per share, there is no guarantee that the fund will in fact maintain a \$1 per share stable net asset value. Money market funds are not insured by the Federal Deposit Insurance Corporation (“FDIC”). Money market funds are, however, securities subject to protection by the Securities Investor Protection Corporation (“SIPC”) in the event of insolvency of Pershing, LLC as the brokerage firm holding your Account and cash or securities owed to you. SIPC is a non-profit member corporation funded primarily by member securities brokerage firms registered with the SEC, which protects customers up to certain limits in the event of the failure of a brokerage firm where cash and securities are owed to customers. See the TIAA Brokerage Services SIPC Asset Protection Guide for more information. SIPC does not protect against loss due to market fluctuation or failure of the issuer of a money market fund. More specific information about a particular money market mutual fund, including applicable fund restrictions, fees and expenses and other important information, can be found in the fund’s prospectus. Bank sweep options are deposit accounts held at one or more banks. Deposit accounts pay interest on deposits pursuant to the terms and conditions in the disclosure document for the applicable bank sweep option. Interest rates may fluctuate and may vary among banks. Deposit accounts are not subject to SIPC protection. They are subject to FDIC insurance up to applicable limits. FDIC insurance protects against loss of deposit amounts in the event the bank holding the deposits fails. More specific information about particular bank sweep options, including applicable FDIC insurance limits, interest amounts and other important information can be found in the applicable bank sweep disclosure document. Prospectuses or similar disclosure documents for the Sweep Vehicle option(s) available for your Account are available by calling **800-842-2252**. You agree to review these disclosure documents prior to opening your Account. TIAA may change the terms and conditions of the Sweep Program and the Sweep Vehicle options available for your Account, at its sole discretion. TIAA will provide you with written notice in advance of adding, changing or deleting Sweep Vehicle options for your Account or making other changes to the Sweep Program to the extent required by applicable law. TIAA may receive 12b-1 and similar service fee payments from Sweep Vehicles. Please consult the prospectus or similar disclosure document for each Sweep Vehicle for more information concerning such fees. TIAA, FSB, a TIAA affiliate, holds deposits in connection with the TIAA Bank Brokerage Sweep Vehicle bank sweep option described in Paragraph 38 below and in connection therewith earns net income from the difference TIAA, FSB pays on the deposit accounts and the income it earns on loans, investments and other assets.
38. As set forth in Paragraph 37 above, Sweep Vehicle options vary by account type. The following paragraph applies to account types with a bank deposit option.

The TIAA Bank Brokerage Sweep Account. The following describes your bank sweep option if your Account Application indicates that the Sweep Vehicle for your Account is the TIAA Bank Brokerage Sweep Account; if you have selected the TIAA Bank Brokerage Sweep Account as your Sweep Vehicle; if you have failed to select a Sweep Vehicle on your Account Application and the TIAA Bank Brokerage Sweep Account is the default sweep vehicle for the account; or if TIAA has notified you that TIAA is replacing the existing bank Sweep Vehicle for your Account with the TIAA Bank Brokerage Sweep. The TIAA Bank Brokerage Sweep comprises two separate Sweep Vehicles used in combination: (1) the TIAA Bank Brokerage Sweep Vehicle which automatically sweeps eligible cash balances in an Account up to the Maximum Deposit Amount (defined below) into interest-bearing deposit accounts at TIAA, FSB (a TIAA affiliate); and (2) the Liquid Insured Deposits ("LIDs") Sweep Vehicle which is used as an overflow Sweep Vehicle to automatically sweep eligible cash balances in excess of the Maximum Deposit Amount into interest-bearing deposit accounts with participating banks unaffiliated with TIAA ("LIDs banks"). The TIAA Bank Brokerage Sweep Vehicle will serve as the primary bank Sweep Vehicle for eligible cash balances in an Account up to a maximum deposit amount set by TIAA, FSB. The Maximum Deposit Amount for an Account is currently \$248,500 and is subject to change by TIAA, FSB with notice to you. Interest that accumulates in your account may cause your balance to exceed the Maximum Deposit Amount; however, in no event will the balance exceed the then-current FDIC insurance limits for deposit amounts held at a bank in the same right and capacity. The LIDs Sweep Vehicle will be used as an overflow sweep for eligible cash deposits in an Account which exceeds the Maximum Deposit Amount ("Excess Balances") plus any interest accrued. Only Excess Balances in an Account are eligible to use the LIDs Sweep Vehicle. By way of example, if an Account holds \$300,000 in eligible cash balances, the first \$248,500 will be automatically swept into interest-bearing deposit accounts with TIAA, FSB through the TIAA Bank Brokerage Sweep. The remaining \$51,500 in eligible cash balances will be automatically swept into interest-bearing accounts with participating banks unaffiliated with TIAA through the LIDs Sweep Vehicle. By way of further example, if the Account instead holds \$248,500 or less in eligible cash balances, such eligible cash balances will be automatically swept into interest-bearing deposit accounts with TIAA, FSB through the TIAA Bank Brokerage Sweep. Please review the separate disclosure documents for the TIAA Bank Brokerage Sweep Vehicle and the LIDs Sweep Vehicle carefully.

Other Bank Sweep Options. For some Accounts, TIAA may make the Liquid Insured Deposits Sweep Vehicle on its own (i.e., not in combination with the TIAA Bank Brokerage Sweep Vehicle described above). TIAA may change this option by replacing it with the TIAA Bank Brokerage Account Sweep Vehicle described above or otherwise adding or deleting bank sweep options. TIAA will provide prior written notice to such Account holders as set forth in Paragraph 37 above prior to making any such changes.

It is your sole responsibility to monitor the total balances you have across your accounts with TIAA, FSB and/or the LIDs banks to ensure that your deposit amounts held at any bank in the same right and capacity, directly or indirectly (with the bank or through your account), do not exceed \$250,000, which currently is the maximum amount eligible for FDIC insurance coverage for a single bank. Amounts you hold at any bank, including TIAA, FSB or a LIDs bank, in excess of \$250,000 will not receive FDIC insurance coverage. For example, if you have a deposit account and a certificate of deposit ("CD") with the same bank, the aggregate dollar amount of the deposit account and the CD including accrued interest in excess of \$250,000 will not be FDIC-insured. A list of participating LIDs banks can be viewed online by going to https://www.pershing.com/_global-assets/pdf/liquid-insured-bank-list.pdf or by contacting TIAA for a written copy. Once you have investment within the LIDS sweep, you may opt out of having funds swept to a participating LIDs bank by contacting us at 800-842-2252 weekdays, 8 a.m. to 7 p.m. (ET); a representative can take such instructions over the phone.

39. You acknowledge TIAA is obligated by federal securities laws to provide your name, address and holdings information to issuers of those securities upon request, unless you instruct TIAA in writing not to do so.

TIAA Brokerage Customer Account Agreement (Retail)

40. For the parties' mutual protection, you understand, agree and expressly consent to our electronic recordation of any of your telephone conversations with us and to our monitoring of your electronic communications with us, including, but not limited to, email and facsimile transmission.
41. You acknowledge receipt of the TIAA Privacy Notices.
42. Securities which are held for your Account and which are in "street name," or are being held by a securities depository, are commingled with the same securities being held for other customers of TIAA and for Pershing's own customers. Your ownership of these securities is reflected in Pershing's records. You have the right at any time to require delivery to you of any such securities that are fully paid for or are in excess of margin requirements. The terms of many bonds allow the issuer to partially redeem or "call" the issue prior to maturity date. Certain preferred stocks are also subject to being called by the issuer. Whenever any such security being held by Pershing is partially "called," Pershing will determine through a random selection procedure as prescribed by the New York Stock Exchange rules, the ownership of the securities to be submitted for redemption. In the event that such securities owned by you are selected and redeemed, your Account will be credited with the proceeds. Should you not wish to be subject to this random selection process, you must instruct TIAA to have Pershing deliver your securities to you. Delivery will be effected provided, of course, that your position is unencumbered or had not already been called by the issuer as described, prior to receipt by Pershing of your instructions. The probability of one of your securities being called is the same whether they are held by you or by Pershing for you.
43. You acknowledge that various federal and state laws or regulations may be applicable to transactions in your Account regarding restricted securities, as defined by applicable securities laws and regulations. It is your responsibility to notify TIAA if your Account contains restricted securities and to ensure that any transaction you effect will comply with all applicable laws and regulations. You understand that transactions in restricted securities may take longer to process than transactions involving unrestricted securities. Notwithstanding the foregoing, TIAA may, at its sole discretion, refuse to permit restricted securities within your Account.
44. You acknowledge your responsibility to review your brokerage Account statements for accuracy and to notify TIAA, Pershing and/or Custodian within 30 days of receipt of any error or omission. If you fail to notify TIAA, Pershing and/or Custodian of any error or omission within this time frame, your brokerage Account statement shall be presumed accurate. You acknowledge your responsibility to review all confirmation statements for accuracy and notify TIAA, Pershing and Custodian immediately of any error or omission.
- If your periodic customer statement indicates that securities were forwarded to you and you have not received them, you should notify TIAA or Pershing immediately. If notification is received within 120 days after the mailing date, as reflected on your periodic statement, replacement will be made free of charge. Thereafter, a fee for replacement may apply.
45. You acknowledge that if any provision or condition of this Agreement is held invalid or unenforceable for any reason by any court, or regulatory or self-regulatory agency or body, such provision or condition shall be fully severable, and this Agreement shall be enforced and construed as if such provision or condition had never comprised a part of this Agreement.
46. You acknowledge that this Agreement cannot be modified by conduct and/or the failure of TIAA, Pershing and/or Custodian at any time to enforce its rights hereunder to the greatest extent permitted by law, and shall not be deemed to waive, modify or relax any of the rights granted to TIAA, Pershing and/or Custodian herein, including any right to deal with collateral on all loans advanced to you.
47. You acknowledge that this Agreement constitutes the full and entire understanding between the parties with respect to the provisions herein, and that there are no oral or other agreements in conflict herewith. You acknowledge that each of TIAA, Pershing and/or Custodian reserves the right to amend this Agreement, by modifying or rescinding any of its existing provisions or by adding any new provision at any time upon written

TIAA Brokerage Customer Account Agreement (Retail)

notice to you on your brokerage Account statement(s), trade confirmation(s), or such other written or electronic notification, including, but not limited to, posting notice of such amendment(s) and/or the amended Agreement on the TIAA Brokerage website. The amended Agreement will be effective as of the date established by TIAA, Pershing and/or Custodian (the "Effective Date"). You agree that any future amendments made to the Agreement shall apply to your Account and to any subsequent Accounts you ask TIAA to establish for you in the future. The use of your Account after the Effective Date of the amendment(s) shall constitute your acknowledgment and agreement to be bound thereby. You are responsible for regularly checking for updates. You understand additional restrictions may apply to the brokerage services provided hereunder and additional documentation may be required by applicable law or TIAA, Pershing and/or Custodian's policies and procedures. You agree to comply with any such restrictions and promptly provide any documents or information requested.

48. This Agreement or any subsequently modified agreement shall cover all aspects of the Account(s) you may open or reopen with Pershing through TIAA, including, but not limited to, Account(s) with brokerage, Check-writing privileges, Card services and associated ACH Transactions and BillSuite Services, and shall inure to the benefit of each of our successors whether by merger, consolidation or otherwise, and assigns, and each of us may transfer your Account to our respective successors and assigns, and this Agreement shall be binding upon your heirs, executors, administrators, successors and assigns.
49. TIAA Brokerage and Pershing, in their capacity as clearing firm, may make the Account communications available in an electronic form instead of mailing them in paper form; according terms and conditions will be stated within the Electronic Delivery Terms and Conditions.
50. You acknowledge that telephone, Internet or any other electronic system, and software provided for use in accessing your Account information, is used at your sole risk and that neither TIAA, its vendors providing data, information or other services, including, but not limited to, any exchange (collectively, "service providers"), warrant that the service will be uninterrupted or error-free and that neither TIAA nor any such service providers will make any warranty as to the results that may be obtained from any of these systems. You further acknowledge that telephone, Internet and other electronic systems are provided on an as-is and as-available basis, without warranties of any kind, either expressed or implied, including, without limitation, those of merchantability and fitness for a particular purpose, other than those warranties which are implied by and incapable of exclusion, restriction or modification under applicable laws and regulations. None of TIAA, any service provider, Pershing or Custodian will be liable in any way to you or any other person for any inaccuracy, error or delay in, or omission of, any data, information or message, or the transmission or delivery of any data, information or message, or any loss or damages arising from or occasioned by: any inaccuracy, error, delay or omission, nonperformance, interruption in data due to neglect or omission by any service provider, any "force majeure" (i.e., loss caused directly or indirectly by flood, fire, war, terrorism, civil unrest, strikes, natural disaster, extraordinary weather conditions, earthquake or other acts of God, government restrictions or actions, interruptions of communications, exchanges or market rulings, suspension of trading or other conditions beyond TIAA's control, failure, or equipment or software malfunction) or any other cause beyond the reasonable control of any service provider.
51. You acknowledge that complaints regarding your Account are to be mailed to TIAA Brokerage, P.O. Box 1280, Charlotte, North Carolina 28201, or you may call **800-842-2252**.

52. 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), provided, however, that the Banking Services Agreement and the BillSuite™ Agreement set forth in Part IV will be governed by the laws of such state(s) as indicated in Part IV.
53. You agree that TIAA may assign this Agreement (in part or in full, and including assigning the role of clearing broker and custodian for the Account) to any third party or any subsidiary, affiliate or successor of TIAA. You hereby delegate and grant to TIAA the power and authority to make these changes on your behalf. TIAA will provide you with at least 30 days prior written notice of such assignment and you will be deemed to have consented to the assignment if you conduct any transactions in your Account or keep your Account open subsequent to receiving such a notice.

II. Trusted Contacts

TIAA is committed to helping you protect your account(s) and information. One way to protect your interests is to appoint a Trusted Contact. A Trusted Contact is someone over the age of 18 whom you know and trust. This person will serve as a point of contact should we have questions concerning your overall well-being, whereabouts, or if we suspect you may be the victim of fraud or exploitation. The individual(s) you select may not take any action on your account and will not replace or affect existing powers of attorney. You should notify those you appoint as Trusted Contacts.

To appoint your Trusted Contact(s), log into your account at **TIAA.org**, click *Profile* at the top of the page. Within *More profile options*, click *Trusted Contacts* and complete the required Trusted Contact information, or contact us at **800-842-2252** to request a form to name a Trusted Contact.

Please note that TIAA, and its affiliates and representatives are authorized to contact the Trusted Contact(s) and disclose information about your account(s) to address possible financial exploitation, to confirm the specifics of your current contact information, health status, or the identity of any legal guardian, executor, trustee, or holder of a power of attorney, or as otherwise permitted under FINRA Rule 2165. Except as is required by FINRA Rule 2165, TIAA is under no obligation to interact with Trusted Contact(s).

III. Role of Pershing

TIAA retained Pershing to act as a clearing broker for TIAA and provide certain recordkeeping and operational services, which may include execution and settlement of securities transactions, custody of securities and cash balances, and extension of credit on margin transactions. These services are provided under a written Clearing Agreement between Pershing and TIAA. The respective roles of Pershing and TIAA, as defined within the Clearing Agreement, are outlined below.

1. In general, Pershing is only responsible for those services provided at the request or direction of TIAA as contemplated by the Clearing Agreement.
2. Pershing will create computer-based account records on the Account holder's behalf in such name(s) and with such address(es) as TIAA directs.
3. Pershing will process orders for the purchase, sale or transfer of securities for the Account as TIAA directs. Pershing is not obligated to accept orders for securities transactions directly from the Account holder and will do so only in exceptional circumstances.

TIAA Brokerage Customer Account Agreement (Retail)

4. Pershing will receive and deliver cash and securities for the Account and will record such receipts and deliveries according to information provided either by TIAA or directly, in writing, by the Account holder.
5. Pershing will hold in custody securities and cash received for the Account, and will collect and disburse dividends and interest and process reorganization and voting instructions with respect to securities held in custody. Pershing is responsible for the custody of cash and securities only after it comes into Pershing's physical possession or control.
6. Pershing will prepare and transmit to the Account holder or provide facilities to TIAA for the preparation and transmission of confirmations of trades. Pershing will prepare and transmit to the Account holder periodic Account statements summarizing the transaction history.
7. If TIAA opens a Margin Account for an Account holder, Pershing will loan the Account holder money for the purpose of purchasing or holding securities subject to the terms of Pershing's written Margin Agreement as set forth in Section III below or in a separate document and Pershing margin policies and applicable margin regulations. TIAA is responsible for obtaining the initial margin as required by Regulation T. Thereafter, Pershing will calculate the amount of maintenance margin required. Pershing will advise the Account holder of those requirements, usually through TIAA. Pershing will also calculate the interest charged on the debit balance, if any.
8. In connection with all of the functions that Pershing performs, Pershing maintains the books and records required by law and by business practice. Pershing will provide TIAA with written reports of all transactions processed for the Account to enable it to carry out its responsibilities under the Clearing Agreement. Pershing will assist the Account holder and TIAA with any discrepancies or errors that may occur in the processing of transactions for the Account.
9. PERSHING DOES NOT CONTROL, AUDIT OR OTHERWISE SUPERVISE THE ACTIVITIES OF TIAA OR ITS EMPLOYEES. PERSHING DOES NOT VERIFY INFORMATION PROVIDED BY TIAA REGARDING THE ACCOUNT OR TRANSACTIONS PROCESSED FOR THE ACCOUNT NOR UNDERTAKE RESPONSIBILITY FOR REVIEWING THE APPROPRIATENESS OF TRANSACTIONS ENTERED BY TIAA ON THE ACCOUNT HOLDER'S BEHALF. PERSHING MAY ACCEPT FROM TIAA, WITHOUT INQUIRY OR INVESTIGATION, (I) ORDERS FOR THE PURCHASE OR SALE OF SECURITIES AND OTHER PROPERTY ON MARGIN OR OTHERWISE, AND (II) OTHER INSTRUCTIONS CONCERNING YOUR ACCOUNTS. NOTICES TO YOU CONCERNING MARGIN REQUIREMENTS OR OTHER MATTERS RELATED TO YOU WILL GO THROUGH TIAA; HOWEVER, DIRECT CONTACT BY PERSHING MAY OCCUR IF MARKET CONDITIONS, TIME CONSTRAINTS OR OTHER CIRCUMSTANCES REQUIRE IT. PERSHING SHALL NOT BE RESPONSIBLE OR LIABLE FOR ANY ACTS OR OMISSIONS BY TIAA OR ITS EMPLOYEES. YOU UNDERSTAND THAT PERSHING PROVIDES NO INVESTMENT ADVICE NOR DOES PERSHING GIVE ADVICE OR OFFER ANY OPINION WITH RESPECT TO THE SUITABILITY OF ANY TRANSACTION OR ORDER. YOU UNDERSTAND THAT TIAA IS NOT ACTING AS THE AGENT OF PERSHING AND YOU AGREE THAT YOU WILL IN NO WAY HOLD PERSHING, ITS OTHER DIVISIONS, AND ITS OFFICERS, DIRECTORS AND AGENTS LIABLE FOR ANY TRADING LOSSES INCURRED BY YOU. YOU AUTHORIZE PERSHING TO ACT AS YOUR AGENT TO PURCHASE AND REDEEM FOR YOUR ACCOUNT SHARES OF THE FUNDS, AS PREVIOUSLY DEFINED, AND YOU AGREE THAT YOU SHALL NOT HOLD PERSHING, ITS OTHER DIVISIONS, AFFILIATES, OFFICERS, DIRECTORS OR AGENTS LIABLE FOR ANY TRADING LOSSES INCURRED.
10. The Clearing Agreement does not encompass transactions in commodities futures contracts or investments other than marketable securities, which Pershing normally processes on recognized exchanges and over-the-counter markets.
11. In furnishing its services under the Clearing Agreement, Pershing may use and rely upon the services of clearing agencies, automatic data processing vendors, proxy processing, transfer agents, securities pricing services and other similar organizations.
12. This statement addresses the basic allocation of functions regarding the handling of the Account. It is not meant as a definitive enumeration of every possible circumstance, but only as a general disclosure.

IV. Margin Agreement

General margin policies

The amount of credit that may be extended by Pershing and the terms of such extension are governed by rules of the Federal Reserve Board and the Financial Industry Regulatory Authority. Within the guidelines of these rules and subject to adjustment required by changes in such rules and Pershing's business judgment, Pershing establishes certain policies with respect to Margin Accounts. If the market value of securities in a Margin Account declines, Pershing may require the deposit of additional collateral. Margin Account equity is the current market value of securities and cash deposited as security less the amount owed to Pershing for credit extended at its discretion. It is Pershing's general policy to require Margin Account holders to maintain equity in their Margin Accounts of the greater of 30% of the current market value or \$3.00 per share for common stock purchased on margin. Pershing applies other standards for other types of securities. For example, securities may be ineligible for margin credit from time to time. For information with respect to general margin maintenance policy as to municipal bonds, corporate bonds, listed United States Treasury notes and bonds, mutual funds and other securities, as well as information about the eligibility of particular securities for margin credit, please contact TIAA. Notwithstanding the above general policies, Pershing reserves the right, at its discretion, to require the deposit of additional collateral and to set required margin at a higher or lower amount with respect to particular accounts or classes of accounts as it deems necessary. In making this determination, Pershing may take into account various factors including, but not limited to, (i) issues as to your securities such as, among others, the liquidity of a position and concentrations of securities in an Account, (ii) considerations as to your status, including, but not limited to, a decline in creditworthiness, (iii) the size of the Account, (iv) the general condition of the market, (v) considerations as to the ability of Pershing to obtain financing, and (vi) regulatory interpretations or guidance. If the Account holder fails to meet a margin call in a timely manner, some or all of the Account holder's positions may be liquidated.

Please note that approval of margin privileges is subject to review by TIAA. To apply for margin privileges, please contact a TIAA Brokerage representative. The following terms and conditions shall govern all Margin Accounts:

1. You acknowledge that Margin Accounts, which allow the purchase of securities on credit, enable you to increase the buying power of your equity and thus increase the potential for profit or loss. A portion of the purchase price is deposited when buying securities on margin and Pershing extends credit for the remainder. You understand this loan appears as a debit balance on your monthly account statement. Pershing charges interest on the debit balance and requires you to maintain securities, cash or other property to secure repayment of funds advanced and interest due. You understand that interest will be charged for any credit extended to you for the purpose of buying, trading or carrying any securities, for any cash withdrawals made against the collateral of securities, or for any other extension of credit. When funds are paid in advance of settlement on the sale of securities, interest will be charged on such amount from date of payment until settlement date. In the event that any other charge is made to the Account for any reason, interest may be charged on the resulting debit balances. You authorize TIAA to transfer securities held in your cash Account to your Margin Account. Any assets in your Account that are eligible as margin will be transferred to your Margin Account upon the opening of your Margin Account. This transfer will only happen upon the opening of your Margin Account and that any further transfers will require you to communicate with TIAA to effect them.
2. All margin transactions shall be subject to the constitution, rules, regulations, customs and usages of the exchange or market and its clearing house, if any, where executed by Pershing or its agents, including its subsidiaries and affiliates.
3. For purposes of this Agreement, "securities and other property," as used herein, shall include, but not be limited to, money and securities of every kind and nature and all contracts and options relating thereto, whether for present or future delivery.

4. All securities and other property which Pershing may at any time be carrying for you, or which may at any time be in Pershing's possession or under Pershing's control, shall be subject to a general lien and security interest in Pershing's favor for the discharge of all your indebtedness and other obligations to Pershing, without regard to Pershing having made any advances in connection with such securities and other property and without regard to the number of Accounts you may have with Pershing. In enforcing its lien, Pershing shall have the discretion to determine which securities and property are to be sold and which contracts are to be closed. Securities and other property held in your retirement Account(s) maintained by Pershing, which may include IRAs or qualified plans, are not subject to this general lien and such securities or other property may only be used to satisfy the undersigned's indebtedness or other obligations to TIAA and/or Pershing related to your retirement Account(s).
5. If, at Pershing's discretion, Pershing considers it necessary for Pershing's protection to require additional collateral or in the event that a petition in bankruptcy or for appointment of a receiver is filed by or against you, or an attachment is levied against your accounts, or in the event of your death, Pershing shall have the right to sell any or all securities, commodities and other property in the Accounts Pershing has established for you, whether carried individually or jointly with others, to buy any or all securities, commodities and other property which may be short in such Accounts, to cancel any open orders, and to close any or all outstanding contracts, all without demand for margin or additional margin, notice of sale or purchase or other notice or advertisement. Any such sales or purchases may be made at Pershing's discretion on any exchange or other market where such business is usually transacted, or at a public auction or private sale and Pershing may be the purchaser for its own Account. It is understood that a prior demand, or call, or prior notice of the time and place of such sale or purchase shall not be considered a waiver of Pershing's right to sell or buy without demand or notice.
6. You shall at all times be liable for the payment upon demand of any debit balance or other obligations owing in any of your Accounts, and shall be liable to Pershing for any deficiency remaining in any such Accounts in the event of the liquidation thereof, in whole or in part, by either Pershing or you; and you shall make payments of such obligations and indebtedness upon demand. The reasonable cost and expense of collection of the debit balance, recovery of securities and any unpaid deficiency in your Accounts with Pershing, including, but not limited to, attorney's fees incurred and payable or paid by Pershing shall be payable to Pershing by you.
7. All securities and other property now or hereafter held, carried or maintained by Pershing in its possession in any of your Accounts may be pledged, repledged, hypothecated or rehypothecated by Pershing from time to time, without notice to you, either separately or in common with other such securities and other property for any amount due in the Accounts, or for any greater amount, and Pershing may do so without retaining into its possession or control for delivery a like amount of similar securities or other property.
8. You will at all times maintain such securities and other property in the Accounts for margin purposes as Pershing shall require from time to time via a margin call or other request, and the monthly debit balances or adjusted balances in the Accounts with Pershing shall be charged, in accordance with Pershing practice, with interest at a rate permitted by laws of the State of New York. The interest charge made to the Account at the close of a charge period will be added to the opening balance for the next charge period unless paid.
9. You acknowledge receipt of the Disclosure Statement that explains the conditions under which interest can be charged to the Account, the annual rate of interest, how debit balances are determined and the methods of computing interest.
10. In regard to margin calls, whether for maintenance or any other margin call, in lieu of immediate liquidations, Pershing, through TIAA, may permit you a period of time to satisfy a call. This time period shall not in any way waive or diminish Pershing's right, in its sole discretion, to shorten the time period in which you must satisfy the call, including one already outstanding, or to demand that a call be satisfied immediately. Nor does such practice waive or diminish the right of Pershing and/or TIAA to sell out positions to satisfy the call, which can be as high as

the full indebtedness owed. Margin requirements may be established and changed by Pershing, at its sole discretion and judgment, without notice to you. You should contact TIAA for the latest information on margin requirements.

11. Pershing and/or TIAA may exchange credit information about you with others. Pershing and/or TIAA may request a credit report, and upon request, Pershing and/or TIAA will state the name and address of the consumer reporting agency that furnished it. If Pershing and/or TIAA extends, updates or renews your credit, Pershing and/or TIAA may request a new credit report without notice to you.
12. If this is a Margin Agreement for a trust or other similar fiduciary account, you certify that the use of a Margin Account and the borrowing and lending of securities is authorized by the trust instrument and/or applicable law.
13. You agree that TIAA is a third-party beneficiary under the terms and conditions of the Margin Agreement and that any rights that Pershing has under this Margin Agreement, including, but not limited to, the right to collect any debit balance or other obligations owing in any of the Accounts, may be assigned to TIAA so that TIAA may collect from the Account holder independently or jointly with Pershing or enforce any other rights granted to Pershing under this Agreement.
14. This Agreement cannot be modified by conduct and no failure on the part of Pershing at any time to enforce its rights hereunder to the greatest extent permitted shall in any way be deemed to waive, modify or relax all of the rights granted to Pershing herein, including those rights vested in Pershing to deal with collateral on all loans advanced to the Account holder.
15. By signing the Account Application, you acknowledge that securities not fully paid for by you may be loaned to Pershing or loaned out to others, and as permitted by law, certain securities in your Account may be used for, among other things, settling short sales and lending the securities for short sales, and as a result Pershing and TIAA may receive compensation in connection therewith. Pershing and TIAA do not lend fully paid-for securities without your written permission. Fully paid-for securities held in a cash Account (unless otherwise agreed in a separate written agreement) and fully paid-for securities held in a Margin Account in which there is no debit balance are not loaned. Account owner(s) should contact TIAA with any questions.
16. In the event your securities have been loaned by Pershing on the record date of a shareholder vote involving those securities, you agree that your vote may be reduced to reflect the total amount of your securities loaned by Pershing.

V. Interest Rate Disclosure Pursuant to Section 10b-16 of the Securities and Exchange Act of 1934

The following information applies to charges in connection with any credit that we may extend to you.

For Margin Accounts, interest will be charged on any credit extended to you for the purpose of purchasing, carrying or trading in securities. The annualized rate of interest will be based on the amount of the debit balance during the interest calculation period. The rates are subject to revision without notice, in accordance with any changes in the Pershing Base Lending Rate. Interest rates charged on any debit balances in cash Accounts or credit extended in Margin Accounts may be up to 3.00 percentage points above the Pershing Base Lending Rate. The Pershing Base Lending Rate will be set with reference to commercially recognized interest rates, industry conditions relating to the extension of credit and general credit market conditions. The Pershing Base Lending Rate will change without prior notice. When the Pershing Base Lending Rate changes during an interest period, interest will be calculated according to the number of days each rate is in effect during that period. If the rate of interest charged to you is changed for any

other reason, you will be notified at least 30 days in advance. Interest period begins on the 20th of each month and ends on the 19th of the following month. Accordingly, the interest charges for the period as shown on your monthly statement are based only on the daily net debit and credit balances for the interest period.

The method of interest computation is as follows. At the close of each interest period during which credit was extended to you, an interest charge is computed by multiplying the average daily debit balance by the applicable schedule rate and by the number of days during which a debit balance was outstanding, and then dividing by 360. If there has been a change in the Pershing Base Lending Rate, separate computations will be made with respect to each rate of charge for the appropriate number of days at each rate during the interest period. The interest charge for credit made to your Account at the close of the interest period is added to the opening debit balance for the next interest period, unless paid.

With the exception of credit balances in your short Account, all other credit and debit balances in all of your Accounts will be combined daily and interest will be charged on the resulting average daily net debit balances for the interest period. If there is a debit in the cash Account (type 1) and there is a Margin Account (type 2), interest will be calculated on the combined debit balance and charged to the Margin Account. Any credit balance in the short Account is disregarded because such credit collateralizes the stock borrowed for delivery against the short sale.

Such credit is disregarded even if you should be long in the same position in your Margin Account (i.e., short against the box). If the security that you sold short (or sold short against the box) appreciates in market price over the selling price, interest will be charged on the appreciation in value. Correspondingly, if the security that you sold short depreciates in market price, the interest charged will be reduced since your average debit balance will decline. This practice is known as “**marking-to-market**.” The daily closing price is used to determine any appreciation or depreciation of the security sold short.

If your Account is short shares of stock on the record date of a dividend or other distribution, however such short position occurs, your Account will be charged the amount of dividend or other distribution on the following Business Day.

Interest rate table

Average Debit Balance	Interest Rate Above Pershing Base Lending Rate
\$0 - \$ 9,999	1.25%
\$10,000 - \$29,999	0.75%
\$30,000 - \$49,999	0.50%
\$50,000 +	0.25%

VI. Cash Solutions Account

An Account with Cash Solutions features consists of three parts: (a) a conventional brokerage Account which is either a cash or Margin Account, or both; (b) access to funds in the Account via Cards, Checks and ACH Transactions; and (c) a choice of Funds. Enrollment in the Cash Solutions feature is through an additional and separate application. Full terms, conditions and fee schedule can be reviewed within the Cash Solutions Account Terms and Conditions.

VII. Commission and fee schedule

Equities and Exchange-Traded Funds (ETFs) (All commissions and fees are per transaction, unless otherwise indicated.)			
	Online/Mobile TIAA.org/brokerage	Automated Telephone System (ATS) 800-842-2252	Client Service Assistance 800-842-2252
Equity and Transaction-Fee ETFs	No charge	\$35	\$55
No-Transaction-Fee (NTF) ETFs	<ul style="list-style-type: none"> NTF-eligible ETFs will have a \$0.00 commission, regardless of order size or holding period. Any ETF shares purchased prior to January 26, 2018, and now identified as an NTF ETF will still be charged a commission when the shares are sold, when placing the trade through the ATS or Client Service Assistance. A commission will be charged for NTF ETFs sold prior to settlement. NTF-eligible ETFs should not be purchased on margin. If purchased on margin, the ETF is no longer NTF eligible. NTF-eligible ETFs can be moved to margin after 30 days. 		
Equity notes	<ul style="list-style-type: none"> Fees shown reflect stock prices greater than \$1 per share. Orders to buy shares priced under \$1, restricted shares, non-permitted Cannabis Related Business (CRB) securities, foreign securities, privately held securities, shares without a market price or both a bid/ask will not be accepted. Orders to sell shares priced under \$1 are handled via Client Service Assistance at the online commission rate, given above, based on eligibility. 		
Financial Transaction Tax (FTT) Ordinary and ADR	All opening transactions in FTT-eligible companies from the following countries will be subject to the FTT tax rate: <ul style="list-style-type: none"> French FTT at a rate of 0.30% of the total transaction cost. Italian FTT at a rate between 0.10% and 0.20% of the total transaction cost. Spanish FTT at a rate of 0.20% of the total transaction cost. 		
ADR agent servicing fee	<ul style="list-style-type: none"> Fee will generally range from \$0.01 to \$0.03 per share. Amounts will differ by ADR. Please refer to the ADR prospectus for specific fee and other information. 		
Securities and Exchange Commission (SEC) section 31 transaction fee	<ul style="list-style-type: none"> Varies per transaction. Visit SEC.gov for the current rate. 		

Fixed income (Bonds and CDs are available for purchase online. For assistance, call 800-842-2252.)	
U.S. Treasury Securities	
New issues (primary, at auction)	\$50 per transaction
Existing issues (secondary, already trading)	\$1 per \$1,000 face amount (\$50 minimum)
Other Fixed Income	
Municipal Bonds, Government Agency Bonds, Unlisted (Over-the-counter, or OTC) Corporate Bonds, and Mortgage-backed Securities ¹	\$50 + \$2 per bond
Certificates of Deposit—New Issues	Purchase minimums of \$5,000, no commission (interest rate reflects issuing bank's fee)

1. TIAA may execute certain fixed-income transactions for your Account on either an agency or principal basis. If we execute on an agency basis, the commissions listed above will apply. If we execute on a principal basis, we will sell a fixed-income product to you (or buy it from you), which we contemporaneously purchase from (or sell to) a dealer. If so, the net compensation earned by TIAA will include a mark-up. If we sell a fixed-income product to you, the mark-up is the difference between the sales price to you and the price we pay to purchase the product from a dealer. If we buy a fixed-income product from you, the mark-up is the difference between the sales price to the dealer and the price we pay to purchase the security from you.

VII. Commission and Fee Schedule (continued)

Options (All commissions and fees are per transaction, unless otherwise indicated.)			
	Online/Mobile TIAA.org/brokerage	Automated Telephone System (ATS) 800-842-2252	Client Service Assistance 800-842-2252
Commissions and fees	No charge	\$35 + \$2.00 per contract	\$55 + \$2.50 per contract
Options exercise/assignment	\$25	\$25	\$25
Options regulatory fee	Varies by contract. Visit https://www.theocc.com for the current fee schedule.		

Mutual funds	
No-Transaction-Fee (NTF) Funds	<ul style="list-style-type: none"> Minimum initial investment for NTF mutual funds: The greater of either the listed amount in the fund's prospectus or \$500. Purchases below the stated minimum will be charged the appropriate transaction fee. Additional investments of NTF funds: The greater of either the listed amount in the fund's prospectus or \$100. Transactions of NTF funds for amounts less than \$500 will be subject to the appropriate transaction fee. Systematic (automatic recurring or dollar cost averaging) orders are excluded. Different minimums may apply for managed accounts. Systematic (automatic recurring or dollar cost averaging) orders, no fee; minimum transaction of \$100. Short-term redemption fee: \$50 minimum for shares held less than six months (waived for shares transferred from another brokerage firm or financial institution). Additional redemption fees may apply as set forth in each fund's prospectus.
Transaction-Fee (TF) Funds	<ul style="list-style-type: none"> Transaction fee, regardless of order size: <ul style="list-style-type: none"> \$50 per trade \$35 per trade for customers that receive a financial planning solution from their Wealth Management Advisor. Minimum initial investment for mutual funds: The greater of either the listed amount in the fund's prospectus or \$500. Additional investments: The greater of either the listed amount in the fund's prospectus or \$100. Different minimums apply for managed accounts. Systematic (automatic recurring or dollar cost averaging) orders, no fee; minimum transaction of \$100.

Account maintenance fees (All fees are per transaction, unless otherwise indicated.)	
Account research	\$20 per hour
ACH return fee	\$25
Alternate investment transaction/processing fee	\$50
Certificate cancellation fee for certificates deposited outside of the transfer agent	\$3+ (pass-through fee, varies by transfer agent)
Custody/safekeeping fee for physical securities (Excludes ADRs held with domestic custodian bank)	\$10 per account, per position, per month
Direct registration system (DRS) incoming transfer fee—shares sent directly from some transfer agents	\$15 – \$20 (pass-through fee, varies by transfer agent)
Direct registration system (DRS) outgoing transfer fee—shares sent directly back to the transfer agent*	\$30 per security, per account

VII. Commission and fee schedule (continued)

Account maintenance fees (continued) (All fees are per transaction, unless otherwise indicated.)	
Foreign account fee (Non-US address)	\$50 per year for each account that maintained a balance, position or had a form 1042-S reportable transaction
Foreign securities	Up to \$125 for each order (not applicable to American Depositary Receipts) + transaction fees and commission
Foreign security receive and deliver fee	\$75
Incoming account transfer/IRA termination/account closure fee	Varies by sender (pass-through fee)
International overnight check delivery fee	\$28
IRA termination fee**	\$130
Margin extensions	\$15
NSF/return check deposit fee	\$25
Outgoing wired funds fee	\$25 (waived for account in an advisory program)
Overnight check delivery fee	\$12
Post-effective reorganizations—Voluntary	\$75
Reorganizations—Voluntary	\$25
Saturday delivery—overnight check delivery fee	\$18
Special product fee—Registered REITs	\$35 per position, charged at transfer and then annually
Special product fee—Unregistered REITs	\$125 per position, charged at transfer and then annually
Stop-payment order fee	\$15
Transfers of gifted securities or checks mailed regular delivery*	No charge
Transfers—Accommodation*	\$80 per transfer
Transfers—Automated Clearing House (ACH)	No charge
Transfers—GNMA, Restricted, Legal*	\$140 per transfer
Transfers—Outgoing full account*	\$50 per transfer, no charge for partial transfers
Transfers—Register, transfer and ship*	\$80 per transfer, plus any third-party charges, including a DTCC charge of \$500
Unrelated Business Taxable Income (UBTI) Tax Return (IRS Form 990-T) Processing	\$200 per tax return filed

* Checks in the amount of \$250,000 or more for transfers or payments will be sent via overnight delivery and a delivery fee of \$12 will be charged to the account.

** Termination fee does not apply to the TIAA IRA or Investment Solutions IRA self-directed brokerage account, or if the assets from a TIAA IRA account are transferred to a new or existing TIAA IRA account.

Foreign currency deposit fee “Free credit balance interest charge” (Monthly rate subject to change. Call TIAA Brokerage for current rates.)			
Currency	Rate for balance below daily exception balance	Daily exception balance	Rate for balance above daily exception
Swiss Franc (CHF)	2.00%	\$100,000	4.25%
Danish Krone (DKK)	1.30%	\$1,000,000	1.80%
Swedish Krona (SEK)	.85%	\$2,000,000	1.25%
Euro (EUR)	.80%	\$86,000	1.05%
Japanese Yen (JPY)	.40%	\$100,000,000	.65%

VII. Commission and Fee Schedule (continued)

Retail Brokerage IRA Resource Checking

(All fees are per transaction, unless otherwise indicated.)

Copy of cancelled check	\$3.75 per copy
NSF/return check fee	\$25
Stop payment fee	\$25

Cash Solutions Account (CSA)

(All fees are per account and per transaction, unless otherwise indicated.)

	Silver Tier	Gold Tier	Platinum Tier
Annual fee	\$25	\$95	\$145
ATM withdrawal fee Visa® or Plus® (PNC Bank or Allpoint® Network)	N/A	None	None
ATM out-of-network fee (ATM not on PNC Bank or Allpoint® Network)	N/A	None	None
ATM out-of-network surcharge fee* (charged by ATM owner not on PNC Bank or Allpoint® Network)	N/A	Various	Various
Bill payment through BillSuite	Free	Free	Free
Business style check reorder	\$50	\$50	\$50
Business style checks—initial order, includes binder	\$60	\$60	\$60
Business style checks—replacement binder	N/A	N/A	\$20
Cash advance fee (non-ATM)	N/A	.25% of transaction (\$2.50 minimum)	.25% of transaction (\$2.50 minimum)
Check reorder	\$15	\$10	Free
Copy of paid check online	None	None	None
Copy of paid checks or Visa® draft	\$3.75 per copy	\$3.75 per copy	\$3.75 per copy
CSA checks and debit card—overnight delivery	\$40	\$40	\$40
Foreign transaction fee (Visa® fee for transactions performed outside the U.S.)	N/A	1% of transaction	1% of transaction
Initial check order (includes checkbook cover, check register, deposit tickets and 40 checks)	Free	Free	Free
Letter with checking account information	None	None	None
Lost or stolen checkbook replacement	\$25	\$25	\$25
MobileWallet vendor additional transaction charges	N/A	None	None
Returned check or automated clearing house (ACH) Transaction (for any reason)	\$25	\$25	\$25
RewardSuite™	N/A	None	None
Stop payments (on checks)	\$25	\$25	Free

*Surcharge may be imposed for ATM usage including transactions and balance inquiries.

Note: Silver Tier annual fee is waived for accounts that have \$25,000 or more in average month-end closing cash sweep balances.



TIAA Brokerage, a division of TIAA-CREF Individual & Institutional Services, LLC, reserves the right to change this fee and commission schedule at its discretion, subject to notification in accordance with applicable laws and regulations.

TIAA-CREF Individual & Institutional Services, LLC, Member FINRA and SIPC, distributes securities products. TIAA Brokerage, a division of TIAA-CREF Individual & Institutional Services, LLC, Member FINRA and SIPC, distributes securities. Brokerage accounts are carried by Pershing, LLC, a subsidiary of The Bank of New York Mellon Corporation, Member FINRA, NYSE, SIPC.

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