

TIAA-CREF Investment Management, LLC

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This Brochure provides information about the qualifications and business practices of TIAA-CREF Investment Management, LLC (“TCIM”). If you have any questions about the contents of this Brochure, please contact us at (212) 490-9000. The information in this Brochure has not been approved or verified by the United States Securities and Exchange Commission or by any state securities authority.

Additional information about TCIM also is available on the SEC’s website at www.adviserinfo.sec.gov.

TCIM is a registered investment adviser. Registration of an investment adviser does not imply any certain level of skill or training.

Item 2 Material Changes

This Brochure dated March 30, 2020 contains updates from the previous annual update of this Brochure dated March 26, 2019. This amendment contains certain updates regarding research and services provided by broker-dealers in Item 12. This update also contain additions, changes and elaborations, including to fees, strategies, risk factors, policies, and affiliates, and enhancements and clarifications throughout.

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Item 4 Advisory Business

TIAA-CREF Investment Management, LLC (“TCIM”) provides investment management and certain administrative services necessary for the operation of the College Retirement Equities Fund (“CREF”), a diversified open-end registered investment management company consisting of eight accounts that issues individual, group and tax-deferred variable annuity contracts. TCIM tailors its advisory services to the needs of CREF, its only client. TCIM’s responsibilities include, without limitation, investment advisory services; research services; recommending and placing of orders for the purchase and sale of securities for the CREF portfolios (based on the investment objectives and needs of each CREF account as documented in the prospectus and Statement of Additional Information); supervising relations with custodians, transfer and pricing agents, accountants, auditing, underwriters and other persons interacting with CREF; developing management and shareholder services for CREF; and furnishing reports, evaluations and analysis on a variety of matters.

TCIM is a subsidiary of TIAA-CREF Asset Management LLC, which is an indirect subsidiary of Nuveen, LLC (“Nuveen”). Nuveen is a subsidiary, and represents the Asset Management division, of Teachers Insurance and Annuity Association of America (“TIAA”), a leading financial services provider. TIAA constitutes the ultimate principal owner of TCIM. For additional information on the ownership structure, please see Form ADV Part 1, Schedules A and B, and Item 10.

TCIM was formed on December 17, 1997 and registered with the SEC as an investment adviser on December 31, 1990.

As of December 31, 2019, TCIM managed \$237,621,038,857 in discretionary client assets and \$0 in non-discretionary client assets. TCIM does not operate any wrap fee programs.

Item 5 Fees and Compensation

TCIM provides its investment advisory services to CREF on an “at-cost” basis. A daily deduction is made from the assets of CREF’s investment portfolios in connection with the advisory services provided. These rates are designed to reflect the cost of advisory services and are not intended to include any profit. The rates of these deductions are revised from time to time, based solely on estimates of expenses anticipated to be incurred, with the objective of keeping the deductions as close as possible to actual expenses. As soon as is practicable, after the end of each quarter, adjusting charges or credits are made to correct any difference between the deductions and the expenses actually incurred. Accordingly, the amounts deducted each year as a percentage of the net assets of each investment portfolio may be higher or lower than the current annual deduction rates, depending upon expense experience.

For CREF equity accounts managed by TCIM, management fees are expected to range from approximately 3.5 basis points to 10 basis points.

For the CREF index account managed by TCIM, management fee is expected to be approximately 1.5 basis points.

For CREF fixed-income accounts managed by TCIM, management fees are expected to range from approximately 2 basis points to 7 basis points.

For the CREF specialty/balanced account managed by TCIM, management fee is expected to be approximately 4 basis points.

For the CREF money market account managed by TCIM, management fee is expected to be approximately 2.5 basis points.

The Investment Management Services Agreement between TCIM and CREF is subject to approval by the Board of Trustees of CREF, including a majority of Trustees who are not parties to the Agreement or “interested persons” of any party to the Agreement. TCIM’s fees under such Investment Management Services Agreement are set forth in the registration statements and other documents of CREF on file with the SEC.

The Investment Management Services Agreement between TCIM and CREF may be terminated at any time upon the mutual consent of the parties. To avoid a penalty, the Board of Trustees of CREF must give 60 days’ written notice to TCIM or TCIM must give 60 days’ written notice to the Trustees.

TCIM's Fees in General

TCIM's fees, which are non-negotiable, are exclusive of transactions costs related to the buying and selling of securities such as brokerage commissions, odd-lot differentials, transfer taxes, wire and electronic transfer fund fees, and other fees and taxes on brokerage accounts and securities transactions. In addition, clients may incur other certain charges imposed by third parties. Such fees are charged by custodians, brokers, administrators and distributors and are exclusive of and in addition to TCIM's fee. TCIM shall not receive any portion of these commissions, fees, and costs.

TCIM is reimbursed for the expenses assumed in connection with its advisory services to CREF through daily payments based on an annual rate agreed upon by CREF and TCIM. The agreed upon rate is an estimate of the costs of the services that TCIM will provide and the objective is to keep the actual payments for the services close to the estimated costs.

The daily payment to TCIM is from the net assets of each CREF account, each valuation day for each calendar day of the valuation period. On a quarterly basis, the amount necessary to correct any differences between the payments to TCIM and the expenses actually incurred by TCIM will be determined. This amount will be paid by or credited to TCIM as the case may be, in equal installments over the remaining days in the quarter.

The internal management fees associated with the accounts managed by TCIM and which may be incurred by investors in the accounts are disclosed in CREF's prospectus in section titled "About Expenses."

Additionally, an account may purchase shares of other types of investment companies, which may include exchange-traded funds cash management, investment exposure or defensive purposes. Typically an account would purchase ETF shares to obtain exposure to all or a portion of the stock or bond market. When an account invests in another investment company, like an ETF, it bears a proportionate share of expenses charged by the investment company in which it invests.

Item 12 further describes the factors that TCIM considers in selecting or recommending broker-dealers for client transactions and determining the reasonableness of their compensation (*e.g.*, commissions).

Item 6 Performance-Based Fees and Side-By-Side Management

The compensation paid by CREF to TCIM is based on a percentage of assets under management (on an at-cost basis). TCIM does not have any performance-based fee arrangement in connection with its advisory business.

Item 7 Types of Clients

TCIM provides portfolio management services to CREF which provides variable annuities for certain types of retirement and tax-deferred savings plans for employees of colleges, universities, other educational and research organizations, and other governmental and non-profit institutions. CREF's main purpose is to invest funds for retirement and pay income based on investments in its eight registered investment accounts:

Equity Accounts

- Stock Account
- Global Equities Account
- Growth Account

Index Account

- Equity Index Account

Fixed-Income Accounts

- Bond Market Account
- Inflation-Linked Bond Account

Specialty/Balanced Account

- Social Choice Account

Money Market Account

- Money Market Account

The accounts have no minimum account size requirements.

CREF Class Eligibility (Class R1, Class R2 and Class R3)

Class R1

- Institutional – Institutions with CREF assets under management below \$20 million
- Individual and Annuity Products – Individual Retirement Accounts (IRA) and Keogh Contracts

Class R2

- Institutions with CREF assets under management of \$20 million or more, but less than

\$400 million

- Individual and Annuity Products – After-Tax Retirement Annuity (ATRA)

Class R3

- Institutions with CREF assets under management of \$400 million or more
- Individual and Annuity Products – Immediate Annuity and Accumulation Unit Deposit Option (AUDO)

Item 8 Methods of Analysis, Investment Strategies and Risk of Loss

TCIM may use a variety of different analytic methods and investment strategies depending on the nature of the account it is managing. This section describes the analytical methods TCIM uses and then separately the investment strategies.

Methods of Analysis

Active Management

For the equity accounts, TCIM looks for stocks that it believes are attractively priced based on an analysis of the company's prospects for growth in earnings, cash flow, revenues and other relevant measures. TCIM also looks for companies whose assets appear undervalued in the market. In general, TCIM focuses on companies with shareholder-oriented management dedicated to creating shareholder value. TCIM may invest in companies of any size, including small companies. For the fixed income accounts, TCIM concentrates on security selection, sector allocation, yield-curve positioning, and duration management. TCIM seeks to preserve capital along with a favorable long-term rate of return.

Quantitative Strategy

TCIM may use several different investment techniques to build a portfolio of stocks and fixed income securities that are structured to resemble and share the risk characteristics of various segments of the benchmark index, while also seeking to outperform that benchmark index. Quantitative strategies often employ proprietary, quantitative modeling techniques for security selection, country allocation and portfolio construction. Quantitative analysis involves the use of mathematical models and computer programs that attempt to outperform the index by over- and underweighting certain stocks in the index. In general, the quantitative methodology is designed so that an account diverges from and may outperform its benchmark, but remains closer to the benchmark than other equity accounts using a traditional active management style.

Indexing

TCIM may use investment techniques designed to track various segments of the component indices of an account's composite benchmark index. When using this technique, TCIM buys most, but not necessarily all, of the securities in the indices of its composite benchmark index, and will attempt to closely match the overall investment characteristics of its composite benchmark index.

Investment Strategies

Equity Accounts

- **Stock Account**

Seeks a favorable long-term rate of return through capital appreciation and investment income by investing primarily in a broadly diversified portfolio of common stocks.

- **Global Equity Account**

Seeks a favorable long-term rate of return through capital appreciation and income from a broadly diversified portfolio that consists primarily of foreign and domestic common stocks.

- **Growth Account**

Seeks a favorable long-term rate of return, mainly through capital appreciation, primarily from a diversified portfolio of common stocks that present the opportunity for exceptional growth.

Index Account

- **Equity Index Account**

Seeks a favorable long-term rate of return from a diversified portfolio selected to track the overall market for common stocks publicly traded in the United States, as represented by a broad stock market index.

Fixed Income Accounts

- **Bond Market Account**

Seeks a favorable long-term rate of return, primarily through high current income consistent with preserving capital.

- **Inflation-Linked Bond Account**

Seeks a long-term rate of return that outpaces inflation, primarily through investment in inflation-indexed bonds—fixed-income securities whose returns are designed to track a specified inflation index over the life of the bond.

Special/Balanced Account

- **Social Choice Account**

Seeks a favorable long-term rate of return that reflects the investment performance of the financial markets while giving special consideration to certain social criteria.

Money Market Account

- **Money Market Account**

Seeks high current income consistent with maintaining liquidity and preserving capital.

Description of Material Risks Associated with Investment Strategies

Equity Risks

- **Market Risk** – The risk that the price of equity investments may decline in response to general market and economic conditions or events, including conditions and developments outside of the financial markets such as significant changes in interest and inflation rates, the availability of credit and the occurrence of other factors, such as natural disasters or public health emergencies (pandemics and epidemics). Accordingly, the value of the equity investments that an account holds may decline over short or extended periods of time. Any equity investment is subject to the risk that the financial markets as a whole may decline in value, thereby depressing the investment's price. Equity markets, for example, tend to be cyclical, with periods when prices generally rise and periods when prices generally decline. Foreign equity markets tend to reflect local economic and financial conditions and, therefore, trends often vary from country to country and region to region. During periods of unusual volatility or turmoil in the financial markets, an account may undergo extended periods of decline. From time to time, an Account may invest a significant portion of its assets in companies in one or more related sectors or industries, which would make the Account more vulnerable to adverse developments affecting such sectors or industries.

Equity Risks Associated with Particular Strategies

- **Foreign Investment Risk** – Foreign investments, which may include securities of foreign issuers, securities or contracts traded or acquired in non-U.S. markets or on non-U.S. exchanges, or securities or contracts payable or denominated in non-U.S. currencies, can involve special risks that arise from one or more of the following events or circumstances: (1) changes in currency exchange rates; (2) possible imposition of market controls or currency exchange controls; (3) possible imposition of withholding taxes on dividends and interest; (4) possible seizure, expropriation or nationalization of assets; (5) more limited financial information or difficulties interpreting it because of foreign regulations and accounting standards;

(6) lower liquidity and higher volatility in some foreign markets; (7) the impact of political, social or diplomatic events; (8) economic sanctions or other measures by the United States or other governments; (9) the difficulty of evaluating some foreign economic trends; and (10) the possibility that a foreign government could restrict an issuer from paying principal and interest to investors outside the country. Brokerage commissions and custodial and transaction costs are often higher for foreign investments, and it may be difficult to use foreign laws and courts to enforce financial or legal obligations. To the extent an Account invests a significant portion of its assets in the securities of companies in a single country or region, it is more likely to be impacted by events or conditions affecting that country or region. Investment in an Account may be more exposed to a single country or a region's cycles, stock market valuations and currency, which could increase its risk compared with a more geographically diversified Account. In addition, political, social, regulatory, economic or environmental events that occur in a single country or region may adversely affect the values of that country or region's securities and thus the holdings of the Account.

The risks described above often increase in countries with emerging markets. For example, these countries may have more unstable governments than developed countries, and their economies may be based on only a few industries. Because their financial markets may be very small, prices of issuers in emerging market countries may be volatile and difficult to determine. In addition, foreign investors such as an Account are subject to a variety of special restrictions in many such countries.

- **Emerging Markets Risk** – The risk of foreign investment often increases in countries with emerging markets. For example, these countries may have more unstable governments than developed countries, and their economies may be based on only a few industries. Because their financial markets may be very small, share prices of financial instruments in emerging market countries may be volatile and difficult to determine. Financial instruments of issuers in these countries may have lower overall liquidity than those of issuers in more developed countries. In addition, foreign investors such as the Accounts are subject to a variety of special restrictions in many emerging market countries. The risks outlined above are often more pronounced in “frontier markets” in which an Account may invest. Frontier markets are those emerging markets that are considered to be among the smallest, least mature and least liquid. These factors may make investing in frontier market countries significantly riskier than investing in other countries.
- **Style Risk/Risks of Growth Investing** – Accounts that use an investing style, such as growth investing, entail the risk that equity securities representing a growth

investing style may be out of favor in the marketplace for various periods of time, and result in underperformance relative to the broader market sector or significant declines in an account's portfolio value. Due to their relatively high valuations, growth stocks are typically more volatile than value stocks. For example, the price of a growth stock may experience a larger decline on a forecast of lower earnings, or a negative event or market development, than would a value stock. Because the value of growth companies is often a function of their expected earnings growth, there is a risk that such earnings growth may not occur or cannot be sustained.

- **Index Risk** – The risk that an account's performance will not correspond to, or may underperform, its benchmark index for any period of time. Although each account attempts to use the investment performance of its respective index as a baseline, it may not duplicate the exact composition of that index. In addition, unlike an account, the returns of an index are not reduced by investment and other operating expenses, and therefore, the ability of an account to match the performance of its index is adversely affected by the costs of buying and selling investments as well as other expenses. Therefore, an account cannot guarantee that its performance will match its index for any period of time.
- **Non-Diversification Risk** – While each Account is considered to be a diversified investment company under the 1940 Act, the Equity Index Account may become non-diversified under the 1940 Act without the Equity Index Account participants' approval when necessary to continue to track its benchmark index. Non-diversified status means that an account can invest a greater percentage of its assets in the securities of a single issuer than a diversified account. Investing in a non-diversified account involves greater risk than investing in a diversified account because a loss in value of a particular investment may have a greater effect on an account's return since that investment may represent a larger portion of an account's total portfolio assets, which could lead to greater volatility in the account's returns.
- **Active Management Risk** – The risk that the performance of an account, which is actively managed, reflects in part the ability of the portfolio manager(s) to make active investment, strategic or trading decisions that are suited to achieving the account's investment objective. As a result of strategy, investment selection or trading execution, such account could underperform its benchmark or other investment products with similar investment objectives.
- **Quantitative Analysis Risk** – The risk that securities selected for accounts that are actively managed, in whole or in part, according to quantitative analysis methodology (i.e., models utilizing econometric and mathematical techniques) can perform differently from the market as a whole based on the

model and the factors used in the analysis, the weight placed on each factor and changes in the factor's historical trends and the risk that such quantitative analysis and modeling may not adequately take into account certain factors, may contain design flaws or inaccurate assumptions and may rely on inaccurate data inputs. If inaccurate market data is entered into a quantitative model, the resulting information will be incorrect. Because such models are based on assumptions of these and other market factors, the models may not take into account certain factors, or perform as intended, and may result in a decline in the value of an account's portfolio.

- **Large-Cap Risk** – The risk that, by focusing on securities of larger companies, an account may have fewer opportunities to identify securities that the market misprices and that these companies may grow more slowly than the economy as a whole or not at all. Also, larger companies may fall out of favor with the investing public as a result of market, political and economic conditions, including for reasons unrelated to their businesses or economic fundamentals.
- **Mid-Cap Risk** – Securities of medium-sized companies may experience greater fluctuations in price than the securities of larger companies. From time to time, medium-sized company securities may have to be sold at a discount from their current market prices or in small lots over an extended period, since they may be harder to sell than larger-cap securities. In addition, it may be difficult to find buyers for securities of medium-sized companies that an account wishes to sell when the company is not perceived favorably in the marketplace or during periods of poor economic or market conditions. Such companies may be subject to certain business risks due to their smaller size, limited markets and financial resources, narrow product lines and frequent lack of depth of management. The costs of purchasing and selling securities of medium-sized companies may be greater than those of more widely traded securities.
- **Small-Cap Risk** – Securities of small-sized companies may experience greater fluctuations in price than the securities of larger companies. The securities of small-sized companies often have lower overall liquidity than those of larger, more established companies. The number of small-sized companies whose securities are listed on securities exchanges has been declining while investor demand for the securities of such issuers has been increasing, in each case relative to historical trends, which may increase an Account's exposure to illiquid investments risk. As a result, an Account's investments in the securities of small-sized companies may be difficult to purchase or sell at an advantageous time or price, which could prevent the Account from taking advantage of investment opportunities. From time to time, small-sized company securities may have to be sold at a discount from their current market prices or in small lots over an extended period, since they may be harder to sell than larger-cap securities. In addition, it may be difficult to find buyers for

securities of small-sized companies that an Account wishes to sell when the company is not perceived favorably in the marketplace or during periods of poor economic or market conditions. Such companies may be subject to certain business risks due to their smaller size, limited markets and financial resources, narrow product lines and frequent lack of depth of management. The costs of purchasing and selling securities of small-sized companies may be greater than those of more widely traded securities.

- **ESG Criteria Risk** – The risk that because the account’s ESG criteria and/or proprietary impact framework exclude securities of certain issuers for nonfinancial reasons, the account may forgo some market opportunities available to accounts that do not use these criteria.

Fixed income and Money Market Risks

- **Interest Rate Risk** (a type of **Market Risk**) – The risk that the value or yield of fixed- income investments may decline if interest rates change. In general, when prevailing interest rates decline, the market values outstanding of fixed- income investments (particularly those paying a fixed rate of interest) tend to increase while yields on similar newly issued fixed- income investments tend to decrease, which could adversely affect an account’s income. Conversely, when prevailing interest rates increase, the market values outstanding fixed-income investments (particularly those paying a fixed rate of interest) tend to decline while yields on similar newly issued fixed- income investments tend to increase. If a fixed- income investment pays a floating or variable rate of interest, changes in prevailing interest rates may increase or decrease the investment’s yield. Fixed- income investments with longer durations tend to be more sensitive to interest rate changes than shorter-term investments. Interest rate risk is generally heightened during periods when prevailing interest rates are low or negative. During periods of very low or negative interest rates, an account may not be able to maintain positive returns. With respect to the Money Market Account, low or negative interest rates could cause the Account to lose value and experience a negative yield.
- **Prepayment Risk** – The risk that during periods of falling interest rates, borrowers pay off their mortgage loans sooner than expected, forcing an account to reinvest the unanticipated proceeds at lower interest rates, resulting in a decline in income. These risks are normally present in mortgage-backed investments and other asset-backed investments. For example, homeowners have the option to prepay their mortgages. Therefore, the duration of a security backed by home mortgages can shorten depending on homeowner prepayment activity. A rise in the prepayment rate and the resulting decline in duration of fixed- income investments held by an account can result in losses to investors in the account.

- **Extension Risk** – The risk that during periods of rising interest rates, borrowers pay off their mortgage loans later than expected, preventing an account from reinvesting principal proceeds at higher interest rates, resulting in less income than potentially available. These risks are normally present in mortgage-backed securities and other asset-backed securities. For example, homeowners have the option to prepay their mortgages. Therefore, the duration of a security backed by home mortgages can lengthen depending on homeowner prepayment activity. A decline in the prepayment rate and the resulting increase in duration of fixed-income securities held by an account can result in losses to investors in the account.

- **Issuer Risk** - (often called **Financial Risk**) – The risk that the issuer’s earnings prospects and overall financial position will deteriorate, causing a decline in the value of the issuer’s financial instruments over short or extended periods of time. In times of market turmoil, perceptions of an issuer’s credit risk can quickly change and even large, well-established issuers may deteriorate rapidly with little or no warning.

- **Income Volatility Risk** – Income volatility refers to the degree and speed with which changes in prevailing market interest rates diminish the level of current income from a portfolio of fixed-income securities. The risk of income volatility is that the level of current income from a portfolio of fixed-income securities may decline in certain interest rate environments.

- **Credit Risk** (a type of **Issuer Risk**) – The risk that a decline, or perceived decline (whether by market participants, rating agencies, pricing services or otherwise), in a company’s financial position may prevent it from making principal and interest payments on fixed-income securities when due. Credit risk relates to the ability of an issuer of a fixed-income security to pay principal and interest on the security on a timely basis and is the risk that the issuer could default on its obligations, thereby causing an account to lose its investment in the security. This risk is heightened in the case of investments in lower-rated, high-yield fixed-income securities. Credit risk relates to the possibility that the issuer could default on its obligations, thereby causing an Account to lose its investment. Credit risk is heightened in times of market turmoil, when perceptions of an issuer’s credit risk can quickly change and even large, well-established issuers and/or governments may deteriorate rapidly with little or no warning. Credit risk is also heightened in the case of investments in lower-rated, high-yield fixed-income securities because their issuers are typically in weak financial health and their ability to pay interest and principal is uncertain. Compared to issuers of investment-grade securities, issuers of lower-rated, high-yield fixed-income investments are more likely to encounter financial difficulties and to be materially affected by such difficulties. High-yield securities may also be relatively more illiquid; therefore, they may be more difficult to purchase or sell

than more highly rated securities.

- **Current Income Risk** – The risk that the income an account receives may fall as a result of a decline in interest rates.
- **Fixed-Income Foreign Investment Risk** – Foreign investments, which may include fixed-income securities of foreign issuers, or securities or contracts payable or denominated in non-U.S. currencies, can involve special risks that arise from one or more of the following events or circumstances: (1) changes in currency exchange rates; (2) possible imposition of market controls or currency exchange controls; (3) possible imposition of withholding taxes on dividends and interest; (4) possible seizure, expropriation or nationalization of assets; (5) more limited foreign financial information about the foreign debt issuer or difficulties interpreting it because of foreign regulations and accounting standards; (6) lower liquidity and higher volatility in some foreign markets; (7) the impact of political, social or diplomatic events; (8) economic sanctions or other measures by the United States or other governments; (9) the difficulty of evaluating some foreign economic trends; and (10) the possibility that a foreign government could restrict an issuer from paying principal and interest on its debt obligations to investors outside the country. It may also be difficult to use foreign laws and courts to force a foreign issuer to make principal and interest payments on its debt obligations. In addition, the cost of servicing external debt will also generally be adversely affected by rising international interest rates because many external debt obligations bear interest at rates which are adjusted based upon international interest rates. The risks described often increase in countries with emerging market. For example, the ability of a foreign sovereign issuer, especially in an emerging market country, to make timely and ultimate payments on its debt obligations may be strongly influenced by the issuer's balance of payments, including export performance, its access to international credit and investments, fluctuations of interest rates and the extent of its foreign reserves. If deterioration occurs in the foreign country's balance of payments, it could impose temporary restrictions on foreign capital remittances. In addition, there is a risk of restructuring certain foreign debt obligations that could reduce and reschedule interest and principal payments.
- **Active Management Risk** – The risk that the performance of an account, which is actively managed, reflects in part the ability of the portfolio manager(s) to make active investment, strategic or trading decisions that are suited to achieving the account's investment objective. As a result of strategy, investment selection or trading execution, such account could underperform its benchmark or other investment products with similar investment objectives.
- **Market Volatility, Liquidity and Valuation Risk (types of Market Risk)** – Trading activity in fixed-income securities in which an account invests may be

dramatically reduced or cease at any time, whether due to general market turmoil, limited dealer capacity, problems experienced by a single company or a market sector or other factors, such as natural disasters or public health emergencies (pandemics and epidemics). In such cases, it may be difficult for an account to properly value assets represented by such securities. In addition, an account may not be able to purchase or sell a security at a price deemed to be attractive, if at all, which may inhibit an account from pursuing its investment strategies or negatively impact the values of portfolio holdings. Further, an increase in interest rates or other adverse conditions (e.g., inflation/deflation, increased selling of fixed-income investments across other pooled investment vehicles or accounts, changes in investor perception or changes in government intervention in the markets) may lead to increased redemptions and increased portfolio turnover, which could reduce liquidity for certain account securities, adversely affect values of portfolio holdings and increase an account's costs. If dealer capacity in fixed-income markets is insufficient for market conditions, this has the potential to further inhibit liquidity and increase volatility in fixed-income markets. Certain sectors of fixed-income investments, such as asset-backed securities, with longer durations or maturities may face heightened levels of liquidity risk.

- **Mortgage Dollar Roll Risk** – The risk that the adviser will not correctly predict mortgage prepayments and interest rates, which will diminish the investment performance of an account compared with what such performance would have been without the use of the strategy.
- **Downgrade Risk** – The risk that securities may be subsequently downgraded should TCIM and/or rating agencies believe the issuer's business outlook or creditworthiness have deteriorated. If this occurs, the values of these investments may decline, or it may affect the issuer's ability to raise additional capital for operational or financial purposes and increase the chance of default, as a downgrade may be seen in the financial markets as a signal of an issuer's deteriorating financial position.
- **Non-Investment Grade Securities Risk** – Issuers of non-investment grade securities, which are usually called "high-yield" or "junk bonds," are typically in weaker financial health and such securities can be harder to value and sell and their prices can be more volatile than more highly rated securities. While these securities generally have higher rates of interest, they also involve greater risk of default than do securities of a higher-quality rating.
- **Portfolio Turnover Risk** – In pursuing its investment objectives, a particular account may engage in trading that results in a high portfolio turnover rate, which may vary greatly from year to year, as well as within a given year. A higher portfolio turnover rate may result in correspondingly greater transactional expenses that are

by borne by an account. Such expenses may include bid-ask spreads, dealer mark-ups and other transactional costs on the sale of securities and reinvestments in other securities, and may result in the realization of taxable capital gains (including short-term gains, which are generally taxed to shareholders as ordinary income). These costs, which are not reflected in annual account expenses, may affect an account's performance.

- **Illiquid Investments Risk** – The risk that illiquid investments may be difficult to sell for the value at which they are carried, if at all, or at any price within the desired time frame. Illiquid investments are those that cannot be sold or disposed of in the ordinary course of business within seven days at approximately the value at which an account has valued the investment. An account's investments in illiquid investments may reduce the returns of the account because it may be unable to sell the illiquid investment at an advantageous time or price, which could prevent the account from taking advantage of other investment opportunities. Redemption requests could require an account to sell illiquid investments at reduced prices or under unfavorable conditions. Illiquid investments may trade less frequently, in lower quantities and/or at a discount as compared to more liquid investments, which may cause an account to receive distressed prices and incur higher transaction costs when selling such investments. Securities that are liquid at the time of purchase may subsequently become illiquid due to events such as adverse developments for an issuer, industry-specific developments, market events, rising interest rates, changing economic conditions or investor perceptions and geopolitical risk.
- **Derivatives Risk** – The risks associated with investing in derivatives may be different from and greater than the risks associated with directly investing in the underlying securities and other instruments. Derivatives such as swaps are subject to risks such as liquidity risk, interest rate risk, market risk and credit risk. These derivatives involve the risk of mispricing or improper valuation and the risk that the prices of certain options, futures, swaps (including credit default swaps), forwards and other types of derivative instruments may not correlate perfectly with the prices or performance of the underlying security, currency, rate, index or other asset. Certain derivatives present counterparty risk, or the risk of default by the other party to the contract, and some derivatives are, or may suddenly become, illiquid. Some of these risks exist for futures, options and swaps which may trade on established markets. Unanticipated changes in interest rates, securities prices or currency exchange rates may result in poorer overall performance of an Account than if it had not entered into derivatives transactions. The potential for loss as a result of investing in derivatives, and the speed at which such losses can be realized, may be greater than investing directly in the underlying security or other instrument. Derivative investments can create leverage by magnifying investment losses or gains, and an Account could lose more than the amount invested.

- **Special Risks Relating to Inflation-Indexed Bonds** – The risk that market values of inflation-indexed investments held by an account may be adversely affected by a number of factors, including changes in the market’s inflation expectations, changes in real rates of interest or declines in inflation (or deflation). There is a risk that interest payments in inflation-indexed investments may fall because of a decline in inflation (deflation). In addition, the U.S. Bureau of Labor’s Consumer Price Index for All Urban Consumers (CPI-U) may not accurately reflect the true rate of inflation. If the market perceives that any of these events have occurred, then the market value of those investments could be adversely affected.

- **Current Income Risk** – The risk that income an account receives may fall as a result of a decline in interest rates. In a low or negative interest rate environment, an account may not be able to achieve a positive or zero yield.

- **U.S. Government Securities Risk** – U.S. Treasury obligations and some obligations of U.S. Government agencies and instrumentalities are supported by the full faith and credit of the U.S. Government. Other U.S. Government agencies or instrumentalities are backed by the right of the issuer to borrow from the U.S. Treasury. Still others are supported only by the credit of the issuer. No assurance can be given that the U.S. Government would provide financial support to its agencies or instrumentalities if not required to do so by law, and such agencies or instrumentalities may not have the funds to meet their payment obligations in the future. Therefore, securities issued by U.S. Government agencies or instrumentalities that are not backed by the full faith and credit of the U.S. Government may involve increased risk of loss of principal and interest. In addition, the value of U.S. Government securities may be affected by changes in the credit rating of the U.S. Government. To the extent an account focuses its investments in securities issued or guaranteed by the U.S. Government or its agencies or instrumentalities, any market movements, regulatory changes or changes in political or economic conditions that affect the securities of the U.S. Government or its agencies or instrumentalities in which an account invests may have a significant impact on the account’s performance. Events that would adversely affect the market prices of securities issued or guaranteed by one U.S. Government agency or instrumentality may adversely affect the market prices of securities issued or guaranteed by other agencies or instrumentalities.

- **Floating and Variable Rate Securities Risk** – Floating and variable rate securities provide for adjustment in the interest rate paid on the obligations. The terms of such obligations typically provide that interest rates are adjusted based upon an interest or market rate adjustment as provided in the respective obligations. The adjustment intervals may be regular, and range from daily up to annually, or may be event-based, such as based on a change in the prime rate. Because of the interest rate adjustment feature, floating and variable rate securities provide an investor with a

certain degree of protection against rises in interest rates, although the investor will participate in any declines in interest rates as well. Generally, changes in interest rates will have a smaller effect on the market value of floating and variable rate securities than on the market value of comparable fixed-income obligations. Thus, investing in floating and variable rate securities generally allows less opportunity for capital appreciation and depreciation than investing in comparable fixed-income securities. Floating and variable rate securities may be subject to greater liquidity risk than other debt securities, meaning that there may be limitations on an account's ability to sell the securities at any given time. Such securities also may lose value.

Please also note that some of the strategies may involve frequent trading which may increase the brokerage, other transaction costs and taxes associated with such a strategy. These increased costs and taxes may negatively affect the performance associated with such strategies.

Global Risks

Global Economic Risk – National and regional economies and financial markets are becoming increasingly interconnected, which increases the possibilities that conditions in one country, region or market might adversely impact issuers in a different country, region or market. Changes in legal, political, regulatory, tax and economic conditions may cause fluctuations in markets and securities prices around the world, which could negatively impact the value of an account's investments. Major economic or political disruptions, particularly in large economies, may have global negative economic and market repercussions. Additionally, events such as war, terrorism, natural and environmental disasters and the spread of infectious illnesses or other public health emergencies may adversely affect the global economy and the markets and issuers in which an account invests. These events could reduce consumer demand or economic output, result in market closure, travel restrictions or quarantines, and generally have a significant impact on the economy. Such events could materially increase risks, including market and liquidity risk, and significantly reduce account values. These events could also impair the information technology and other operational systems upon which service providers, including TCIM, rely, and could otherwise disrupt the ability of employees of service providers to perform essential tasks on behalf of an account. There is no assurance that governmental and quasi-governmental authorities and regulators will provide constructive and effective intervention when facing a major economic, political or social disruption, disaster or other public emergency. Please note that investing in securities involves a risk of loss that clients should be prepared to bear.

Item 9 Disciplinary Information

As a registered investment adviser, TCIM is required to disclose all material facts regarding any legal or disciplinary events that would be material to the evaluation of TCIM or the integrity of TCIM's management. To that end, TCIM has no events to report.

Item 10 Other Financial Industry Activities and Affiliations

TCIM has arrangements that are material to its advisory business or its clients with related persons. Also, certain supervised persons of TCIM are registered representatives and associated persons of one or more affiliated broker/dealers.

As discussed above, TCIM is a subsidiary of TIAA-CREF Asset Management LLC, which is an indirect subsidiary of Nuveen. Nuveen is a subsidiary, and represents the Asset Management division, of TIAA, a leading financial services provider. TIAA constitutes the ultimate principal owner of TCIM. For additional information on the ownership structure, please see Form ADV Part 1, Schedules A and B.

TIAA's subsidiaries include various financial industry entities, including broker-dealers, other investment advisers, commodity pool operators and/or commodity trading advisers, banking or thrift institutions, insurance companies or agencies, pension consultants, sponsors or syndicators of limited partnerships, and sponsors, general partners, or managing members of pooled investment vehicles, among other entities. For further information on these subsidiaries, please see Exhibit A.

TIAA is considered a control person of TCIM, and TIAA's other financial industry entities may be considered affiliates of TCIM under various other regulatory regimes, including as applicable the Investment Advisers Act of 1940, as amended (the "Advisers Act"), the Investment Company Act of 1940, as amended (the "Investment Company Act") and the Employee Retirement Income Security Act of 1974.

TCIM is committed to putting the interests of its clients first and seeks to act in a manner consistent with its fiduciary and contractual obligations to its clients and applicable law. At times, TCIM may determine, in an exercise of its discretion, to limit or refrain from entering into certain transactions, for some or all clients, in order to seek to avoid a potential conflict of interest, or where the legal, regulatory, administrative or other costs associated with entering into the transaction are deemed by TCIM to outweigh the expected benefits. Further, certain regulatory and legal restrictions or limitations and internal policies (including those relating to the aggregation of different account holdings by TCIM and its affiliates) may restrict certain investment or voting activities of TCIM on behalf of its clients. For example, TCIM's investment and proxy voting activities with respect to certain securities, issuers, regulated industries and non-U.S. markets may be restricted where applicable laws or regulations impose limits or burdens with respect to exceeding certain investment thresholds when aggregated with its affiliates.

From a business perspective within Nuveen, TCIM's business is part of a functional group (known internally as Nuveen Equities & Fixed Income), which seeks to provide alignment

and collaboration among certain Nuveen affiliates managing public equity and fixed income asset classes. These affiliates include TCIM, TAL, Nuveen Asset Management, LLC (“NAM”), NWQ Investment Management Company, LLC, Santa Barbara Asset Management, LLC, Winslow Capital Management, LLC, and others.

From an investment perspective within Nuveen, TCIM’s municipal fixed income, taxable fixed income, and equities investment services are part of a broader Nuveen organizational framework that seeks to promote greater collaboration among and provide leadership to the respective investment teams. TCIM’s municipal bond and taxable fixed income investment teams comprise investment and trading personnel who are “multi-hatted” as employees across TCIM, TAL and NAM. These teams coordinate and share investment and certain trading processes with respect to client accounts in municipal bond and taxable fixed income strategies. These integrated municipal bond and taxable fixed teams are sometimes referred to in the marketplace as Nuveen Municipal Fixed Income and Nuveen Global Fixed Income, respectively. Further integration and use of multi-hatted personnel within the Nuveen equities teams is expected.

Multi-hatted employees face conflicts in providing services for various clients of multiple affiliates, such as in the areas of trade sequencing and allocating opportunities. These conflicts are similar to the conflicts they face in providing services for various clients (including affiliated and proprietary accounts) of a single investment adviser. Through its policies, procedures and practices, NAM seeks to provide for the fair and equitable treatment of its clients. See Item 12.

TIAA affiliates market, distribute, make referrals of, use and/or recommend investment products and services (including funds and pooled investment vehicles, and investment advisory services) of other affiliates (including TCIM), and such affiliates may pay and receive fees and compensation in connection thereto. As a result of the potential additional economic benefit to TCIM and/or its affiliates resulting from such activities, there is a potential conflict of interest for TCIM, which TCIM seeks to mitigate in a variety of ways, depending on the nature of the conflict, such as through oversight of these activities and/or by disclosure in this Brochure. Affiliated broker-dealers and their personnel act as distributors with respect to and/or promote and provide marketing support to affiliated funds and broker-dealer personnel are internally compensated for those activities. Such distribution activities are subject to the broker-dealer’s own procedures.

As described herein, TCIM provides services to multiple proprietary or affiliated funds or accounts of various sizes and strategies. It is the general policy of TCIM that proprietary or affiliated funds or accounts should receive neither special advantages nor disadvantages. TCIM addresses the conflict associated with providing services to both affiliated and unaffiliated funds/accounts by seeking to act in a manner consistent with its policies and procedures and its fiduciary duty to all clients.

TCIM's affiliates or shared services units provide it with supplemental account administration, trading, operations, client service, sales and marketing, product development and management, risk management, information technology, legal and compliance, human resources, and other corporate, finance or administrative services. TCIM may likewise provide services for its affiliates. Certain personnel may perform services for both TCIM and one or more TCIM affiliates ("Multi-hatted Personnel"). The scope of certain such services and arrangements varies depending on the particular strategy, distribution channel, program, and client size and type.

Item 11 Code of Ethics, Participation or Interest in Client Transactions and Personal Trading

TCIM is subject to the Nuveen's Code of Ethics and TCIM's Supplemental Code of Ethics (collectively, the "Code") under Rule 204A-1 of the Investment Advisers Act and Rule 17j-1 of the Investment Company Act. The Code governs, among other things, the personal trading activities of certain employees or "Access Persons" and members of their households. Access Persons must place the interests of TIAA and its affiliates and clients above their own. In addition, Access Persons:

- May not attempt to profit personally from their knowledge of recent or contemplated transactions in clients' accounts including any mutual funds affiliated with TCIM.
- Must act in a manner consistent with that of a fiduciary with respect to client accounts.
- Must conduct personal securities transactions consistent with the Code and in such a manner as to avoid any actual or potential conflict of interest or any abuse of a position of trust and responsibility.
- May not purchase or sell a security when they have actual knowledge that a mutual fund or other client account will be trading in that security (or a related security).

Access Persons are required to maintain their brokerage accounts at a limited number of brokerage firms approved by Compliance. While Access Persons and their household members may invest in securities that may also be purchased or held by client accounts, they must pre-clear and report all covered securities transactions as required by the Code. In addition, Access Persons must disclose personal security transactions and holdings information. The Code is designed to ensure that the personal securities transactions, activities and interests of the Access Persons will not interfere with making decisions that are in the best interest of advisory clients. The Code therefore restricts trading in close proximity to client trading activity and restricts personal trading for securities for which the firm is in possession of Material Nonpublic Information. Under the Code, certain classes of securities have been designated as exempt transactions in conjunction with the associated rules. Access Persons trading is continually monitored under the Code to reasonably prevent conflicts of interest between TCIM and its clients. All Access Persons must annually acknowledge their understanding of the terms of the Code. TCIM will provide a summary copy of the Code to any client or prospective client upon request.

TCIM and its affiliates must also adhere to the restrictions contained in the TIAA Code of Business Conduct, which articulates general standards of ethical conduct for employees, the Teachers Advisors, LLC and TIAA-CREF Investment Management, LLC Material

Nonpublic Information Policy, and the Nuveen Global Business Gift, Meal and Entertainment Policy.

Transactions Among Clients

TCIM may periodically recommend securities to its clients that are also recommended by one or more of its affiliated persons to their clients. TCIM has policies and procedures such as the fair allocation policies described in Item 12 to address any conflicts that may arise from such transactions.

TCIM may purchase or sell securities for the accounts of its clients in which TCIM or a related person may have a position of financial or other interests, and may buy or sell for itself securities that it also recommends to its clients. TCIM has established a variety of restrictions, procedures and disclosures designed to address any potential conflicts of interest that may arise as a result of these arrangements. Pursuant to these policies, any principal or cross transaction must be fair and equitable and executed in accordance with Section 206(3) under the Advisers Act. In addition, the sale price and purchase price in principal transactions and cross transactions will be the market value of the securities.

TCIM may execute transactions between CREF and certain other client accounts managed by its affiliates (including the registered funds managed by TAL). Any such transactions will be executed in accordance with Rule 17a-7 under the Investment Company Act and procedures adopted by the TCIM's Boards of Trustees (as applicable). The procedures provide among other things that (1) the transaction was a purchase or sale, for no consideration other than cash payment against prompt delivery of the security for which market quotations were readily available, (2) the transaction was effected at the independent current market price of the security determined as specified in the procedures, (3) the transaction is consistent with the policy of each fund participating in the transaction, as recited in its registration statement, and (4) no brokerage commission, fee (except for customary transfer fees) or other remuneration was paid in connection with the transaction.

TCIM's investment decisions are limited by the investment criteria established for each CREF Account and TCIM's own internal guidelines. In making any investment decision concerning the amount of securities to buy or sell, TCIM will consider many factors, including but not limited to, the client's policies and restrictions, investment objectives, issuer, industry and sector concentration, tax implications, and the size of the investment in relation to the account.

TCIM, when appropriate, may advise its clients to invest in securities that are being purchased by its parent, TIAA. TCIM has an established trade allocation policy to seek to ensure that the purchased securities are allocated fairly.

Cross Trades

For certain client accounts, in accordance with applicable law, TCIM effects cross trades

between the accounts of clients advised by it or its affiliates in appropriate circumstances. TCIM believes that cross trades have the potential to provide benefits to both the buying and the selling account, including eliminating or reducing transaction costs. Further, cross trades can provide a potentially attractive alternative to selling or buying a small-lot size of a desirable security in the open market, especially when the small-lot is part of a larger block position held by other TCIM clients. Prior to each cross trade transaction, TCIM will determine that the transaction is in the best interests of both clients concerned based on the investment objectives and portfolio characteristics of each client account. Neither TCIM nor any broker-dealer affiliated with TCIM receives any commission, transaction fees or other transactional compensation in connection with effecting cross trades.

Any cross trades involving U.S. registered open-end and closed-end investment companies are carried out in accordance with Rule 17a-7 under the Investment Company Act and applicable policies and procedures.

Material Non-Public Information

From time to time, TCIM is subject to limitations on its investment activities relating to the possession of material non-public information (“MNPI”). Under applicable law, TCIM and its personnel are prohibited from improperly disclosing or using MNPI for its own benefit or the benefit of its clients. Possession of MNPI could limit TCIM’s ability to transact in affected investments, which could be detrimental to client accounts. TCIM may in its discretion seek to employ the use of certain approaches or procedures to seek to minimize such limitations, but there is no assurance that TCIM will employ such procedures or that such procedures will be effective in alleviating the limitations associated with possessing MNPI.

Capital Structure

Conflicts will also arise in cases where different Funds or clients of TCIM or affiliates of the TCIM invest in different parts of an issuer’s capital structure, including circumstances in which one or more clients or accounts may own private securities or obligations of an issuer and other clients or accounts may own public securities of the same issuer. For example, an account may acquire a loan, loan participation or a loan assignment of a particular borrower in which one or more other accounts have an equity investment. In addition, different clients or accounts may invest in securities of an issuer that have different voting rights, dividend or repayment priorities or other features that may be in conflict with one another. In negotiating the terms and conditions of any such investments, or any subsequent amendments or waivers, TCIM or its affiliates may find that their own interests, the interests of clients or accounts could conflict. For example, a debt holder may be better served by a liquidation of the issuer in which it may be paid in full, whereas an equity holder might prefer a reorganization that holds the potential to create value for the equity holders. Any of the foregoing conflicts of interest will be discussed and resolved on a case-by-case basis. Any such discussions will take into consideration the interests of the

relevant clients and accounts, the circumstances giving rise to the conflict and applicable laws.

Item 12 Brokerage Practices

Selecting Broker – Dealers

TCIM is responsible for decisions to buy and sell securities for its accounts as well as for selecting brokers and, where applicable, negotiating the amount of the commission rate paid. It is the intention of TCIM to place brokerage orders with the objective of obtaining the best execution. In evaluating best execution for equity transactions, TCIM considers a number of factors, including, without limitation, the following: best price; the nature of the security being traded; the nature and character of the markets for the security to be purchased or sold; the likely market impact of the transaction based on the nature of the transaction; the skill of the executing broker; the liquidity being provided by the broker; the broker-dealer's settlement and clearance capability; the reputation and financial condition of the broker-dealer; the costs of processing information; the nature of price discovery in different markets; and the laws and regulations governing investment advisers. When purchasing or selling securities traded on the over-the-counter market, TCIM generally will execute the transactions with a broker engaged in making a market for such securities. When TCIM deems the purchase or sale of a security to be in the best interests of one or more accounts, it may, consistent with its fiduciary obligations, decide either to buy or sell a particular security for the accounts at the same time as for other accounts that it may be managing, or that may be managed by its affiliate, TAL, another investment adviser subsidiary of TIAA. In that event, allocation of the securities purchased or sold, as well as the expenses incurred in the transaction, will be made in an equitable manner.

Transactions on equity exchanges and other agency transactions involve the payment of negotiated brokerage commissions. Such commissions vary among different brokers. Trades are regularly monitored for best execution purposes by the equity trading desk.

TCIM's fixed-income traders select the broker-dealers (sell-side) with whom they do business independent of any research, strategy pieces or trade recommendations provided to TCIM. The vast majority of institutional fixed-income trading is conducted over-the-counter rather than on exchanges, with set prices plus commissions. Fixed-income trading is based on the risk-taking practice of market making by sell-side firms, which attempt to capture the bid/ask spread on trades where capital is committed (principal model) or on a pre-negotiated spread concession for riskless principal trades (agency model).

The fixed-income marketplace does not use a voting system to rate broker-dealers with the intent of using those rankings to direct or allocate trades. The directive to TCIM's fixed-income traders, and the conventional trading construct within the fixed-income market, is based on the practice of fiduciary efforts to achieve best execution. The research, credit opinions and relative value trade recommendations provided by TCIM's sell-side

counterparts are evaluated, but there is no direct linkage between that evaluation and TCIM's selection of a particular broker- dealer for trade execution. When selecting a broker, the traders follow established trading protocols for data aggregation, price discovery, inventory mining and information protection and conduct an assessment of counterparty performance. The protocol incorporates TCIM's knowledge of and experience with select broker-dealers with respect to providing liquidity, namely the highest bid price or lowest offer price for a particular security.

TCIM and certain affiliates utilize one or more shared centralized trading desks for trading certain fixed income strategies, depending on the specific strategy, dollar amount, operational connectivity and other factors.

Every broker is reviewed by the Equity or Fixed-Income Best Execution Committee, as appropriate, which is comprised of representatives from trading, portfolio management, compliance and law. Risk management also reviews the creditworthiness of all brokers.

TCIM does not use affiliated broker-dealers to execute any trades on its behalf. Also, client referrals do not play a role in TCIM's broker selection process.

Prohibition on Directed Brokerage Arrangements for Registered Investment Company Clients

TCIM has adopted policies and procedures relating to its registered investment company clients to prohibit directed brokerage arrangements prohibited by Rule 12b-1 (h) under the Investment Company Act. This rule prohibits investment companies from using brokerage commissions to compensate any broker-dealer for the promotion or sale of investment company shares. TCIM's policies and procedures prohibit it from using select broker-dealers to execute account portfolio securities transactions, or directing commissions to broker-dealers, in consideration of promotional or sales efforts with respect to the accounts. In addition, the affiliated investment companies including the TIAA-CREF Funds, TIAA-CREF Life Funds, and TIAA Separate Account VA-1, their respective investment adviser, and any principal underwriter of the funds may not enter into any agreement (whether oral or written) or other understanding under which a fund directs, or is expected to direct, fund portfolio securities transactions, or any remuneration (including but not limited to any commission, mark-up, mark-down, or other fee or portion thereof received or to be received from the fund's portfolio transactions effected through any other broker-dealer), to a broker-dealer in consideration for the promotion or sale of fund shares. In particular, commissions may not be allocated to a broker-dealer in return for sale of the funds, for "shelf space" for the funds, for exposure of funds to the broker-dealer's sales force or clients, or for any other arrangement that is designed to support or promote the broker-dealer's sales of the funds' shares.

Transactions for Initial Purchase of Equity or Debt Instruments

Transactions involving the initial purchase of equity or debt instruments generally involve an investment banker that charges a fee to the issuer of the equity or debt securities. TCIM does not directly pay a fee or negotiate the fee.

Research and Services Provided by Broker-Dealers

With respect to equity securities, TCIM has adopted a policy embodying the concepts of Section 28(e) under the Securities Exchange Act of 1934, which provides a safe harbor allowing an investment adviser to cause an account to pay a higher commission to a broker that also provides research services than the commission another broker would charge (generally referred to as the use of “soft dollars”). To utilize soft dollars, the adviser must determine in good faith that the commission paid is reasonable in relation to the value of the brokerage and research services provided and that, over time, each account paying soft dollars receives some benefit from the research obtained through the use of soft dollars. An adviser may make such a determination based upon either the particular transaction involved or the overall responsibilities of the adviser with respect to the accounts over which it exercises investment discretion. Therefore, specific research may not necessarily benefit all accounts paying commissions to such broker. Research obtained through soft dollars may be developed by the broker or a third party, where the obligation to pay is between the broker and the third party. In such cases the research will be paid for through a Commission Sharing Arrangement (CSA) or similar arrangement.

Fixed-income trades on behalf of TCIM’s accounts in which the broker is acting as principal may not be allocated in order to generate soft dollar credits, but at times, a broker may send TCIM unsolicited proprietary research that may be based in part on fixed-income trading volume directed to that broker. Similarly, trades on behalf of TCIM’s accounts that follow an index or quantitative strategy, or execution-only trades, may not generate soft dollars, but at times a broker may send TCIM unsolicited proprietary research that is based in part on such trades.

As part of Nuveen Equities (the integrated equity investment teams of affiliates TCIM, TAL and Nuveen Asset Management, LLC (“NAM”)), CSA credits generated by TCIM, TAL and NAM are aggregated in to a single pool, and research is allocated among the respective Nuveen Equities investment teams based on factors such as asset size of the team’s equity strategy and the strategy’s geographic considerations (e.g., U.S. vs non-U.S.; developed markets vs emerging markets).

Research or services obtained for one client may be used by TCIM in managing other clients and other investment company clients and advisory clients of TCIM. Research or services obtained by TCIM also may be used by TAL or NAM for the benefit of their

respective clients, and vice versa.

To address conflicts of interests, TCIM has adopted policies and procedures for the use of soft dollars. Additionally, TCIM may develop specialized policies and procedures for the use of and payment for soft dollars with respect to particular clients.

Trade Error Policy

It is the policy of the adviser to review, report, and correct transaction-related errors that occur in connection with client public market securities transactions as soon as possible, so that clients are not disadvantaged as a result of an error. Transaction exceptions are escalated for review to the Transaction Error Review Committee, a group comprised of senior-level control partners including representatives from Law, Compliance, Risk Management, Finance and Operations. The Committee is responsible for overseeing the reimbursement of transaction errors in client accounts managed by the TCIM. The Committee reviews the facts and circumstances of each error presented and has the authority to act on behalf of TCIM to determine the appropriate reimbursement of client accounts. The Committee also analyzes the root cause of exceptions and evaluates the remediation of control gaps. All exceptions, reimbursements and corrective actions taken to remediate process gaps are reviewed and approved by the Committee.

Policies Regarding Aggregation and Allocation of Orders

Equity Securities Policy

TCIM has adopted aggregation and allocation of orders procedures designed to treat each account fairly and equitably over time in the allocation of investment opportunities and the aggregation and allocation of trades. The procedures also impose restrictions on potentially inconsistent trading and provide guidelines for trading priority. Moreover, TCIM's trading activities are subject to supervisory review and compliance monitoring to help address and mitigate conflicts of interest and ensure that accounts are being treated fairly and equitably over time. In determining whether an account's participation in an order is appropriate, TCIM considers the account's investment objectives, investment restrictions, cash position, need for liquidity, sector concentration and other objective criteria.

TCIM may aggregate or "bunch" orders of various accounts, including registered investment companies, unregistered investment companies, TIAA, other proprietary accounts and client accounts of TCIM's affiliates, consistent with TCIM's policy to seek best execution for its orders.

In summary, subject to best execution, open orders for the same single security are aggregated with other orders for the same single security with the same trading priority guidelines received at the same time as well as with open or unfilled portions of earlier orders of the same single security with the same trading priority. If aggregated orders are

fully executed, each participating account is allocated its share pro rata based on order size on an average execution price and trading cost basis. In the event the order is only partially filled, each participating account receives a pro-rata share of the securities purchased (or a pro-rata share of the proceeds of securities sold) based on the size of its order relative to the aggregated order.

However, basket trades are generally not aggregated with orders for the same security in other baskets or with single security order for the same security, because they are used to pursue quantitative strategies and rely on an automated process to implement trades on an as needed basis (as indicated by the relevant index or model). Also, because of their size, execution of the basket trades occur in stages and TCIM must be able to monitor characteristics (e.g., cash, region, sector, beta, neutrality) of the baskets in the aggregate in order to be able to make changes to the baskets as necessary. In certain instances (e.g., portfolio transitions), single name aggregation may occur if a trader determines that, based on basket characteristics as well as total volume to traded and illiquid nature of a particular security, one or more large single orders within a basket should be removed from the basket and aggregated with other orders (whether single security trades or other basket trades) to achieve best execution.

The procedures also impose restrictions on potentially inconsistent trading of single securities. For example, a portfolio manager of TCIM may not sell a single security short for an account if the same portfolio manager either is long in the security or is neutral or overweight the long position against the benchmark of the account holding the securities long. Similarly, a portfolio manager may not buy a security long if the same portfolio manager has a short position in the same security. This limitation does not apply to a portfolio manager buying a security to close or reduce a short position or underweight long position against the benchmark of an account. This limitation also does not apply to securities, futures, or derivative instruments representing broad-based indices or baskets of underlying securities (e.g., certain exchange traded funds that track index of broad based securities) or trades for model-driven quantitative strategies. Basket trades do not have the same types of restrictions on potentially inconsistent trading because they are tailored to a particular index or model portfolio based on the risk profile of a particular account pursuing a particular quantitative strategy.

In addition, the procedures set forth guidelines for long and short trades. Both long and short trades are routed by portfolio managers to the same trading desk. Single security trades (both long and short) are time-recorded and prioritized for execution based on when they are received by the trading desk.

Exceptions to TCIM's aggregation and allocation of orders procedures must be approved in accordance with the procedures.

Fixed Income Securities Policy

The mandate of the Fixed Income Trading Desk is to operate in a fiduciary capacity on behalf of all clients and to act in their best interest when trading securities. The Fixed Income Desk continually seeks to obtain the overall best trade execution given prevailing market conditions while utilizing approved broker-dealers as authorized by the Best Execution Committee.

Fixed income trades are typically executed on a net yield basis – the dealers through whom we execute client trades do not charge explicit commissions, commission equivalent (e.g., separately identifiable mark-ups and mark-downs in such transactions) or spreads. Fixed income orders entered into Bloomberg AIM, the fixed income trading system, are aggregated to assist in the best execution of trade orders. Most multiple account orders that are not completely filled after the initial trade execution are then allocated pro-rata automatically by AIM and incorporates the firm-wide de minimis and rounding requirements. The allocation for these orders are made pro-rata by account, based upon the original trade order each account’s portfolio manager entered into AIM or communicated to the trading desk using pre-established AIM rules.

Non pro-rata allocations for new issue municipal securities are generally based on specialty mandates that require preferable allocations of certain issues (such as state specific, high yield, ESG or insured bonds) because of the more limited supply of investment opportunities for such mandates, rounding lot sizes, the relative availability of cash (or expected cash), and other factors.

With respect to investment and trading personnel of TCIM that concurrently perform services as Multi-hatted Personnel of TAL and NAM, NAM’s centralized trading desk for municipal securities new issues allocates new issues among accounts of TCIM, TAL and NAM. Such personnel face conflicts relating to providing services for various clients of multiple different affiliates, such as in the areas of trade sequencing and allocating investment opportunities. These conflicts are similar to the conflicts faced by such personnel in providing services for various clients (including affiliated and proprietary accounts) of a single investment adviser. Through its policies, procedures and practices, TCIM seeks to provide for the fair and equitable treatment of such clients. See Item 10.

Post trade allocation, should a portfolio manager notify the trading desk that they wish to transfer a portion of or an entire allocation from one account to another account, a written exception request must be submitted to Global Public Markets management for review and approval. In cases where a portfolio manager opts to *withdraw* their entire allocation, either the balance will be offered to the remaining accounts on a pro-rata basis or the withdrawn balance will be sold in the secondary market, with performance attribution being assigned to the original portfolio account.

TCIM's policy on the use of soft dollars prohibits generating soft dollars through fixed income transactions. Therefore, fixed income research provided by our Broker-Dealer's is not a criterion considered when executing trades. Fixed income research and related services are provided by our counterparts with a view that they are a cost of doing business and an important means of sustaining long term relationships.

The Fixed Income Trading Desk does not employ the use of a voting system to rate Broker-Dealers with the intent of using those rankings to direct or allocate trades. The quality of research, credit opinions or relative value trade recommendations that are provided by our counterparts are periodically evaluated but there is no connection between rankings and our selection of a particular Broker-Dealer for trade execution.

Municipal Securities

Generally, secondary market trades are not managed by a centralized trading desk. Accordingly, while individual portfolio managers may aggregate trades for multiple accounts they manage, in most cases, such trades are not aggregated with trades initiated by other portfolio managers. In circumstances where a portfolio manager has reason to believe that other accounts managed by other portfolio managers may be in the market at the same time selling the same security, a central trading desk for new issues will coordinate the selling activity by coordinating and aggregating such sell orders.

IPO Allocation Policy

TCIM has adopted written procedures with respect to allocation of initial public offerings ("IPOs"). Allocations of IPOs by TCIM will be made in a fair and equitable manner consistent with its fiduciary obligations. Portfolio managers wishing to participate in a particular IPO or Secondary Offering must communicate their indications to the trading desk either in writing, through a secure computer system, or by calling the trading desk. The trading desk enters the indications into an IPO database. In situations where IPO or Secondary Offering shares allocated to the firm are less than the total amount of shares TCIM indicated for all portfolio managers, default allocations among portfolio managers who have indicated for the IPO or Secondary Offering will be done pro rata, based on the amount of assets of the portfolio manager manages for each portfolio participating, subject to a ceiling based on the maximum amount indicated for each portfolio to ensure that the portfolio does not receive more shares than it had indicated for.

When indications are made on behalf of certain concentrated funds ("Specialty Funds"), TCIM uses a modified allocation process to help ensure that Specialty Funds receive a fair allocation of IPO and Secondary Offerings that fall within their areas of industry concentration. For the purposes of this IPO and Secondary Offering Allocation Policy,

Specialty Funds are funds that, as a fundamental investment policy, concentrate more than 25% of total assets in equities in any one industry, as determined by Compliance.

TCIM has put procedures in place to handle situations where allocations are to be changed after the order is placed, provided the reason for the change is in writing and signed off by appropriate senior management of TCIM.

Allocations relating to Municipal Securities

New issues of municipal securities are allocated through a municipal bond centralized trading desk pursuant to procedures that are designed to treat all accounts fairly and equitably over time. Generally, if an allotment of a new municipal issue is for less than the total bonds for which orders were placed, the total allotment received generally will be allocated pro rata based on the number of bonds requested by each accounts, to the extent practicable. Non pro rata allocations are generally based on specialty mandates that require preferable allocations of certain issues (such as high yield, ESG bonds) because of the more limited supply of investment opportunities for such mandates, rounding lot sizes, the relative availability of cash (or expected cash), and other factors.

Item 13 Review of Accounts

The only client for TCIM is CREF which consists of eight investment portfolios but which may consist of additional portfolios in the future. The portfolio managers or their designee review on a coordinated basis TCIM's client accounts for which they are responsible. The TIAA Public Investments Oversight Committee is an internal management committee established as a sub-committee of Nuveen Risk, Investments and Compliance Committee (the "Nuveen RICC") to oversee the investment risk, and compliance risk profiles, the design and implementation of risk management and compliance frameworks, and to report up to Nuveen RICC in fulfilling its risk and compliance oversight responsibilities for funds managed by portfolio managers. Along with the President of TIAA Public Investments, the Committee includes representatives from Risk Management, Compliance, Valuations, Law, Product, Client Portfolio Management, Fund Administration, Operations/IT and Investment Oversight.

It is the responsibility of the portfolio managers to manage each portfolio according to its specific investment objectives. Portfolio managers review on a continuous basis all of the CREF investment portfolios for which they are responsible and the members of the Investment Committee monitors the performance of the portfolios. Analysts and traders may also be part of this review process, as appropriate. When the CREF investment portfolios are reviewed, the portfolio manager considers various matters, including any changes in firm policy or the objectives and needs of the client; changes in market conditions or changes of security positions; the current structure of the portfolio and the effect on the portfolio of any known additions or withdrawals from the portfolios in the future. In particular, TCIM monitors CREF portfolios daily and reports on the investment performance of CREF to the Board of Trustees ("Board") at regularly scheduled meetings.

TCIM communicates regularly with its client to discuss each aspect of the client's portfolios for which TCIM provides investment advisory services. TCIM reports to the Trustees on the investment performance at regularly scheduled Board meetings. These written reports include, among other information, current value of the accounts; performance data; sales and redemptions of CREF accumulation units; and brokerage commissions paid by CREF. CREF participants are also provided with semi-annual and annual reports as required by the Investment Company Act.

Item 14 – Client Referrals and Other Compensation

TCIM does not participate in Client Referral arrangements.

Item 15 Custody

TCIM does not have custody of its client's assets. As mentioned previously, TCIM's only client is CREF, a registered investment company. The portfolio securities of CREF are held with third-party qualified custodians.

Item 16 Investment Discretion

TCIM is responsible for decisions to buy and sell securities for its client's accounts. TCIM's authority is subject to certain limits, including the clients' investment objectives and policies as well as regulatory constraints. Such investment limitations are set forth in the CREF registration statement filed with the SEC. Also, TCIM's authority to trade securities for its client, CREF, may also be limited by certain federal securities and tax laws.

Item 17 Voting Client Securities

Rule 206(4)-6 under the Advisers Act requires that investment advisers exercising voting authority on behalf of their advisory clients must adopt and implement written policies and procedures reasonably designed to ensure that proxies are voted in a manner that reflects the best interests of clients. In its capacity as fiduciary and investment manager, TCIM votes the proxies of publicly traded companies held by CREF in accordance with the guidelines established by the Committees on Corporate Governance and Social Responsibility (“CGSR Committees”).

TCIM has a dedicated team of professionals responsible for reviewing and voting proxies. In analyzing a proposal, in addition to exercising their professional judgment, these professionals utilize various sources of information to enhance their ability to evaluate the proposal. These sources may include research from third-party proxy advisory firms and other consultants, various corporate governance-focused organizations, related publications and our investment professionals. Based on their analysis of proposals and guided by the TIAA Policy Statement on Responsible Investing (“Policy Statement”), these professionals make recommendations intended solely to advance the best interests of the participants. Individuals, including portfolio managers, research analysts and/or other personnel are solely and ultimately responsible for voting proxies on portfolio securities owned or managed on behalf of clients of TCIM consistent with the best interests of the client and may override recommendations at any time. Occasionally, when a proposal relates to issues not addressed in the Policy Statement, TCIM may seek guidance from the CGSR Committees.

CREF and TCIM believe that they have implemented policies, procedures and processes designed to prevent conflicts of interest from influencing proxy voting decisions. These include: (i) oversight by the CGSR Committees; (ii) a clear separation of proxy voting functions from external client relationship and sales functions; and (iii) the active monitoring of required annual disclosures of potential conflicts of interest by individuals who have direct roles in executing or influencing CREF’s proxy voting (*e.g.*, TCIM’s proxy voting professionals, or trustees or senior executives of CREF, TCIM or TCIM affiliates) by TCIM’s legal and compliance professionals.

There could be rare instances in which an individual who has a direct role in executing or influencing proxy voting (*e.g.* TCIM’s proxy voting professionals, or a trustee or senior executive of CREF, TCIM or TCIM affiliates) is either a director or executive of a portfolio company or may have some other association with a portfolio company. In such cases, this individual is required to recuse himself or herself from all decisions related to proxy voting for that portfolio company.

A report of proxies voted for the registered investment company clients is made regularly to their Boards or the Committee on Corporate Governance and Social Responsibility, noting any proxies that were voted in exception to the Policy Statement. Also, a record of the proxy votes cast over a twelve month period for TCIM's registered investment company clients can be obtained, free of charge, at www.tiaa.org or on the SEC's website at www.sec.gov. Copies of TCIM's proxy voting policy are also available to TCIM's clients upon request. TCIM's sole client, CREF, does not generally direct the voting of proxies.

Item 18 Financial Information

TCIM does not require or solicit prepayment of investment advisory fees. TCIM has no financial commitment that impairs its ability to meet contractual and fiduciary commitments to clients.

EXHIBIT A

Primary Financial Industry Subsidiaries under Nuveen, LLC, the asset management division of TIAA

Entity Name	Primary Financial Industry or Related Affiliation*
AGR Partners, LLC	Registered Investment Adviser
Churchill Asset Management LLC	Registered Investment Adviser
Greenwood Resources Capital Management LLC	Registered Investment Adviser
Gresham Investment Management LLC	Registered Investment Adviser CFTC Registered Commodity Pool Operator CFTC Registered Commodity Trading Advisor
Nuveen Asset Management, LLC	Registered Investment Adviser CFTC Registered Commodity Trading Advisor
Nuveen Fund Advisors, LLC	Registered Investment Adviser CFTC Registered Commodity Pool Operator
NWQ Investment Management Company, LLC	Registered Investment Adviser
Santa Barbara Asset Management, LLC	Registered Investment Adviser
Symphony Asset Management LLC	Registered Investment Adviser
Teachers Advisors, LLC	Registered Investment Adviser
Nuveen Alternatives Advisors, LLC	Registered Investment Adviser
Nuveen Churchill Advisors LLC	Registered Investment Adviser
Westchester Group Investment Management, Inc.	Real Estate Broker or Dealer
Winslow Capital Management, LLC	Registered Investment Adviser
Nuveen Securities, LLC	Registered Broker Dealer
Nuveen Services, LLC	Shared services entity
Nuveen Canada Company	Canadian exempt market dealer
Nuveen Real Estate Management Limited	UK FCA registered entity
Nuveen Management AIFM Limited	UK FCA registered entity
TIAA-CREF Asset Management UK Limited	UK FCA registered entity
Nuveen Hong Kong Limited	HK SFC registered entity
Nuveen Australia Pty Ltd	Australian ASIC registered entity
Nuveen Real Estate Australia Ltd	Australian ASIC registered entity
Nuveen Japan Co. Ltd	Japan FSA registered entity
Nuveen Singapore Private Ltd	Singapore MAS registered entity
Nuveen Alternatives Europe SARL	Luxembourg CSSF registered entity
Nuveen Asset Management Europe SARL	Luxembourg CSSF registered entity

Other Primary Financial Industry Subsidiaries of TIAA

TIAA-CREF Individual & Institutional Services, LLC (aka TIAA-CREF Advice and Planning Svcs.)	Registered Investment Adviser Registered Broker Dealer
TIAA-CREF Tuition Financing, Inc.	Registered Investment Adviser Registered Municipal Advisor
TIAA Endowment and Philanthropic Services, LLC	Registered Investment Adviser
Teachers Insurance and Annuity Association of America	Insurance Company or Agency
TIAA-CREF Life Insurance Company	Insurance Company or Agency
TIAA-CREF Insurance Agency, LLC	Insurance Company or Agency
TIAA, FSB	Banking or thrift institution
TIAA Advisory, LLC	Registered Investment Adviser

*The list above refers to TIAA subsidiaries in financial industry affiliation categories referenced in Form ADV, Part 2A, Item 10.C, excluding numerous entities organized primarily to serve as sponsor, general partner, managing member (or equivalent) or syndicator of one or more pooled investment vehicles or limited partnerships (or equivalent). For a list of such entities that have material arrangements with the registrant, please see the registrant's Form ADV, Part 1, Section 7.A. of Schedule D. The list above refers to the primary financial industry affiliation category and certain TIAA subsidiaries listed above may have additional financial industry affiliations, as further described in its respective disclosure documents (Form ADV, in the case of a registered investment adviser)