TIAA-CREF Core Impact Bond Due Diligence Update

March 2021

Fund Information	
Ticker	TSBIX
Asset Class Category	TIAA-CREF Core Impact Bond
Share Class	Institutional
Min. Initial Investment*	$100,000
Availability	Schwab, Fidelity
Expense Ratio	0.36%
Opinion	*Approved+*
Firm	Nuveen/TIAA
Managers	Stephen M. Liberatore and Joseph Higgins
Phone	800-752-8700
Web Address	www.nuveen.com

**Certain restrictions apply. Please check with your broker/dealer for details. Other share classes may be available.*

TIAA-CREF Core Impact Bond is an *Approved+* fund in our Intermediate-Term Bond category. We originally published due diligence on the fund in August 2016. This report refreshes that work to coincide with the wider publication of our ESG manager research.

Our opinion remains based on an in-person meeting and multiple phone calls over the years with portfolio manager Steve Liberatore. We have also held multiple calls with co-portfolio manager Joseph Higgins, who oversees the firm's multisector strategy, and two analysts who cover the REIT, consumer products, and municipal bond sectors. In addition, we have had a phone interview with the head of responsible investments at TIAA, Amy O'Brien, as well as Sarah Wilson, who works on the integration of ESG factors into the firm's asset management process.

Our access to Liberatore and other investment-team members has enabled us to gain a strong understanding of the investment approach and discipline. We have come away with a positive opinion. Our decision to rate the fund as *Approved+* and not *Recommended* comes down to our desire for additional access and exposure to the other team members. The holdings we have walked through seem consistent with the team's articulation of the process. And we don't expect additional conversations would uncover negative surprises. Yet the number of examples we walked through are relatively limited compared to other *Recommended* funds in the category. We want to walk through more examples of credit selection, relative-value analysis, and portfolio construction/positioning. Also, the team is deep, and we would like to have additional conversations with analysts to better assess the quality of the team.

Below is an overview of the investment process and the thinking behind our favorable opinion.

Fund Overview

TIAA-CREF Core Impact Bond is an actively managed core fixed-income strategy that invests primarily in investment-grade securities that meet certain environmental, social, and governance (ESG) criteria. The portfolio will have statistical characteristics such as duration that are similar to the Bloomberg Barclays U.S. Aggregate Bond Index (the Agg), but the composition can be meaningfully different from the benchmark. Deviations from benchmark exposures stem from Liberatore's top-down economic view, which influences the portfolio's duration, yield curve positioning, sector allocations, and security selection. Security selection is based on bottom-up fundamental analysis where the focus is on identifying fundamentally sound cred-

TIAA-CREF Core Impact Bond Credit Quality (12/31/20)	
U.S. Treasury/U.S. Agency (including Agency MBS)	35.7%
AAA	7.6%
AA	10.1%
A	17.8%
BBB	19.5%
BB	4.0%
Not Rated	3.6%
Short-Term Investments/ Other Net Assets	1.3%
Total	**100.0%**

TIAA-CREF Core Impact Bond Sector Allocation (12/31/20)	
Investment-Grade Corporates	35.3%
Agency MBS	21.7%
U.S. Treasury	7.9%
Munis	7.4%
ABS	5.1%
CMBS	4.4%
U.S. Agency	4.0%
Non-U.S. Government/ Agency	4.0%
EM Debt	4.0%
Preferred Stock	2.1%
High-Yield Corporates	1.7%
Short-Term Investments & Other Net Assets	1.3%
Non-Agency MBS	1.0%
Senior Loans	0.2%
Total	**100.0%**

TIAA-CREF Core Impact Bond Portfolio Characteristics (1/31/21)	
Positions	993
Option-Adjusted Duration	6.18
Avg. Effective Maturity	8.78

its with attractive absolute and relative value. While benchmarked to a domestic investment-grade benchmark, the strategy has the flexibility to own foreign and below-investment-grade securities.

Firm & Team Overview

Teachers Insurance and Annuity Association, commonly known as TIAA (formerly TIAA-CREF), is a diversified asset management firm founded in 1918 by Andrew Carnegie. The firm was focused on fixed-income investing at its founding, offering a guaranteed income product to support the financial well-being of college teachers. Today, the firm manages over $1.2 trillion across various asset classes, with equities and fixed-income, roughly equal in size, making up most of the assets under management. TIAA owns Nuveen Investments.

As a firm, TIAA seeks to generate long-term investment success for its clients through disciplined portfolio construction practices, attention to risk management, and collaboration among equity and fixed-income analysts. But a trait of TIAA is that principles-based investing—meaning, loosely, that at least some consideration is given to ESG factors when making investment decisions—has been a distinguishing aspect of the firm through much of its history.

Steve Liberatore is lead portfolio manager and is responsible for all final portfolio decisions. Supporting Liberatore is a broad team of over 50 credit analysts, 12 traders, and four fixed-income sector portfolio managers.

Liberatore joined TIAA in 2004. He has over 20 years of investment experience, including portfolio management, credit research, and trading positions at Nationwide Mutual Insurance and Protective Life, where he was responsible for both total return and liability-driven assets.

Investment Approach

TIAA-CREF Core Impact Bond is meant to offer core-like bond exposure. The portfolio is constructed using a combination of top-down and bottom-up analysis with the goal of outperforming its Agg benchmark.

Liberatore develops a top-down view that sets the stage for portfolio construction. His macro views are intermediate-term (12–18 months) and based on a continual assessment of economic data points that include economic growth, inflation, interest rates, GDP, employment rates, etc. He also incorporates short-term factors such as the Federal Reserve's next rate decision into his longer-term views. These economic data points collectively influence Liberatore's strategic positioning, where the majority of investments will be in line with this view. However, he does not dismiss opportunities if they do not fit the overall strategic positioning. Liberatore will opportunistically invest in "tactical" positions provided they offer attractive absolute and relative value. Tactical positions are expected to make up a small piece of the portfolio (less than 10% in aggregate).

At the credit level, fundamental analysis is key. Liberatore has a win-by-not-losing mentality. He seeks fundamentally strong, attractively valued opportunities across various fixed-income sectors, namely government, agency, investment-grade corporate bonds, municipal bonds, asset-backed securities (ABS), commercial mortgage-backed securities (CMBS), agency, and non-agency MBS.

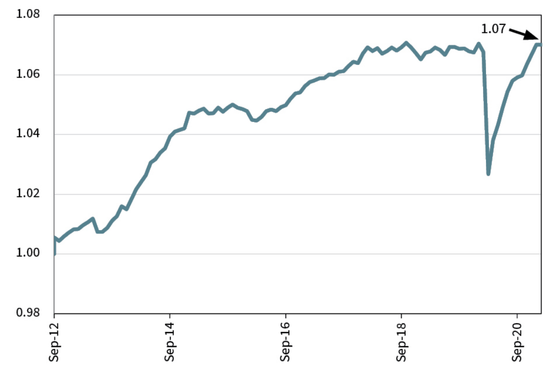
The goal of bottom-up credit analysis serves to identify credits that offer attractive absolute and relative value. Liberatore's belief is that relative value is inter-sector not just intra-sector. Securities in the portfolio are those the team believes are fundamentally sound and could be held to maturity if necessary. That is, the credit is strong enough to avoid default in periods of economic weakness. Key fundamental investment criteria include free cash flow generation (looking out several years with an eye toward any potential cash flow erosion), management's quality and ability to execute strategy, business leadership position within its industry, business operating model, competitive dynamics in the industry, regulatory environment, etc.

Analysts do not target specific leverage ratios within a given sector but rather seek to understand the level of debt in place and determine whether it makes sense given the issuer's characteristics. Analysts also conduct stress-test analysis on individual credits and examine bear-case scenarios to understand how a credit may fare during adverse conditions. Liberatore does not mind price volatility if he feels he's being fairly compensated for potential downside risk. As part of the downside risk, the team runs scenario analysis in an attempt to ensure the security will not default.

When assessing relative value between securities, a key metric for Liberatore is the Z-spread. This metric provides a picture of value along the entire credit curve for a particular holding. Liberatore likes this statistic because it negates the effects of U.S. Treasury movements and the shape of the yield curve leaving a "purer" view of relative value. With this spread, he can assess whether he is being compensated for risk and get at the security's valuation relative to other securities.

The sell decision often comes down to deteriorating fundamentals, more attractive valuations elsewhere, or a change in Liberatore's top-down view. If the team determines that fundamentals are deteriorating, a holding will be sold. In terms of valuation, if the team identifies more attractive relative-value opportunities, they will trade into securities they believe are more attractive.

Relative Strength: TIAA-CREF Core Impact Bond vs. Bloomberg Barclays U.S. Aggregate Bond Index (2/28/21)



Portfolio Construction

The portfolio's composition can be quite different from its benchmark while maintaining a similar duration. Duration will vary moderately relative to the benchmark based on Liberatore's economic views; it tends to be within 15%–20% of the benchmark's duration. Longer duration occurs when weaker economic conditions are expected (when interest rates are unlikely to rise or could decline, so more interest rate risk is appropriate), while shorter duration occurs when stronger economic conditions are expected.

Achieving attractive risk-adjusted returns is important to Liberatore. He utilizes third-party risk-modeling tools to understand the impact that various economic scenarios could have on portfolio performance as well as to analyze the potential impact of asset allocation shifts, buying or selling certain securities, etc., on the portfolio's duration, expected tracking error, and yield.

Performance as of February 28, 2021	MTD	Three-Month	YTD	One-Year	Three-Year	Five-Year	10-Year	Since Inc.*
TIAA-CREF Core Impact Bond Fund	-1.45%	-1.40%	-1.86%	1.62%	5.35%	4.05%	-	3.76%
Bloomberg Barclays U.S. Aggregate Bond Index	-1.44%	-2.02%	-2.15%	1.38%	5.32%	3.55%	3.58%	2.93%

Inception September 21, 2012.

Position size is driven by many factors. These include Liberatore's views on the market, relative value between sectors, existing exposures to industries or sectors, the liquidity profile of a security, tracking error expectations (he does not want a single position to skew overall portfolio tracking error), and valuation dynamics. If a security is perceived to be both of high quality and underpriced, it will be given a larger allocation. For a potentially higher-risk security, but whose risk/reward profile is favorable at a given price, size depends on the discount to the team's estimate of its intrinsic value and whether they feel they are being adequately compensated for the risk.

The strategy is permitted to use derivatives, although Liberatore has not used them yet in this portfolio. If used, it is expected to be on a limited basis.

Liberatore is conscious of the possibility he may be mistaken in his views. As such, he says he will always have exposure to relatively defensive areas like U.S. Treasuries and agency MBS, given their higher liquidity and tendency to perform well in economic downturns. Also, if the portfolio is long duration, Liberatore will maintain exposures to such areas as floating-rate securities and/or leveraged loans that could act as a partial hedge in the event his duration call is wrong. The fund can hold up to 25% in foreign issues, including emerging-market issuers, but a smaller allocation is expected over most investment environments. Liberatore thinks exposures to foreign debt could increase marginally as foreign issuers are increasingly issuing debt in U.S. dollars. (Non-U.S. dollar debt is allowable by prospectus.) The fund can have exposure to emerging markets, most of which comes from investments in projects funded by U.S. agencies or by super-sovereign issuers. The strategy can also hold up to 5% in high-yield securities; the current weight is near this threshold. Existing high-yield debt is mostly categorized as proactive social investments (a detailed discussion follows below) and includes project finance loan deals. These positions are tactical in nature, where valuations are particularly attractive.

Approach to ESG Investing

TIAA has a proprietary framework that is used to determine the eligible investment universe, and the entire portfolio is subject to ESG criteria. While some ESG strategies apply a degree of exclusionary screens, TIAA's approach is a wider adoption of these criteria, favoring companies that are industry leaders in managing relevant ESG risks and opportunities. For example, an industry-leading natural resource company may have more proactive policies, programs, and commitments to source raw materials from areas of lower ecological impact compared to its peers. To determine eligibility and carry out ongoing oversight of the ESG guidelines, TIAA partners with global ESG research providers that provide analysis across fixed-income sectors, including government securities.

Additionally, the team has developed a proprietary categorization of securities using its impact framework, which are defined as publicly traded fixed-income securities that have direct and measurable social and/or environmental outcomes. Within the impact framework segment there are four thematic areas: Affordable Housing; Community & Economic Development; Natural Resources; and Renewable Energy & Climate Change. Most of these holdings are not in the fund's benchmark and can be related to specific and measurable projects such as a solar or wind farm. These securities are held to the same fundamental and valuation standards as non-impact holdings. In terms of measuring the impact of these securities, Liberatore says issuers are increasingly using third-party auditors to verify the issuers' claims. In cases where there is no third-party verifier, Liberatore requires full disclosure on the use of proceeds and impact measurement. When he feels the information is not or will not be transparent, he will not invest. For instance, some smaller municipalities do not provide timely or adequate disclosures, so he will not invest regardless of valuations.

The credit ratings of these investments tend to be investment-grade, with an AA average rating. The allocation to this segment will fluctuate based on opportunity set and relative value and tends to be in the 30% to 40% range. Recently, the impact investments represented approximately 40% of assets.

Liberatore believes the team's ESG framework helps to steer them toward better-than-average issuers. He believes that the ESG criteria utilized is a competitive advantage in the management of core fixed-income assets as you outperform not by picking winners but by avoiding losers given the asset class's asymmetric nature. For example, the focus on governance helps avoid bad managements and questionable accounting. Similarly, the environmental focus helps avoid companies with material environmental exposure and poor stewardship. Regarding the social focus, Liberatore says this is a combination of both quantitative and qualitative factors.

Litman Gregory Opinion

Our work on TIAA-CREF Core Impact Bond has resulted in a positive opinion. The fund is rated *Approved+,* reflecting that we have the confidence to make it a significant allocation in the portfolios of clients desiring an ESG-focused implementation. We think the fund will perform at least as well its Agg benchmark over a credit cycle.

The confidence we have gained stems from our assessment of the discipline with which Liberatore executes his investment approach. Liberatore's framework for decision making at both the top-down and bottom-up levels seems disciplined and thoughtful. At the top-down level, Liberatore strikes us as balanced, incremental, intellectually honest, and independent-minded. While we have little confidence in anyone's ability to consistently predict economic outcomes, a mitigating factor is that Liberatore is not making meaningful, short-term bets. Instead, he only moderately reduces or increases the portfolio's risk to various factors (such as interest rate or credit risks) based on a continual stream of inputs. He seems to have a healthy respect for the potential to be wrong and will not make one-directional bets that could seriously impair the portfolio's long-term track record. His focus on downside protection is clear when discussing potential outcomes. We like that he seeks out different opinions when considering portfolio positioning. Liberatore seems independent-minded, and we did not detect hubris in our conversations with him.

At the security level, all ideas are evaluated from a relative-value standpoint. Our impression, based on several anecdotes, is that Liberatore is decisive about selling a holding in favor of a fundamentally stronger and/or more attractively priced credit.

Our favorable opinion of the strategy does not hinge on its commitment to providing an ESG-based product. One aspect of our work was to gain a better understanding of whether performance could suffer because of a more-limited universe (from excluding securities for not meeting ESG criteria). Based on our conversations with Liberatore and some team members, we believe their ESG focus leads to a heavy eye on the risks facing issuers. And for a credit strategy, avoiding defaults is key.

As the strategy's assets continue to grow (assets have been growing rapidly), one of our questions was whether there would be enough supply of ESG-related names to allow Liberatore to maintain his significant allocation to these securities, especially given that ESG strategies are becoming more prevalent. Our impression is that the nature of the issuance landscape seems to support the notion that more and more issuers are considering offering “green” bonds. It appears that this will be done in sufficient quantity to meet the needs of the strategy. But it is a trend we will monitor as part of our evaluation of the strategy. We do not think Liberatore *needs* ESG fixed-income to remain a niche market in order to be successful, as his performance seems to be driven largely by his data-driven approach to macro analysis and a continual focus on strong risk-adjusted returns.

Another factor we like is the fund's reasonable cost: The net expense ratio for the institutional shares is around half that of the average expense of its peer group.

Overall, we like the deliberateness and consistency with which Liberatore approaches portfolio management. We will continue to monitor the strategy closely, with the aim of getting more data points to evaluate the team as a whole and observe portfolio management decisions. That said, we have a level of confidence in Liberatore and his decision-making framework and believe the fund will perform well over a market cycle.

—Jack Chee