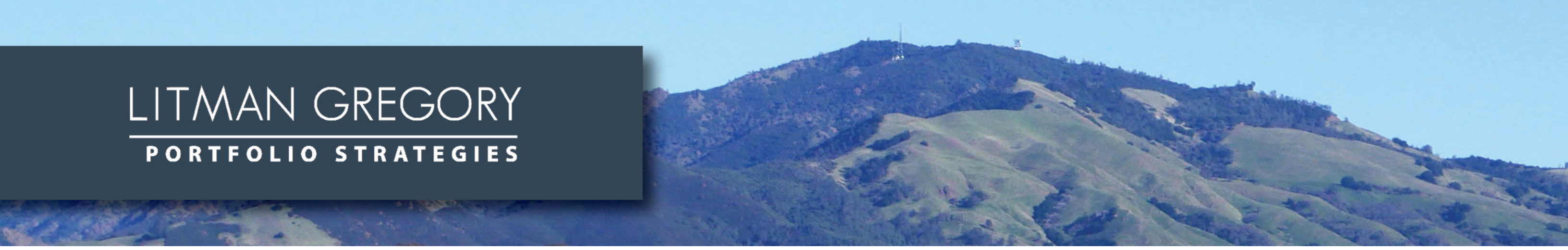

TIAA-CREF Social Choice Bond Update

FEBRUARY 2019

We recently had a conversation with Steve Liberatore, portfolio manager of TIAA-CREF Social Choice Bond. The discussion allowed us to get an update on the fund and to further our understanding of Liberatore's approach. It can be difficult to gain a thorough grasp of the finer details of a manager's discipline after only a handful of initial conversations, so additional meetings are valuable in terms of providing more context. Our latest discussion with Liberatore gave further evidence of the consistency of his approach and his continued dedication to the environmental, social, and governance (ESG) space. Importantly, we have the confidence to use the fund as a core holding in the fixed-income allocation of our ESG portfolios.

Investment Philosophy & Process

TIAA-CREF Social Choice 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, but the composition can be meaningfully different from the benchmark. Deviations from benchmark exposures stem partly from portfolio manager Steve Liberatore's top-down economic view, which influences the portfolio's duration (which tends to be within 15%–20% of the benchmark's duration), yield curve positioning, sector allocations, and security selection. Security selection is based on bottom-up fundamental analysis where the focus is on the identifying fundamentally sound credits with attractive absolute and relative value. 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 an industry, business operating model, competitive dynamics in the industry, the regulatory environment, etc.

The entire portfolio is subject to ESG considerations. While some ESG strategies apply a degree of exclusionary screens, the team's approach is a wider adoption of these criteria, favoring companies that are industry leaders in managing relevant ESG risks and opportunities. To determine eligibility and ongoing oversight the ESG guidelines, TIAA partners with global ESG research providers that provide analysis across fixed-income sectors. A significant portion of the fund—frequently over 30%—is devoted to what the team calls Proactive Social Investments (PSI), defined as publicly traded fixed-income securities that have direct and measurable social and/or environmental outcomes. Within the PSI 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, but each of these securities is held to the same fundamental and valuation standards as non-PSI holdings. Importantly, Liberatore requires thorough verification, often through third-party verifiers, of PSI issuers' ESG claims. The team will not invest if they believe information is not or will not be transparent.

Market Views and Positioning

Liberatore's approach includes both top-down and bottom-up assessments when constructing the portfolio. As such, his views of the macro picture are important to understand portfolio positioning. Over the past few years, he has held a less-than-sanguine view on economic conditions and has positioned the portfolio for a low-growth, low-inflation environment. Recent developments give him additional reasons to maintain this view. While he doesn't view the U.S. as being in imminently dangerous territory, he says underlying economic

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TIAA-CREF Social Choice Bond Sector Diversification (12/31/18)	
Corporate	28.3%
Foreign Government/ Corporate	14.9%
U.S. Agency	12.2%
Municipal	11.2%
MBS	10.7%
U.S. Treasury	9.9%
CMBS	5.7%
ABS	4.2%
Bank Loan Obligations	1.0%
Net Short-Term	2.0%
Total	**100.0%**

TIAA-CREF Social Choice Bond Credit Quality (12/31/18)	
U.S. Treasury/U.S. Agency	30.6%
AAA	11.4%
AA	13.8%
A	11.8%
BBB	21.6%
BB	2.5%
B	1.1%
Below B	0.2%
Not Rated	5.0%
Net Short-Term	2.0%
Total	**100.0%**

TIAA-CREF Social Choice Bond Portfolio Characteristics (12/31/18)	
Number of Positions	749
Duration	5.84
Average Maturity	9.19

Source: Litman Gregory Analytics

data is becoming weaker. He points to a number of examples, including slower corporate profit growth (when accounting for the effects of tax stimulus), early signs of stresses for American consumers (who face an all-time record of debt and low wage growth from a historical perspective, for example), and a broad-based reduction in confidence levels (consumer, small-business, and CEO confidence have waned). Internationally, he believes the picture is bleaker. He points to China, where GDP growth and manufacturing activity have slowed, and Europe, which is facing significant growth challenges. The markets don't seem to be pricing in these risks, in his view. He says, "I don't think that the global economy is in a position where we should be at all-time tights in investment-grade and high-yield" credit markets.

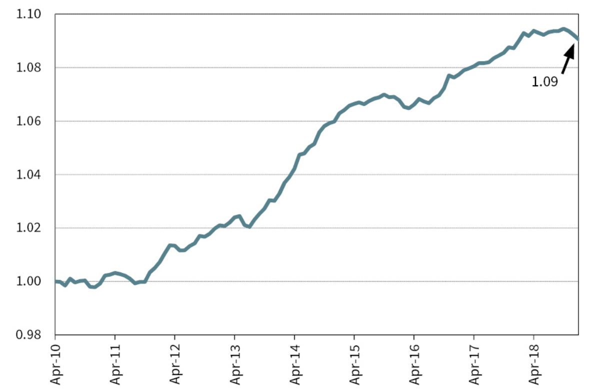
As mentioned above, Liberatore doesn't take big duration bets Within the past year, the fund's duration was around two-tenths of a year less than benchmark duration (roughly six years) when the Federal Reserve was making it clear that it would continue raising short-term interest rates. As the yield on the 10-year U.S. Treasury rose above 3%, Liberatore raised the portfolio's duration to a similar level as the index, given the Fed's less hawkish tone and the increased prospects for lower interest rates (lower rates tend to imply higher bond prices, all else equal). Liberatore believes the Fed has been quick to change its stance on the need to hike interest rates, especially in light of the fact that only six weeks prior it had made a unanimous decision to raise rates. He thinks this might be an admission that the Fed made a policy mistake in raising too much, which could prove harmful to the economy.

Given the low yield environment, Liberatore is overweight to securities that offer an attractive yield over comparable maturity Treasurys. But he is aware of the high valuations of many of these securities. He says, "Valuations just stink across the board. You want to be up in quality." Higher-quality credits have lagged lower-quality credits so far in 2019, but Liberatore believes that the elevated economic risks argue for caution and the avoidance of low-quality issues.

We discussed a few credits within the portfolio that meet his higher-quality bias. One place his team is finding attractive higher-quality securities is in the structured credit space, such as commercial mortgage-backed securities (CMBS) and asset-backed securities (ABS). The team recently purchased a solar ABS issued by **Sunrun**, a provider of residential solar electricity headquartered in San Francisco. Not only does this provide exposure to a company providing an environmentally friendly service (cleaner energy via solar panels), but this specific security meets Liberatore's quality hurdle by being secured by cash flows from a pool of relatively well-off borrowers with an average credit FICO score of 750. Liberatore believes these borrowers are unlikely to stop paying for their solar panels.

Another newer credit in the PSI sleeve of the portfolio is a sovereign bond issued by the **Republic of Seychelles**. This is a unique issue in that it is labeled as the world's first "blue" bond with proceeds strictly benefiting sustainable marine and fisheries projects. To qualify as PSI-eligible, credits must be associated with measurable benefits. Liberatore says the servicer of the Seychelles bond will be providing metrics describing the benefits of the funded projects. Examples of metrics Liberatore will monitor include growth in protected ocean area and number of fishermen practicing more sustainable fishing practices. Liberatore believes this unique offering, which pays a 6.5% coupon and is guaranteed by supra-governmental agencies including the World Bank, is attractive on a relative-value basis. The team is one of just three investors who hold the issue (which is small at $15 million), and Liberatore believes his fund's growing asset base and emphasis on sustainability puts his team in the favorable position of being one of the first to hear about sustainable deals. The environmental benefits of this credit are clear to Liberatore, who recently wrote, "Sustainable development of blue economies such as the Seychelles aligns with our view that investing with a responsible approach is both prudent and financially rewarding in the long term. We hope this transaction serves as a template for creative impact investment solutions in the future."

Relative Strength: TIAA-CREF Social Choice Bond vs. Vanguard Total Bond Market Index (1/31/19)



Source: Litman Gregory Analytics

Performance Analysis

The strategy's composite portfolio has a track record dating back to April 1, 2010. For our analysis, we link the returns of the mutual fund (which started on October 1, 2012) to the returns of the pre-existing composite (adjusting the composite record for the fund's operating expenses), to get a fuller picture of the strategy's lifetime performance.

Over the trailing one-year period (ending 1/31/2019), the fund outperformed the Vanguard Total Bond Market Index by 6 basis points (bps) and outperformed the Morningstar Intermediate Term Bond category by 42 bps. Over longer trailing periods performance has been relatively strong. Over the trailing three-year, five-year, and since-inception periods, the fund has outperformed the index by an annualized 72 bps, 112 bps, and 102 bps, respectively, and the Morningstar category by 20 bps, 113 bps, and 77 bps, respectively. Performance results have been achieved with similar volatility to the index. Consistence of performance has also been strong. Since the strategy's inception in 2010, it has outperformed the Bloomberg Barclays U.S. Aggregate Bond Index in 91% of rolling 12-month periods and 100% of rolling three- and five-year periods.

Litman Gregory Opinion

We continue to have a favorable view of TIAA-CREF Social Choice Bond. Our recent interaction with Liberatore supports our view that his framework for decision making at both the top-down and bottom-up levels seems disciplined and thoughtful.

It is important to understand that the strategy rests on Liberatore's shoulders, and his views will continue to dictate its success. 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 pre-

Performance Table (1/31/19)

		Calendar Year Returns					Trailing Returns*			
	YTD	2018	2017	2016	2015	2014	One-Year	Three-Year	Five-Year	Since Start of Rec.
TIAA-CREF Social Choice Bond	0.86%	0.33%	4.51%	3.19%	1.18%	8.80%	2.06%	2.51%	3.36%	4.02%
Vanguard Total Bond Market Index	1.01%	-0.13%	3.46%	2.50%	0.30%	5.76%	2.00%	1.79%	2.25%	3.01%

**Start of record Apr-2010. Prior to the beginning of our record for the fund in Sep-2012, we use TIAA's Social Choice Fixed Income composite, adjusted for 0.40% expenses annually.*

Source: Litman Gregory Analytics

dict economic outcomes, a mitigating factor is that Liberatore is not making big short-term bets. Our recent conversation provided additional data points that he only moderately reduces or increases the portfolio's exposure to various risk factors (such as interest rate or credit risks) based on his assessment of a continual stream of data inputs. He seems to have a healthy respect for the potential to be wrong and is not inclined to 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, and we have found that he voluntarily points out where his viewpoints might be wrong—indicating he is self-aware and actively seeks out alternative viewpoints.

Liberatore's focus on ESG factors is sincere, and he takes a personal interest in ensuring that issuers claiming to be responsible actors are true to their word. The PSI part of the portfolio, for example, requires issuers to prove their claims by providing metrics about precisely how proceeds are used to bring about positive change. Liberatore doesn't take issuers' ESG assertions at face value, but often relies on third-party experts to verify their claims. As issuers increasingly issue so-called "green" bonds in a market that seems eager to soak up credits that appeal to sustainability-minded investors, it is important that investors understand the fundamentals underlying each credit. Liberatore knows this, and he regularly passes on bonds that are "green" in name only. Related to this is Liberatore's willingness to seek ESG-appropriate credits outside of the strictly green bond universe, such as municipal bonds dedicated to specific sustainability issues or corporate issues of energy companies seeking to fund clean energy projects. Each credit in the portfolio, whatever its ESG potential, must meet Liberatore's fundamental and relative-value criteria.

The fund has grown significantly over the past couple of years, from under $1 billion to nearly $3 billion today. Liberatore believes this growth has helped, not hurt, the portfolio for various reasons, including the team's ability to push for more favorable deal terms and structures, and often being among the first teams called upon about relevant investment opportunities. We agree these are positives and don't believe that the strategy's growth poses any problems at this point. The market of securities eligible for the fund seems to be growing as issuers take ESG factors explicitly into account more frequently. Liberatore is at the helm of other fixed-income strategies, including two non-core ESG-focused ones. We will continue to monitor the growth of the overall eligible market as part of our evaluation of the strategy, especially as new funds are coming to market to compete for ESG-friendly securities. The fund's performance is ultimately not dependent on ESG being a niche market, but rather seems to be driven largely by Liberatore's data-driven approach to macro analysis and a continual focus on strong risk-adjusted returns.

Our prior work on the broader sector teams made us comfortable that the individual credits that analysts recommend to Liberatore are fundamentally sound. However, the final assessment of each credit's fit within the portfolio rests with Liberatore and is based on his view of risk/reward and his portfolio construction parameters. We look forward to continued contact with Liberatore and his team over time, especially to dig into his relative-value framework both across and within credit sectors.

—Alistair Savides, CFA

Form ADV disclosure documents, the most recent versions of which are available on the SEC's Investment Adviser Public Disclosure website (adviserinfo.sec.gov) and may otherwise be made available upon written request.