



Memorandum

Date: February 26, 2025

To: CCCERA Board of Retirement Trustees

From: Timothy Price, Chief Investment Officer

Subject: Investment Staff Report – Q4 2024

Overview

On a quarterly basis CCCERA's Board receives a report which details critical elements of CCCERA's Functionally Focused Portfolio's sub-portfolios. The purpose of the report is to highlight elements of the sub-portfolios which are good indicators to the Board of the program's efficient and effective operation.

Summary

CCCERA's Total Fund is largely performing as expected, exhibiting returns above expectations for the amount of risk taken over the long term. This is measured by the Sharpe Ratio (risk-adjusted return), and a comparison to the Simple Target Index. The Simple Target Index is the most basic index which could replicate CCCERA's Total Fund, and is made up of 73% MSCI ACWI, 17% Bloomberg 1-3 Year Gov/Credit, and 10% 3-Month Treasury Bills (please see the Total Fund pages in the appendix for additional details). CCCERA's portfolio is much more complex, especially as it relates to allocations to private equity, private credit, and real estate. Over shorter periods, there are aspects of the implementation that have fallen short of expectations, which are discussed in the Growth and Risk Diversifying sub-portfolio reviews.

CCCERA has experienced lower risk and return levels than the Simple Target Index over trailing periods. This has led to underperformance vs the STI over more recent periods, but has exceeded the STI on a risk-adjusted basis over the past ten years. Details on performance relative to this index are included in the appendix. It is worth noting that CCCERA's Total Fund return is an aggregate of the performance of the Liquidity, Growth, and Risk Diversifying sub-portfolios.

The Board has recently adopted a new long-term asset allocation that will result in several changes to the fund over the upcoming year, including eliminating risk parity and high yield while adding multi-asset credit and real estate debt. Implementation of the new targets began in the third quarter of 2024 and will continue throughout 2025.

1) Liquidity

The purpose of the liquidity program is to match three years of benefit payments with high credit quality, low duration assets. The liquidity sub-portfolio is made up of three fixed income managers, all of whom pursue a high quality, low duration investment approach. In the fourth quarter of 2024, all managers held high quality (as measured by credit ratings), low duration portfolios. The average credit quality for the entire liquidity program is AA (AAA is the highest rating), and the duration is 1.6 years, which is considered short. Importantly, the current yield of the Liquidity Sub-portfolio is above 5%.

2) Growth

The Growth portfolio is designed to take advantage of capital appreciation and income opportunities globally. To achieve this, the Growth portfolio includes a variety of assets, from stocks and growth-oriented bonds to private equity, real estate, and private credit.

For the trailing five-year period December 31, 2024, the Growth portfolio returned 7.3% relative to the index return of 10.1%, for a relative underperformance of -2.7%. Over this period, the Growth program produced a superior Sharpe Ratio of 0.42, relative to the index's 0.39. During the fourth quarter of 2024, CCCERA's Growth sub-portfolio returned -0.9% relative to MSCI ACWI Index return of -1.0%. We expect underperformance relative to the public equity markets during sharp rallies such as we experienced during much of the past five year period.

The past five years have been exceptionally strong for public equities, both on the basis of earnings growth and mostly benign monetary policy. This growth has been concentrated in the US tech sector and even more so in the "Magnificent 7" mega cap stocks. Given this environment, underperformance of a diversified portfolio should be expected.

3) Risk Diversifying

The Risk Diversifying mandate holds assets that are expected to diversify the growth portfolio's volatility while offering moderate growth. The mandate as a whole seeks to be highly liquid, have a low beta to the growth market, and produce positive real returns. In the fourth quarter, the Risk Diversifying mandate fulfilled two of these goals. The entire mandate can be liquidated within 90 days, meeting the requirement of high liquidity. The 5-year correlation of the mandate to growth markets is 0.7. The trailing real (net of inflation) return over the past five years is -5.0%, decreasing slightly in the last quarter from -4.4% and remaining below expectations.

CCCERA's Total Fund in aggregate is performing in line with expectations over the past ten years, having a similar or higher risk-adjusted return but a lower level of volatility compared to the Simple Target Index. Enclosed are additional details on CCCERA's Total Fund, sub-portfolios, and individual investment strategies.

CCCERA Portfolio Report Card

Below we have itemized those elements of each of CCCERA’s sub-portfolios and Total Fund which we believe the Board should pay particular attention to. Additional details on each of the sub-portfolios are available in the appendix. All CCCERA performance is stated on a net of fees basis.

Liquidity

| Objective | Measurement | Current Period Data | Status |
|---------------------|-------------------------------------|---------------------|----------------------|
| High Quality | Credit Quality | AA | Meeting Expectations |
| Low Risk | Duration | 1.6 years | Meeting Expectations |
| Appropriately Sized | Months of Benefit Payments Invested | 31 Months | Meeting Expectations |

Growth

| Objective | Measurement | Current Period Data | Status |
|------------------------------|----------------------------|---|----------------------|
| Growth of Plan Assets | Absolute Returns | Trailing 5 yr return: 7.3% | Meeting Expectations |
| | Benchmark Relative Returns | -2.7% relative to ACWI over trailing 5 years | Below Expectations |
| Efficient Capital Deployment | Sharpe Ratio | CCCERA: 0.42 MSCI ACWI: 0.39 over trailing 5 years | Meeting Expectations |

Risk Diversifying

| Objective | Measurement | Current Period Data | Status |
|---------------------------------------|--|---|----------------------|
| Offset Volatility in Growth Portfolio | Correlation | 0.7 over trailing 5 years | Below Expectations |
| Positive Real Returns | Returns | 5 yr real return: -5.0% 5 yr nominal return: -0.9% | Below Expectations |
| High Liquidity | % of Portfolio that can be liquidated within 90 days | 100% | Meeting Expectations |

Total Fund

| Objective | Component/Measurement | Status |
|--|---------------------------------|----------------------|
| Store 3 Years of Benefit Payments | Liquidity Sub-portfolio | Meeting Expectations |
| Participate in Growth Opportunities | Growth Sub-portfolio | Meeting Expectations |
| Provide an offset to Growth volatility | Risk Diversifying Sub-portfolio | Below Expectations |
| Produce superior risk adjusted returns | Total Fund Sharpe Ratio | Meeting Expectations |

Appendix – Liquidity Sub-Portfolio

Manager Reviews

Organizational Stability

| | Portfolio Management Assessment | 1 Year Product Asset Growth | 1 Year Firm Asset Growth | Regulatory Action in Last Year? |
|---------|---------------------------------|-----------------------------|--------------------------|---------------------------------|
| Insight | Good | 11% | -5% | N |
| Sit | Good | -7% | 5% | N |
| DFA | Good | 19% | 15% | N |

Performance

| | Portfolio Average Credit Quality | Portfolio Average Duration | Portfolio Average Yield | 1 Year Total Return |
|---------|----------------------------------|----------------------------|-------------------------|---------------------|
| Insight | A+ | 1.3 | 4.8 | 5.3% |
| Sit | AAA | 2.7 | 5.8 | 4.3% |
| DFA | A+ | 0.3 | 5.2 | 5.7% |

Manager Notes:

Fixed income yields have moderated on the growing consensus that the Federal Reserve is done raising rates for this cycle and has priced in a “higher for longer” baseline with 1-2 rate cuts in 2025. The shorter duration of CCCERA’s mandates have provided relative protection during the rate hikes, as has the buy and maintain bias of the portfolio.

Manager Theses:

The Liquidity Portfolio is a combination of three managers which work together to match three years of CCCERA’s liabilities. The portfolio is refreshed every year during the annual funding plan.

Insight: Insight plays a completion role in the liquidity program, matching out liabilities with short duration government and corporate fixed income securities.

DFA: Dimensional Fund Advisors runs a strategy that focuses on obtaining fixed income exposures via the most liquid securities available. DFA contributes to the Liquidity Program by selling securities at regular intervals to pay a portion of CCCERA’s monthly benefit payment.

Sit: Sit invests in higher yielding government backed mortgages. The cash flow from these securities is harvested monthly to make up a portion of CCCERA’s monthly benefit payment.

Appendix – Growth Sub-Portfolio

Manager Reviews

Organizational Stability

| | Portfolio Management Assessment | 1 Year Product Asset Growth | 1 Year Firm Asset Growth | Regulatory Action in Last Year? |
|----------------------|---------------------------------|-----------------------------|--------------------------|---------------------------------|
| Boston Partners | Good | 18% | 11% | N |
| BlackRock Index Fund | Good | 11% | 15% | N |
| Emerald Advisors | Good | -1% | 0% | N |
| Ceredex | Good | 13% | -17% | N |
| Pyrford | Good | 59% | -20% | N |
| William Blair | Good | -5% | 7% | N |
| First Eagle | Good | 9% | 7% | N |
| Artisan Global | Good | -3% | 7% | N |
| PIMCO/RAE EM | Good | 23% | 4% | N |
| TT EM | Good | -26% | -18% | N |
| Adelante | Good | 7% | -3% | N |
| Invesco REIT | Good | 7% | 16% | N |
| Voya | Good | 6% | 6% | N |
| Private Equity | Good | -- | -- | N |
| Private Credit | Good | -- | -- | N |
| Real Estate | Good | -- | -- | N |

Performance

| | Trailing 1-Yr Return | Trailing 5-yr Return | Trailing 10-yr Return | Performance in Line with Expectations? | Inception Date |
|-----------------------------------|-------------------------|-------------------------|--------------------------|--|-------------------|
| MSCI ACWI-ND | 17% | 10% | 9% | | |
| Boston Partners | 16% | 11% | 10% | Y | 04/30/1995 |
| BlackRock Index Fund | 24% | 14% | 13% | Y | 03/31/2017 |
| Emerald Advisors | 19% | 9% | 10% | Y | 03/31/2003 |
| Ceredex | 10% | 8% | 8% | Y | 09/30/2011 |
| Total Domestic Equity | 20% | 12% | 11% | Y | |
| Pyrford | 3% | 4% | 5% | Y | 03/31/2014 |
| William Blair | 3% | 5% | 6% | Y | 09/30/2010 |
| PIMCO/RAE EM | 8% | 7% | 6% | Y | 01/31/2017 |
| TT EM | 19% | 2% | 5% | Y | 06/30/2017 |
| Total International Equity | 7% | 4% | 5% | Y | |
| First Eagle | 12% | 7% | 7% | Y | 12/31/2010 |
| Artisan Global | 15% | 10% | 11% | Y | 11/30/2012 |
| Total Global Equity | 14% | 9% | 9% | Y | |
| Adelante | 10% | 5% | 6% | Y | 07/31/2001 |
| Invesco REIT | 5% | N/A | N/A | Y | 02/28/2022 |
| Voya | 6% | 3% | 4% | N | 04/30/2000 |
| Private Equity | 3% | 12% | 11% | Y | |
| Private Credit | 12% | 9% | 9% | Y | |
| Real Estate | -9% | -3% | -3% | N | |

For periods longer than inception date within CCCERA's Total Fund, the return is from a representative composite account.

Manager Notes:

As we have noted in prior quarters, Niall Paul, lead portfolio and architect of the TT International Global Emerging Market strategy, has retired from the firm. Rob James, who had been a co-PM on the strategy, continues in that role along with Diego Mauro, who joined the firm in 2020. We have conducted on-site reviews with James and Mauro to vet the team's capacity to manage the strategy effectively on a go forward basis. We continue to closely monitor this strategy, but recent performance has been well above benchmark.

Manager Theses:

The growth portfolio includes all managers in public and private equity, real estate, and private credit. These managers grow CCCERA's assets for future benefit payments (beyond the three years already covered by the Liquidity program).

Boston Partners: Large cap domestic equity which follows a value discipline. Boston Partners will buy out of favor companies and sell them when their intrinsic values are reflected in the market. Expected to outperform in flat to falling markets.

BlackRock Index Fund: Large cap domestic equity portfolio which should follow the Russell 1000 Index.

Emerald Advisors: Small cap growth equity seeking companies with high growth rates. Expected to produce strong returns in rising markets, and weak returns in falling markets.

Ceredex: Domestic equity small cap value portfolio of companies with dividend yields and low valuations. This portfolio should outperform flat markets.

Pyrford (Columbia): International equity value portfolio of non-US companies with low valuations at the country and stock level. This portfolio should outperform in flat markets.

William Blair: International equity growth portfolio of non-US companies with high growth rates constructed from the security level. This portfolio should outperform in rapidly rising markets.

First Eagle: Global equity portfolio that is benchmark agnostic comprised of companies with low valuations.

Artisan Global Opportunities: Global equity portfolio of companies that is benchmark agnostic with accelerating profit cycles and a focus on capital allocation.

PIMCO/RAE Emerging Markets: Quantitative equity with a value orientation. This portfolio follows the fundamental indexing approach (ranking companies by metrics other than market capitalization), resulting in a diversified, low turnover portfolio. This portfolio underperforms in momentum driven markets.

TT International Emerging Markets: Concentrated, growth-oriented manager which invests in small and mid-cap emerging market companies. TT employs both a top-down and a bottom-up research approach and seeks to outperform by identifying companies that have a catalyst to drive future growth.

Adelante: Diversified portfolio of U.S. REITs with a focus on the underlying real estate assets. Adelante is a public market proxy of the core real estate market.

INVESCO Fundamental Beta REIT: Invesco invests in US REITs following a sector neutral strategy that allocates to the securities that INVESCO believes have the strongest financial conditions.

Voya High Yield Fixed Income: Domestic high yield fixed income portfolio with a focus on security selection. Voya will focus on the higher quality segment of the high yield universe. Voya should provide a steady income stream and provide downside protection in falling markets.

Private Equity: CCCERA invests in private equity to generate returns above those available in the public equity markets.

Private Credit: CCCERA invests in private credit to generate cash flow streams above those available in the public debt markets.

Real Estate: CCCERA invests in value-add, distressed, and opportunistic real estate to generate returns from the capital appreciation and cash flow associated with commercial real estate investment.

Risk Parity: Multi-asset approach that strives for balanced contributions to total portfolio risk from multiple asset classes.

Appendix – Risk Diversifying Sub-Portfolio

Organizational Stability

| | Portfolio Management Assessment | 1 Year Product Asset Growth | 1 Year Firm Asset Growth | Regulatory Action in Last Year? |
|-----------|---------------------------------|-----------------------------|--------------------------|---------------------------------|
| AFL-CIO | Good | 5% | 5% | N |
| BH-DG | Good | 22% | -13% | N |
| Sit LLCAR | Good | 46% | 5% | N |

Performance

| | Trailing 1 Year Correlation to Growth | Trailing 3 Year Correlation to Growth | 1 Year Return | 5 Year Return | % of Portfolio Liquid in 90 Days |
|-----------|---------------------------------------|---------------------------------------|---------------|---------------|----------------------------------|
| AFL-CIO | 0.6 | 0.8 | 2% | 0% | 100% |
| BH-DG | 0.8 | -0.6 | -12% | 7% | 100% |
| Sit LLCAR | 0.4 | 0.5 | 6% | N/A | 100% |

Manager Notes:

We are currently underwriting an additional strategy to complement AFL-CIO for the Treasury exposure and expect to make a recommendation in the second quarter of 2025.

Manager Theses:

Managers in the risk diversifying allocation seek to have a low correlation with the growth portfolio, positive returns in flat and falling equity markets, and a high degree of liquidity. These managers work together to offset some of the risks in the growth portfolio.

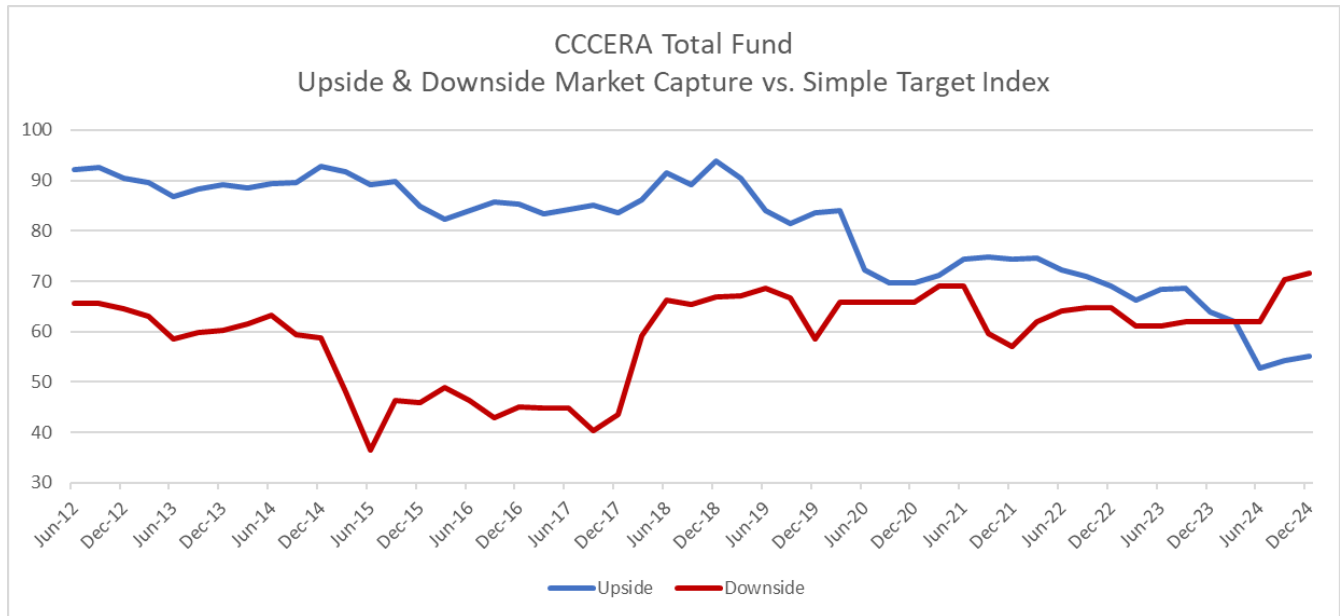
AFL-CIO: Portfolio of domestic, high quality fixed income securities which are backed by commercial and residential mortgages.

BH-DG: Quantitative multi-asset strategy that uses various models to capture both increasing and decreasing price trends across markets and timelines.

Sit LLCAR: Multiple fixed income strategies (closed end funds, mortgages, Treasuries) actively managed to target a modest positive return in most market environments.

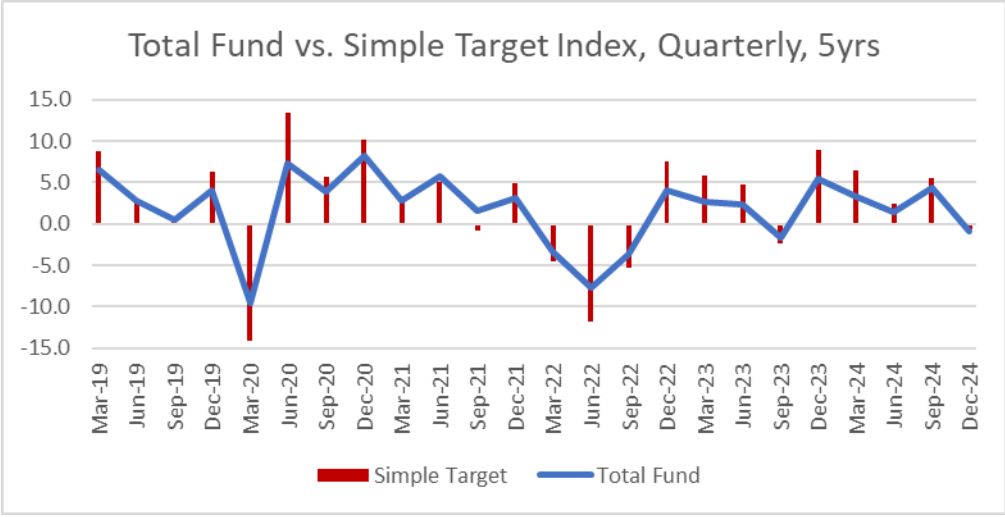
Appendix Data – Total Fund

Rolling 3-Year Total Fund Upside/Downside Market Capture



*The composition of the Simple Target Index has mirrored changes in CCCERA’s asset allocation over time: from 2008 to 2012 the benchmark was 73% MSCI ACWI, 23% Bloomberg 1-3 Year Gov/Credit, and 4% 3-Month Treasury Bills. From 2012 to 2016 the composition was 74% MSCI ACWI, 18% Bloomberg 1-3 Year Gov/Credit, and 9% 3-Month Treasury Bills. From 2016 to 2017 the composition was 63% MSCI ACWI, 25% Bloomberg 1-3 Year Gov/Credit, and 12% 3-Month Treasury Bills, from 2017 to June 2018 the composition was 61% MSCI ACWI, 27% Bloomberg 1-3 Year Gov/Credit, and 12% 3-Month Treasury Bills, from July 2018 to June 2019 the composition is 69% MSCI ACWI, 23% Bloomberg 1-3 Year Gov/Credit, and 8% 3-Month Treasury Bills, from July 2019 to June 2020 the composition is 68% MSCI ACWI, 24% Bloomberg 1-3 Year Gov/Credit, and 8% 3-Month Treasury Bills, from July 2020 to June 2021 the composition is 68.5% MSCI ACWI, 25% Bloomberg 1-3 Year Gov/Credit, and 6.5% 3-Month Treasury Bills; from July 2021 to June 2022 the composition is 75% MSCI ACWI, 18% Bloomberg 1-3 Year Gov/Credit, and 7% 3-Month Treasury Bills; from July 2022 to present the composition is 75.5% MSCI ACWI, 17% Bloomberg 1-3 Year Gov/Credit, and 7.5% 3-Month Treasury Bills; from July 2023 to present the composition is 76% MSCI ACWI, 17% Bloomberg 1-3 Year Gov/Credit, and 7% 3-Month Treasury Bills; from July 2024 to present the composition is 73% MSCI ACWI, 17% Bloomberg 1-3 Year Gov/Credit, and 10% 3-Month Treasury Bills

To represent better how the Total Fund behaves in real time, below is a chart showing its quarterly returns in relation to the Simple Target Index since 2019:



Total Fund Quarterly Attribution

| | CCCERA Total Fund | | | Simple Target Index | | | Analysis | | |
|----------------------|-------------------|--------|--------------|---------------------|--------|--------------|-----------------------|-------------------|--------------|
| | Allocation | Return | Contribution | Allocation | Return | Contribution | Allocation Difference | Return Difference | Total Effect |
| Liquidity | 19.6% | 0.2% | 0.0% | 17.0% | 0.0% | 0.0% | 2.6% | 0.2% | 0.0% |
| Growth | 72.4% | -0.9% | -0.7% | 73.0% | -1.0% | -0.7% | -0.6% | 0.1% | 0.0% |
| Risk Diversification | 6.8% | -2.9% | -0.2% | 10.0% | 1.2% | 0.1% | -3.2% | -4.0% | -0.3% |
| Overlay | 1.2% | -10.2% | -0.1% | 0% | 0% | 0% | 1.2% | -10.2% | -0.1% |
| Total Fund | 100% | | -1.0% | 100% | | -0.6% | -0.1% | | -0.4% |

CCCERA Total Fund Performance vs. Simple Target Index

| | One Year | | Three Years | | Five Years | | Ten Years | |
|------------|----------|------|-------------|------|------------|------|-----------|------|
| | CCCERA | STI | CCCERA | STI | CCCERA | STI | CCCERA | STI |
| Return | 8.3 | 14.2 | 1.8 | 4.9 | 5.6 | 8.1 | 6.2 | 7.0 |
| Volatility | 4.6 | 6.3 | 8.0 | 12.7 | 9.4 | 14.1 | 7.6 | 11.2 |
| Sharpe | 0.8 | 1.5 | -0.2 | 0.1 | 0.3 | 0.4 | 0.6 | 0.5 |

The Simple Target Index is made up of 73% MSCI ACWI, 17% Bloomberg 1-3 Year Gov/Credit, and 10% 3-Month Treasury Bill. This purpose of this index is to examine whether CCCERA is being rewarded for pursuing a more nuanced portfolio versus a very simple representative portfolio.

CCCERA's Total Fund has produced good risk adjusted returns over all trailing time periods, but has lagged the absolute return of the Simple Target Index. This primarily reflects the exceptionally strong performance of the global equity markets in recent years relative to more modest private equity and credit returns and significant challenges in real estate.

The Sharpe ratio is a measure of risk adjusted returns which shows the amount of return a portfolio earns above the risk-free rate per unit of volatility. The Total Fund has matched or exceeded the Sharpe ratio relative to the Simple Target Index over all trailing time periods longer than one year, indicating that CCCERA is being favorably rewarded for the level of risk taken in the portfolio.