



**Memorandum**

Date: November 30, 2022

To: CCCERA Board of Retirement Trustees

From: Timothy Price, Chief Investment Officer

Subject: Investment Staff Report – Q3 2022

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**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**

In the wake of some extraordinary market behavior over the past three years, CCCERA's Total Fund is performing as expected, exhibiting returns above expectations for the amount of risk taken. 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 75.5% MSCI ACWI, 17% Bloomberg 1-3 Year Gov/Credit, and 7.5% 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.

CCCERA has been rewarded for implementing a more complex portfolio and has outperformed the Simple Target Index over the trailing ten years and all shorter periods, while experiencing less risk (volatility). 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.

### **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 third quarter of 2022, 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 2.0 years, which is considered short.

### **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 ending September 30, 2022, the Growth portfolio returned 5.9% relative to the index return of 4.4%, for a relative outperformance of 1.5%. Over this period, the Growth program produced a superior Sharpe ratio of 0.4 relative to the index's 0.2. During the third quarter of 2022, the MSCI ACWI Index returned -6.8% relative to CCCERA's Growth sub-portfolio return of -4.3%.

### **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 third 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 correlation of the mandate to growth markets is 0.8, similar to what it was in June 2022. The trailing real (net of inflation) return over the past five years is -3.8%, remaining below expectations. Recent changes to diversify this portion of the portfolio away from fixed income have been beneficial over the past year.

By and large, the product teams and asset managers across all managers are stable, and we have no significant organizational concerns with our investment managers. CCCERA's Total Fund in aggregate is performing in line with expectations, 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	2.0 years	Meeting Expectations
Appropriately Sized	Months of Benefit Payments Invested	34 Months	Meeting Expectations

#### Growth

Objective	Measurement	Current Period Data	Status
Growth of Plan Assets	Absolute Returns	Trailing 5 yr return: 5.9%	Meeting Expectations
	Benchmark Relative Returns	1.5% relative to ACWI over trailing 5 years	Meeting Expectations
Efficient Capital Deployment	Sharpe Ratio	CCCERA: 0.4 MSCI ACWI: 0.2 (over trailing 5 years)	Meeting Expectations

#### Risk Diversifying

Objective	Measurement	Current Period Data	Status
Offset Volatility in Growth Portfolio	Correlation	0.8 over trailing 5 years	Below Expectations
Positive Real Returns	Returns	5 yr real return: -3.8% 5 yr nominal return: 0.0%	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	14%	-32%	N
Sit	Good	-10%	-12%	N
DFA	Good	3%	-17%	N

#### Performance

	Portfolio Average Credit Quality	Portfolio Average Duration	Portfolio Average Yield	1 Year Total Return
Insight	A+	1.3	4.1	-4.5%
Sit	AAA	2.6	5.4	-6.2%
DFA	A	2.3	5.4	-7.2%

#### Manager Notes:

Fixed income securities have continued to trade off as rates have risen across all fixed income durations. The shorter duration of CCCERA's mandates have provided relative protection, 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 high 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	-10%	-15%	N
BlackRock Index Fund	Good	-26%	-16%	N
Emerald Advisors	Good	-38%	-38%	N
Ceredex	Good	-36%	-30%	N
Pyrford	Good	-32%	-29%	N
William Blair	Good	-43%	-33%	N
First Eagle	Good	-18%	3%	N
Artisan Global	Good	-33%	-31%	N
PIMCO/RAE EM	Good	-15%	-23%	N
TT EM	Good	-4%	-38%	N
Adelante	Good	-36%	-27%	N
Invesco REIT	Good	-14%	-9%	N
Allianz	Good	-9%	22%	N
AQR	Good	-41%	-30%	N
PanAgora	Good	-23%	-26%	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	-21%	4%	7%		
Boston Partners	-3%	9%	12%	Y	04/30/1995
BlackRock Index Fund	-13%	11%	12%	Y	03/31/2017
Emerald Advisors	-30%	6%	11%	Y	03/31/2003
Ceredex	-11%	4%	9%	Y	09/30/2011
<b>Total Domestic Equity</b>	<b>-17%</b>	<b>9%</b>	<b>12%</b>	<b>Y</b>	
Pyrford	-10%	3%	3%	Y	03/31/2014
William Blair	-30%	5%	7%	Y	09/30/2010
PIMCO/RAE EM	-19%	3%	2%	N	01/31/2017
TT EM	-33%	1%	4%	N	06/30/2017
<b>Total International Equity</b>	<b>-23%</b>	<b>3%</b>	<b>6%</b>	<b>Y</b>	
First Eagle	-9%	5%	7%	Y	12/31/2010
Artisan Global	-27%	8%	10%	Y	11/30/2012
<b>Total Global Equity</b>	<b>-18%</b>	<b>7%</b>	<b>9%</b>	<b>Y</b>	
Adelante	-6%	7%	8%	Y	07/31/2001
Invesco REIT	N/A	N/A	N/A	Y	02/28/2022
Allianz	-13%	1%	4%	Y	04/30/2000
AQR	-10%	3%	2%	Y	12/31/2018
PanAgora	-18%	1%	4%	Y	02/28/2019
Private Equity	9%	17%	14%	Y	
Private Credit	12%	8%	10%	Y	
Real Estate	3%	5%	8%	Y	

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

**Manager Notes:**

The third quarter of 2022 was quite difficult as major equity markets continued the decline triggered earlier in the year by concerns around high inflation, higher interest rates, geopolitical tension and focus on the slower growth and the possibility of a recession.

**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.

**Allianz High Yield Fixed Income:** Domestic high yield fixed income portfolio with a focus on security selection. Allianz will focus on the higher quality segment of the high yield universe. Allianz 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	-14%	-14%	N
Acadian	Good	-3%	-26%	N
Sit	Good	---	---	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	0.7	0.3	-10%	1%	100%
Acadian	-0.6	-0.5	1%	N/A	100%
Sit	0.2	N/A	-1%	N/A	100%

### Manager Notes:

The Sit LLCAR was funded in the third quarter of 2021. As it is a custom strategy, we have only one year of data to measure at this time.

### 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.

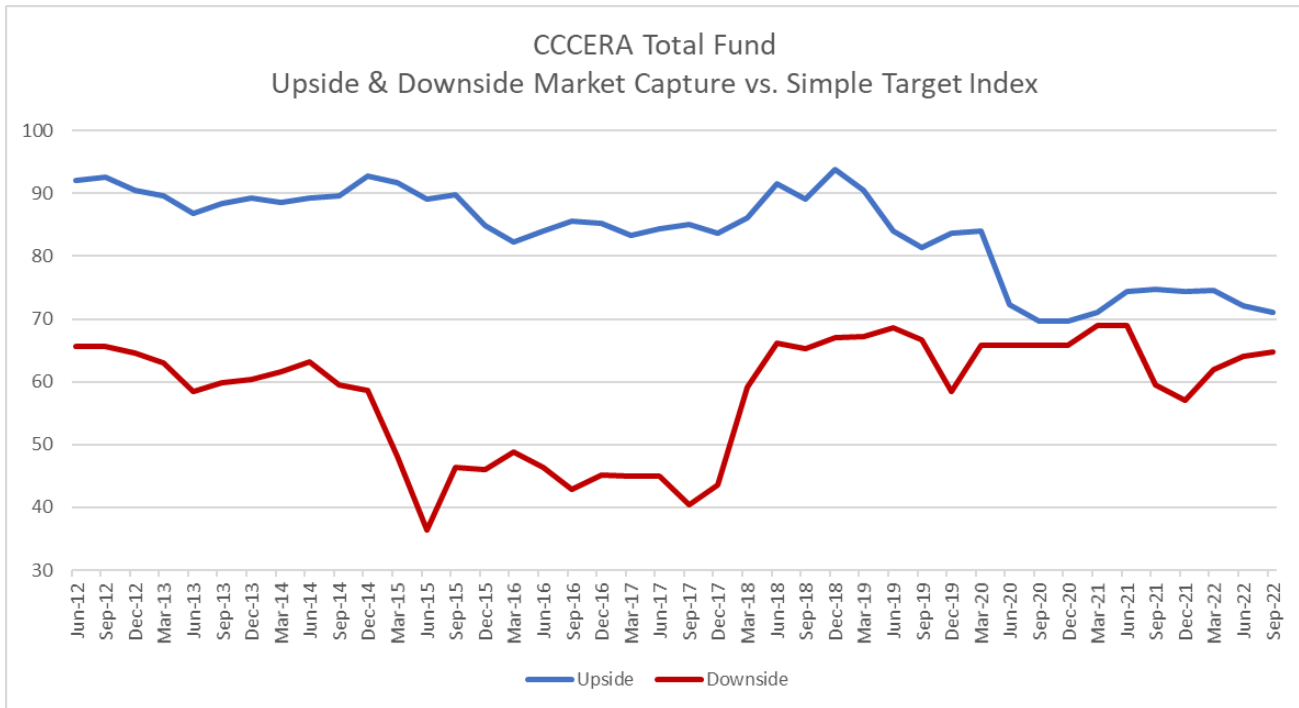
**AFL-CIO:** Portfolio of domestic, high quality fixed income securities which are backed by commercial and residential mortgages.

**Acadian:** Quantitatively managed multi-asset absolute return strategy that uses various models to capture pricing dislocations.

**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.

## Total Fund Quarterly Attribution

	CCCERA Total Fund			Simple Target Index			Analysis		
	Allocation	Return	Return Contribution	Allocation	Return	Return Contribution	Allocation Difference	Return Difference	Total Effect
Liquidity	16.5%	-1.5%	-0.2%	17.0%	-1.5%	-0.3%	-0.5%	0.0%	0.0%
Growth	74.9%	-4.3%	-3.2%	75.5%	-6.8%	-5.1%	-0.6%	2.5%	1.9%
Risk Diversifying	7.6%	-0.8%	-0.1%	7.5%	0.5%	0.0%	0.1%	-1.3%	-0.1%
Overlay	1.0%	-52.3%	-0.5%	0%	0%	0%	1.0%	-52.3%	-0.5%
Total Fund	100%		-4.1%	100%		-5.4%	-0.1%		1.3%

## 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	-11.4	-16.4	3.6	2.7	4.2	3.4	6.5	5.2
Volatility	8.9	13.8	11.6	16.9	9.7	14.2	7.5	10.7
<b>Sharpe</b>	<b>-1.4</b>	<b>-1.2</b>	<b>0.3</b>	<b>0.1</b>	<b>0.3</b>	<b>0.2</b>	<b>0.8</b>	<b>0.4</b>

The Simple Target Index is made up of 75.5% MSCI ACWI, 17% Bloomberg 1-3 Year Gov/Credit, and 7.5% 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 strong risk adjusted over all trailing time periods and has produced a strong absolute return over the past ten years. This indicates that CCCERA has been rewarded over time for engaging in more complex investments which target outperformance versus investing passively in the publicly traded market even though these more complex structures.

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 exceeded the Sharpe ratio relative to the Simple Target Index over all trailing time periods, indicating that CCCERA is being favorably rewarded for the level of risk taken in the portfolio.