

Callan



**Executive Summary**

**September 30, 2022**

**Ms. Brianne Weymouth, CAIA**  
Senior Vice President

**Mr. Angel G. Haddad**  
Senior Vice President

**Chicago Teachers' Pension Fund  
Performance Evaluation Executive Summary  
Third Quarter 2022**

**Table of Contents**

Total Fund Commentary	3
Select Market Returns	4
Quarterly Review	5
Asset Allocation	6
Investment Manager Asset Allocations	7
Total Fund Performance vs. Target	11
Manager Performance	14
Manager Watch List	22
General Market & Economic Conditions	29
Appendix: Watch List Criteria	32

**Chicago Teachers' Pension Fund  
Performance Evaluation Executive Summary  
Third Quarter 2022**

**Total Fund Commentary**

The Fund was valued at \$10,672 million at the end of the third quarter, representing a decrease of approximately \$842 million from June 30, 2022. The change in the Fund's market value was attributable to market volatility and net negative cash flows. Market volatility resulted in a reduction in the Fund's valuation of \$541 million and outflows totalled \$301 million over the period. The Fund's asset allocation was not within the range of the strategic targets at quarter-end due to market declines. Underweights to Domestic Equity (3.3%), International Equity (4.5%), and Fixed Income (2.7%) were offset by overweights to Real Estate (4.4%), Private Equity (3.7%) and Cash (2.1%). We continue to evaluate opportunities to rebalance the portfolio, consistent with the Fund's long-term objectives and best practices.

There were few places for investors to hide (again) this quarter as a mostly familiar slate of worries fueled sharp declines in global stocks and bonds. Sticky and high inflation led to aggressive Fed rate hikes and increasingly hawkish rhetoric, raising concerns over the ultimate impact of sharply higher rates on the U.S. economy. The effort to combat inflation has been global; roughly 90 central banks around the world have raised rates in 2022, and more than 40 have hiked by at least 75 bps. As a result, the prospect of a global recession has emerged. China's woes and fears of recession in Europe further contributed to dismal sentiment. The war in Ukraine, which has driven up energy and food prices, showed no signs of ending. Add to this mix the late-quarter "mini-budget" fiasco in the U.K., which put further pressure on bond markets and buoyed an already strong U.S. dollar.

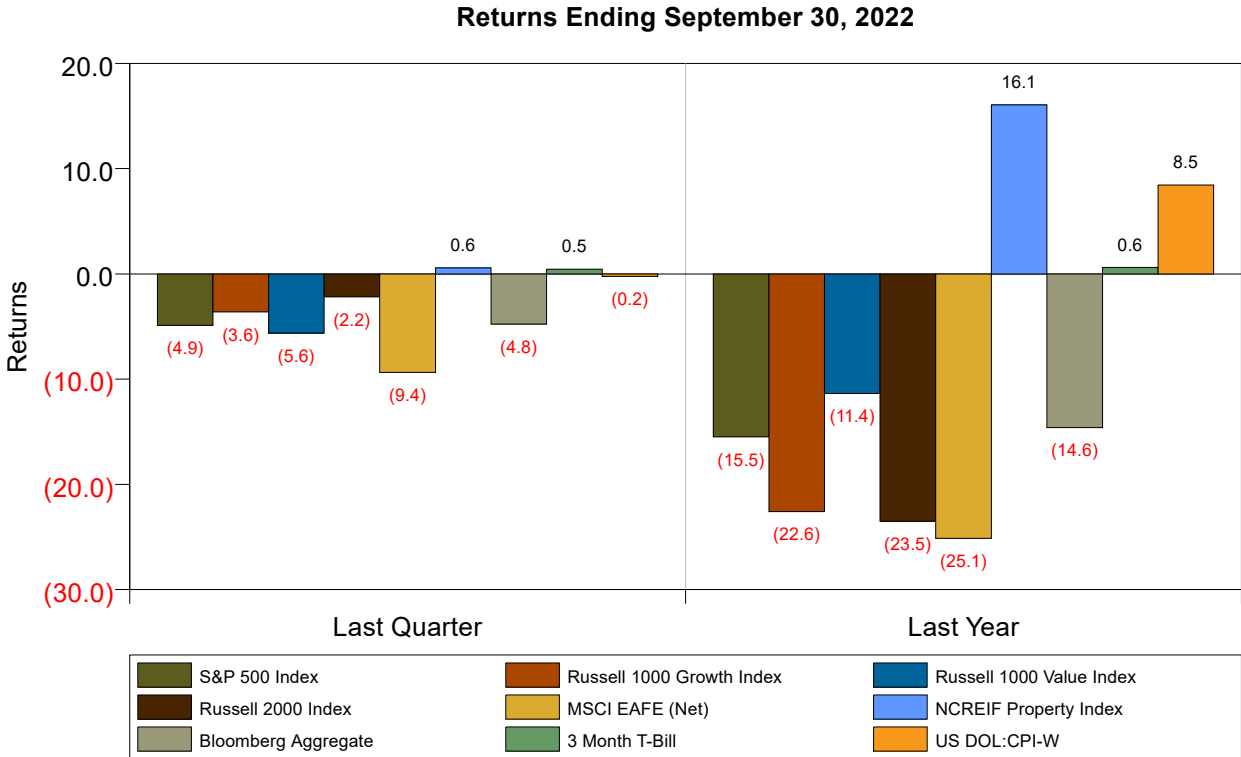
In this environment, the Fund had a net return of -4.97% over the quarter (-4.90% gross of fees), outperforming the Policy Target by 72 basis points and ranking in the 74<sup>th</sup> percentile of peers. Longer-term performance (trailing three-, five-, seven-, and ten-year periods) is ahead of the Policy Target and ranks within the top 52% of the peer group. Over the quarter, international equity and real estate contributed most to results with cash and infrastructure also contributing, reflecting the benefits of diversification in what can be described as a difficult market environment. The rest of the asset classes in the portfolio produced slightly negative or flat attribution results over the quarter with fixed income underperforming most. It is important to note that private market investments, such as private equity, infrastructure, and real estate are valued on a lagged basis and therefore should be evaluated in more detail separately, using appropriate metrics to capture the magnitude and timing of the cash flows associated with these investments. Callan prepares separate reports on behalf of CTPF to evaluate the performance of these investments in more detail.

**Closing Thoughts**

Markets have been both punishing and humbling in 2022 and the ability of central banks to dampen high and widespread inflation without causing recessions remains a key question for investors. The war in Ukraine and its ultimate implications also weighs heavily. Stock and bond markets have undergone significant corrections, and both represent much better forward-looking opportunities than we have seen in some time, but we expect volatility to continue to be a key theme given significant tail risks. As always, Callan continues to advise adherence to a disciplined investment process that includes a well-defined long-term asset allocation policy.

**Chicago Teachers' Pension Fund  
Performance Evaluation Executive Summary  
Third Quarter 2022**

**Select Market Returns**



**Chicago Teachers' Pension Fund  
Performance Evaluation Executive Summary  
Third Quarter 2022**

**QUARTERLY REVIEW**

• **Third Quarter, 2022 Investment Performance Update:**

- Performance: For the third quarter, the Fund outperformed the market benchmark by 79 basis points, gross of investment management fees (72 basis points net of fees), and ranked in the 74<sup>th</sup> percentile of its peers. Longer term performance (trailing three-years and longer) continues to be competitive relative to benchmarks.

• **Watch Status Report:** The following managers are on the Watch List:

- DFA: Included on the Watch List due to underperformance. Performance has improved in the recent rotation into value opportunities and Watch List scores have consequently improved meaningfully.
- Ariel: Included on the Watch List due to personnel changes and underperformance. On January 11th, 2022 Ariel announced the departure of analyst Krishna Chintalapalli; his last day will be January 14th. Krishna's Telecommunications industry coverage will be assumed mostly by Todor Petrov, who has over 18 years of international equity experience covering the Telecommunications sector and by other senior members of the team. Additionally, Ariel announced that several analysts on the International and Global Equity Team were promoted to Vice President including: Todor Petrov, Barney Rosen, Barry Cohen, Kevin Buttigieg, and Yury Monakov. Doug Zheng will be promoted to Senior Research Associate.

On May 20, 2022, Todor Petrov, Vice President, Research, Global Equities, departed Ariel to a pursue a new opportunity. His research coverage was assumed by other members of the team.

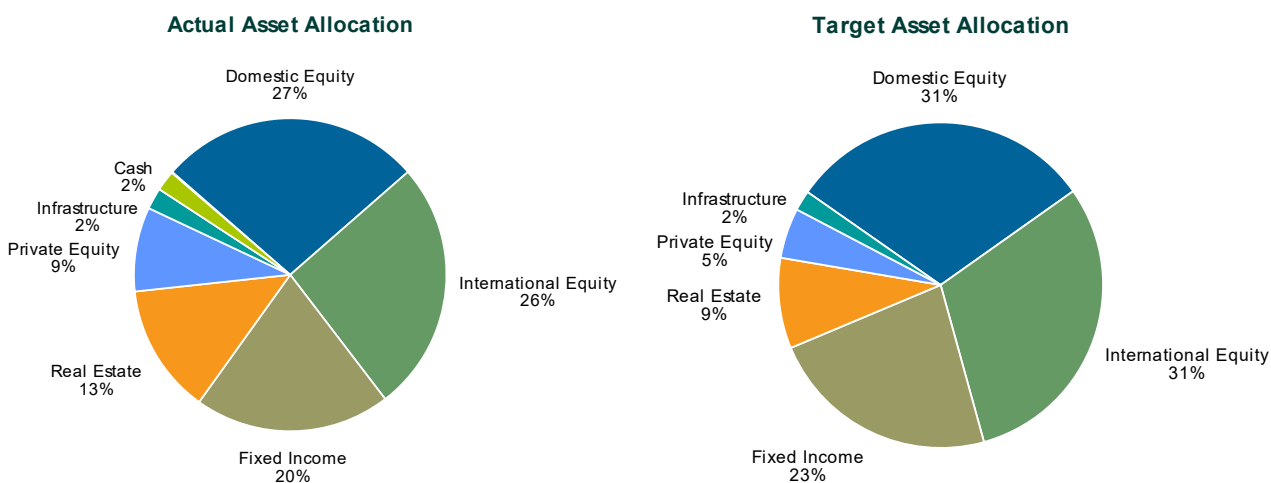
Ariel's performance and Watch List scores have improved meaningfully in the current market environment.

- Lazard: Included on the Watch List due to underperformance.
- Strategic Global Advisors: Included on the Watch List due to underperformance.
- State Street Global Advisors: Included on the watch list due to missing MWDBE brokerage goals.
- Leading Edge: Included on the Watch List due to underperformance.

**Chicago Teachers' Pension Fund  
Performance Evaluation Executive Summary  
Third Quarter 2022**

**Asset Allocation**

The Fund was valued at \$10,672 million at the end of the third quarter, representing a decrease of approximately \$842 million from June 30, 2022. The change in the Fund's market value was attributable to market volatility and net negative cash flows. Market volatility resulted in a reduction in the Fund's valuation of \$541 million and outflows totalled \$301 million over the period. The Fund's asset allocation was not within the range of the strategic targets at quarter-end due to market declines. Underweights to Domestic Equity (3.3%), International Equity (4.5%), and Fixed Income (2.7%) were offset by overweights to Real Estate (4.4%), Private Equity (3.7%) and Cash (2.1%). We continue to evaluate opportunities to rebalance the portfolio, consistent with the Fund's long-term objectives and best practices.



Asset Class	\$Millions Actual	Weight Actual	Target	Percent Difference	\$Millions Difference
Domestic Equity	2,900	27.2%	30.5%	(3.3%)	(355)
International Equity	2,778	26.0%	30.5%	(4.5%)	(476)
Fixed Income	2,171	20.3%	23.0%	(2.7%)	(284)
Real Estate	1,435	13.4%	9.0%	4.4%	475
Private Equity	933	8.7%	5.0%	3.7%	399
Infrastructure	232	2.2%	2.0%	0.2%	18
Cash	223	2.1%	0.0%	2.1%	223
<b>Total</b>	<b>10,672</b>	<b>100.0%</b>	<b>100.0%</b>		

**Chicago Teachers' Pension Fund  
Performance Evaluation Executive Summary  
Third Quarter 2022**

**INVESTMENT MANAGER ASSET ALLOCATIONS**

**Investment Manager Asset Allocation**

The table below contrasts the distribution of assets across the Fund's investment managers as of September 30, 2022, with the distribution as of June 30, 2022. The change in asset distribution is broken down into the dollar change due to Net New Investment and the dollar change due to Investment Return.

	September 30, 2022		Net New Inv.	Inv. Return	June 30, 2022	
	Market Value	Weight			Market Value	Weight
<b>DOMESTIC EQUITY</b>	<b>\$2,899,829,738</b>	<b>27.17%</b>	<b>\$(132,348,702)</b>	<b>\$(127,888,884)</b>	<b>\$3,160,067,324</b>	<b>27.44%</b>
<b>Large Cap</b>	<b>\$2,604,402,580</b>	<b>24.40%</b>	<b>\$(130,819,301)</b>	<b>\$(113,243,514)</b>	<b>\$2,848,465,395</b>	<b>24.74%</b>
<b>Large Cap Core Index</b>	<b>\$1,890,396,493</b>	<b>17.71%</b>	<b>\$(107,261,767)</b>	<b>\$(88,856,902)</b>	<b>\$2,086,515,162</b>	<b>18.12%</b>
Rhumbline Rsl 1000 LCC	1,890,396,493	17.71%	(107,261,767)	(88,856,902)	2,086,515,162	18.12%
<b>Large Cap Growth Equity</b>	<b>\$332,846,541</b>	<b>3.12%</b>	<b>\$(20,879,251)</b>	<b>\$(4,140,180)</b>	<b>\$357,865,971</b>	<b>3.11%</b>
Rhumbline Rsl 1000 LCG	254,763,844	2.39%	(20,790,377)	(9,355,949)	284,910,169	2.47%
Zevenbergen US ACE	78,082,697	0.73%	(88,874)	5,215,770	72,955,801	0.63%
<b>Large Cap Value Equity</b>	<b>\$381,159,546</b>	<b>3.57%</b>	<b>\$(2,678,283)</b>	<b>\$(20,246,432)</b>	<b>\$404,084,262</b>	<b>3.51%</b>
Channing US ACE	116,063,534	1.09%	(967,499)	(4,629,276)	121,660,309	1.06%
Rhumbline LCV	265,096,012	2.48%	(1,710,784)	(15,617,156)	282,423,953	2.45%
<b>Small Cap Equity</b>	<b>\$240,143,295</b>	<b>2.25%</b>	<b>\$(1,221,878)</b>	<b>\$(12,101,999)</b>	<b>\$253,467,172</b>	<b>2.20%</b>
NTGI Structured SCC	82,279,866	0.77%	(437,961)	(3,804,807)	86,522,633	0.75%
Conestoga SCG	83,411,217	0.78%	(235,372)	(3,807,797)	87,454,386	0.76%
Phocas SCV	74,452,212	0.70%	(548,545)	(4,489,395)	79,490,153	0.69%
<b>Attucks Domestic Equity (Mgr of Mgrs)</b>	<b>\$55,283,863</b>	<b>0.52%</b>	<b>\$(307,523)</b>	<b>\$(2,543,371)</b>	<b>\$58,134,757</b>	<b>0.50%</b>
Attucks Heard ACC	23,103,274	0.22%	(204,663)	(2,527,312)	25,835,248	0.22%
Attucks Lasanti	20,435,443	0.19%	(13,382)	579,830	19,868,995	0.17%
Attucks Paradigm LCV	11,732,114	0.11%	(87,683)	(595,864)	12,415,661	0.11%
<b>INTERNATIONAL EQUITY</b>	<b>\$2,778,430,834</b>	<b>26.04%</b>	<b>\$(22,607,038)</b>	<b>\$(277,879,476)</b>	<b>\$3,078,917,348</b>	<b>26.74%</b>
Ariel EAFE ILCV	61,557,549	0.58%	(718,660)	(9,922,841)	72,199,050	0.63%
DFA ISCV	135,126,208	1.27%	(1,083,684)	(15,004,403)	151,214,294	1.31%
Eamest Partners EME	162,416,881	1.52%	(2,741,251)	(17,747,912)	182,906,044	1.59%
Eamest Partners ILCE	537,753,118	5.04%	(5,073,022)	(52,460,249)	595,286,390	5.17%
Lazard Asst Mgt ILCE	494,442,723	4.63%	(2,587,643)	(52,423,480)	549,453,846	4.77%
Leading Edge IE MOM	106,404,337	1.00%	(1,340,362)	(10,812,373)	118,557,073	1.03%
Morgan Stanley ILCE	484,277,274	4.54%	(3,669,785)	(58,007,409)	545,954,467	4.74%
Strategic Global Adv. EAFE	60,639,092	0.57%	(658,423)	(5,787,606)	67,085,121	0.58%
William Blair ILCG	466,398,715	4.37%	(2,647,909)	(34,963,004)	504,009,628	4.38%
William Blair ISCE	166,711,685	1.56%	(1,054,549)	(11,745,923)	179,512,157	1.56%
<b>TOTAL FUND</b>	<b>\$10,671,887,625</b>	<b>100.0%</b>	<b>\$(301,334,028)</b>	<b>\$(541,256,583)</b>	<b>\$11,514,478,236</b>	<b>100.0%</b>

**Chicago Teachers' Pension Fund  
Performance Evaluation Executive Summary  
Third Quarter 2022**

**INVESTMENT MANAGER ASSET ALLOCATIONS (Continued)**

	September 30, 2022				June 30, 2022	
	Market Value	Weight	Net New Inv.	Inv. Return	Market Value	Weight
<b>Attucks Int'l Equity</b>	<b>\$102,703,251</b>	<b>0.96%</b>	<b>\$(1,031,750)</b>	<b>\$(9,004,276)</b>	<b>\$112,739,278</b>	<b>0.98%</b>
Attucks ARI	298	0.00%	620	(25)	-298	(0.00%)
Attucks GlobeFlex Int'l ACC	8,366	0.00%	0	(39)	8,405	0.00%
Attucks GlobeFlex Global Eq	26,579,864	0.25%	(476,378)	(1,278,101)	28,334,343	0.25%
Attucks Brown Capital Int'l SCG	20,159,813	0.19%	(52,512)	(1,777,401)	21,989,726	0.19%
Attucks Ativo Capital EM	8,027	0.00%	0	(3)	8,030	0.00%
Attucks Glovista EM	16,098,028	0.15%	(158,298)	(2,221,394)	18,477,719	0.16%
Attucks Redwood Int'l ACC	19,903,109	0.19%	(140,308)	(1,652,414)	21,695,830	0.19%
Attucks Paradigm ILCC	19,945,747	0.19%	(204,876)	(2,074,900)	22,225,523	0.19%
<b>FIXED INCOME</b>	<b>\$2,170,990,028</b>	<b>20.34%</b>	<b>\$(18,023,964)</b>	<b>\$(115,961,313)</b>	<b>\$2,304,975,305</b>	<b>20.02%</b>
Garcia Hamilton FIC	257,128,944	2.41%	(2,194,290)	(14,583,297)	273,906,531	2.38%
LM Capital FICP	298,017,258	2.79%	(2,850,954)	(14,123,844)	314,992,055	2.74%
Pugh FIC	254,480,253	2.38%	(1,793,832)	(12,633,132)	268,907,217	2.34%
SSgA Agg Bond Index FI	393,883,380	3.69%	(2,729,687)	(20,304,629)	416,917,696	3.62%
Ramirez FI	108,084,572	1.01%	(1,034,227)	(5,181,364)	114,300,163	0.99%
WAMCO FICP	551,924,265	5.17%	(4,824,781)	(32,981,832)	589,730,879	5.12%
Wellington Core Bond	254,343,586	2.38%	(1,881,684)	(13,487,882)	269,713,153	2.34%
<b>Attucks Fixed Income</b>	<b>\$53,127,899</b>	<b>0.50%</b>	<b>\$(714,508)</b>	<b>\$(2,665,331)</b>	<b>\$56,507,738</b>	<b>0.49%</b>
Attucks Barksdale	17,058,399	0.16%	(84,635)	(829,003)	17,972,037	0.16%
Attucks New Century GI TIPS	18,344,663	0.17%	(235,942)	(1,324,620)	19,905,225	0.17%
Attucks LM Capital EMD	17,724,837	0.17%	(393,931)	(511,708)	18,630,475	0.16%
<b>INFRASTRUCTURE</b>	<b>\$231,586,896</b>	<b>2.17%</b>	<b>\$(2,073,963)</b>	<b>\$2,135,158</b>	<b>\$231,525,702</b>	<b>2.01%</b>
Brookfield Infra III	46,536,408	0.44%	(446,115)	404,298	46,578,225	0.40%
Brookfield Infra IV	22,108,065	0.21%	996,985	796,425	20,314,655	0.18%
JLC Infrastructure Fund I	4,263,857	0.04%	(92,154)	703,105	3,652,907	0.03%
IFM Global Fund	42,803,645	0.40%	(122,136)	0	42,925,781	0.37%
JP Morgan Infr-OE	79,628,663	0.75%	(1,542,610)	(1,599,725)	82,770,998	0.72%
Macquarie Fd II Infr	440,698	0.00%	1,439	(7,193)	446,453	0.00%
Macquarie European Fund III Infr	322,778	0.00%	(160)	(20,876)	343,814	0.00%
Macquarie Infrastructure Fund V	19,364,828	0.18%	(410,552)	1,719,429	18,055,952	0.16%
Ullico Taxable Fund	16,117,953	0.15%	(458,659)	139,695	16,436,917	0.14%
<b>TOTAL FUND</b>	<b>\$10,671,887,625</b>	<b>100.0%</b>	<b>\$(301,334,028)</b>	<b>\$(541,256,583)</b>	<b>\$11,514,478,236</b>	<b>100.0%</b>



**Chicago Teachers' Pension Fund  
Performance Evaluation Executive Summary  
Third Quarter 2022**

**INVESTMENT MANAGER ASSET ALLOCATIONS (Continued)**

	September 30, 2022			June 30, 2022		
	Market Value	Weight	Net New Inv.	Inv. Return	Market Value	Weight
<b>REAL ESTATE</b>	<b>\$1,435,223,143</b>	<b>13.45%</b>	<b>\$(3,129,734)</b>	<b>\$19,213,695</b>	<b>\$1,419,139,183</b>	<b>12.32%</b>
BIG RE Fund I	22,010,008	0.21%	(1,307,145)	638,056	22,679,097	0.20%
BIG RE Fund II	13,883,872	0.13%	5,982,456	0	7,901,416	0.07%
BREDS HG LP	20,978,986	0.20%	(260,588)	(131,655)	21,371,229	0.19%
City View PRE	273,315	0.00%	0	(26,634)	299,949	0.00%
Clarion Lion Indus Tr	235,616,884	2.21%	(525,145)	17,818,619	218,323,410	1.90%
Europa Fd III PRE	647,539	0.01%	0	(43,168)	690,707	0.01%
Fortress Japan PRE	971,231	0.01%	(44,413)	141,823	873,821	0.01%
Fortress Japan Fd II PRE	2,075,095	0.02%	(14,156)	81,172	2,008,079	0.02%
Franklin Temp PREMOM	2,197,483	0.02%	(170,182)	(0)	2,367,666	0.02%
GreenOak Fund III	16,892,181	0.16%	(54,430)	85,817	16,860,794	0.15%
Heitman IV LP	26,344,516	0.25%	(5,256,947)	0	31,601,463	0.27%
Heitman V LP	13,202,770	0.12%	4,767,995	256,798	8,177,977	0.07%
JP Morgan Strat PRE-OE	210,355,192	1.97%	(1,605,698)	(2,705,546)	214,666,436	1.86%
LaSalle Property PRE-OE	285,625,983	2.68%	(2,080,959)	96,955	287,609,987	2.50%
Longpoint RE Fd I	420,047	0.00%	48,486	(285,442)	657,003	0.01%
Longpoint RE Fd II	17,638,165	0.17%	2,621,091	385,375	14,631,699	0.13%
Long Wharf VI	22,421,980	0.21%	2,932,602	110,753	19,378,625	0.17%
MB Asia RE Fd PRE	251,844	0.00%	0	(8,828)	260,672	0.00%
Newport Cap Fund II	20,265,254	0.19%	(273,465)	534,265	20,004,454	0.17%
Newport Cap Fund III	1,013,136	0.01%	(56,660)	172,066	897,731	0.01%
Oak Street Fund IV RE	11,317,081	0.11%	(5,256,951)	442,256	16,131,776	0.14%
PRISA Fd I PRE-OE	207,931,960	1.95%	(1,404,049)	(0)	209,336,009	1.82%
PRISA Fd II PRE-OE	148,496,429	1.39%	0	0	148,496,429	1.29%
SASC II	16,967,607	0.16%	0	0	16,967,607	0.15%
TA Associates Realty Fund XII	54,609,438	0.51%	(436,529)	1,783,675	53,262,292	0.46%
UBS Realty PRE-OE	70,051,751	0.66%	(559,692)	(0)	70,611,444	0.61%
Walton St Fd III PRE	54,633	0.00%	0	0	54,633	0.00%
Walton St Fd IV PRE	0	0.00%	(168,046)	(49,069)	217,115	0.00%
Walton St Fd V PRE	1,556,572	0.01%	0	(26,580)	1,583,152	0.01%
Walton St Fd VI PRE	9,554,218	0.09%	0	0	9,554,218	0.08%
Walton St Mexico Fd I PRE	1,597,971	0.01%	(7,308)	(57,014)	1,662,293	0.01%
<b>TOTAL FUND</b>	<b>\$10,671,887,625</b>	<b>100.0%</b>	<b>\$(301,334,028)</b>	<b>\$(541,256,583)</b>	<b>\$11,514,478,236</b>	<b>100.0%</b>

**Chicago Teachers' Pension Fund  
Performance Evaluation Executive Summary  
Third Quarter 2022**

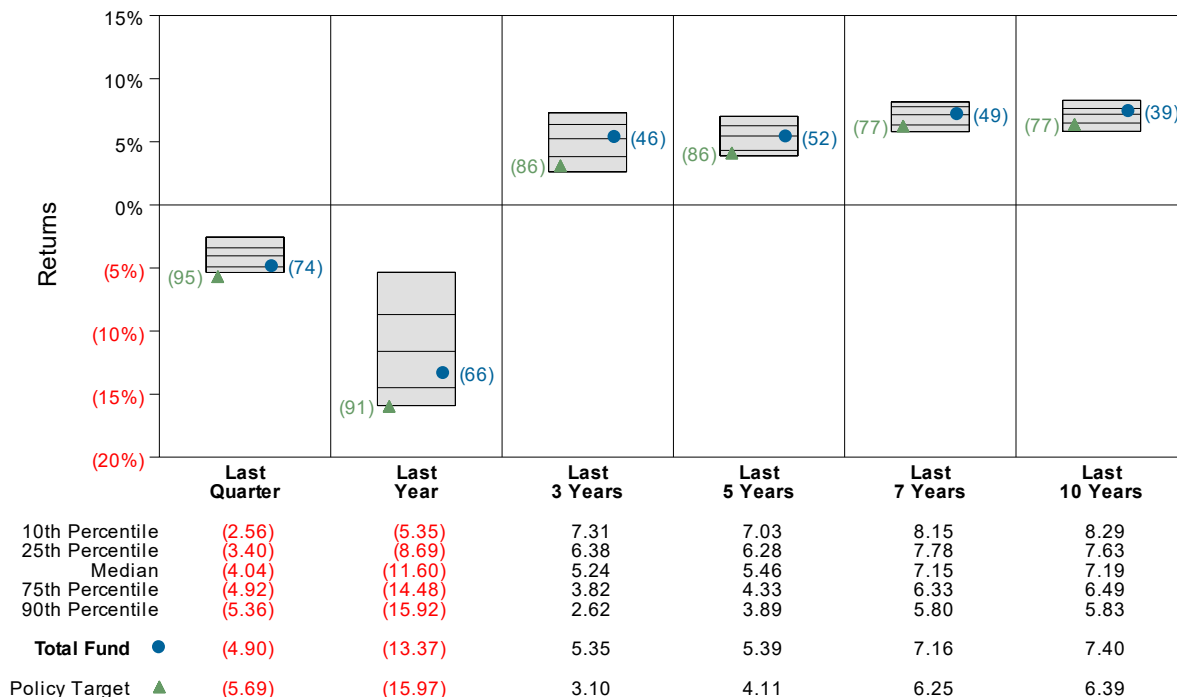
**INVESTMENT MANAGER ASSET ALLOCATIONS (Continued)**

	September 30, 2022			June 30, 2022		
	Market Value	Weight	Net New Inv.	Inv. Return	Market Value	Weight
<b>PRIVATE EQUITY</b>	<b>\$932,592,253</b>	<b>8.74%</b>	<b>\$24,466,657</b>	<b>\$(41,766,243)</b>	<b>\$949,891,840</b>	<b>8.25%</b>
Adams St Many Fd PE	400,674,474	3.75%	19,942,684	(24,043,314)	404,775,104	3.52%
African Dev Ptr III	5,359,318	0.05%	1,031,194	(82,624)	4,410,748	0.04%
AFIG Fund II LP	8,602,624	0.08%	3,191,488	120,778	5,290,358	0.05%
Aldrich Capital Partners II	1	0.00%	0	0	1	0.00%
Astra Partners I	7,569,585	0.07%	(53,102)	(4,057)	7,626,744	0.07%
AUA II	6,790,419	0.06%	238,332	(593,268)	7,145,355	0.06%
AVP XI LP	36,667,297	0.34%	98,012	(2,904,721)	39,474,006	0.34%
AVP XII LP	15,350,868	0.14%	(56,030)	(464,742)	15,871,640	0.14%
AVP XIII	885,046	0.01%	1,072,444	(187,398)	-	-
Data Focus I	7,050,969	0.07%	642,974	0	6,407,995	0.06%
EQT Fund VIII	24,032,876	0.23%	(6,947,478)	625,232	30,355,123	0.26%
EQT IX LP	22,918,155	0.21%	606,564	(2,501,602)	24,813,193	0.22%
Estancia II	9,996,601	0.09%	0	2,136,975	7,859,626	0.07%
Farol Fund II	17,934,892	0.17%	46,676	(0)	17,888,216	0.16%
HarbourVest Ptrs VI PE	111,974	0.00%	0	815	111,159	0.00%
HarbourVest Ptrs VII PE	21,766,487	0.20%	(1,188,521)	(1,740,984)	24,695,992	0.21%
HarbourVest Ptrs VIII PE	2,166,000	0.02%	(459,718)	(94,782)	2,720,500	0.02%
HVP Buyout X PE	17,719,034	0.17%	(208,038)	(524,858)	18,451,930	0.16%
HVP Venture X PE	18,149,081	0.17%	(24,413)	(1,653,889)	19,827,383	0.17%
HVP Brand Fd II	743,808	0.01%	398,737	0	345,071	0.00%
Hispania Fd II PE	51,979	0.00%	(5,633)	0	57,612	0.00%
ICV Capital Ptrs PE	0	0.00%	(22,082)	1,631	20,451	0.00%
ICV Capital Ptrs III PE	9,029,984	0.08%	(3,731)	(172,319)	9,206,034	0.08%
ICV Capital Ptrs IV PE	13,296,882	0.12%	1,660,051	431,522	11,205,309	0.10%
KKR Americas Fd XII	33,715,519	0.32%	1,245,537	(5,069,422)	37,539,404	0.33%
KKR Americas Fd XIII	5,537,447	0.05%	1,356,578	0	4,180,869	0.04%
Long Arc Capital Fd I	8,168,568	0.08%	(1,163,962)	(438,685)	9,771,215	0.08%
MB SPO FD II	2,696,654	0.03%	11,346	(43,970)	2,729,278	0.02%
Mesirow Fd IV PE	3,881,710	0.04%	(218,158)	(816,044)	4,915,912	0.04%
Mesirow Fd V PE	12,769,611	0.12%	(555,374)	(1,412,228)	14,737,213	0.13%
Mesirow Fd VII A PE	19,062,408	0.18%	(36,562)	(615,729)	19,714,699	0.17%
Mesirow Fd VII B PE	15,812,213	0.15%	(21,875)	(416,970)	16,251,058	0.14%
Mesirow Fund VIII	14,201,024	0.13%	2,961,096	(224,008)	11,463,936	0.10%
Mesirow Fd IX PE	195,097	0.00%	0	(418)	195,515	0.00%
Mesirow Fd X PE	5,471,261	0.05%	(22,500)	(101,495)	5,595,256	0.05%
Muller M2 MPEFF PE	3,256	0.00%	(215,554)	(2,346)	221,157	0.00%
NMS Capital Fund III	18,966,800	0.18%	274,812	(228,727)	18,920,714	0.16%
NMS Capital Fund IV	7,000,025	0.07%	1,670,617	1,095,928	4,233,480	0.04%
P4G I	3,033,775	0.03%	541,999	(183,172)	2,674,948	0.02%
Palladium Ptrs III PE	17,149	0.00%	0	0	17,149	0.00%
Palladium Ptrs IV PE	8,377,483	0.08%	231,835	(391,855)	8,537,503	0.07%
Palladium Ptrs V PE	13,665,667	0.13%	254,993	0	13,410,675	0.12%
Pantheon Asia Fd V PE	492,046	0.00%	(80,521)	(34,609)	607,176	0.01%
Pantheon Europe Fd II PE	13,454	0.00%	0	(904)	14,358	0.00%
Pantheon Europe Fd VI PE	1,746,719	0.02%	(7,903)	(193,249)	1,947,870	0.02%
Pantheon GI Fd 2014	34,019,407	0.32%	(525,943)	(972,334)	35,517,684	0.31%
Pantheon Select Fd	19,164,974	0.18%	281,815	304,011	18,579,148	0.16%
Pantheon USA Fd III PE	225,516	0.00%	0	(6,522)	232,038	0.00%
Pantheon USA Fd IV PE	422,364	0.00%	0	0	422,364	0.00%
Pharos Fd II PE	3,896,427	0.04%	0	0	3,896,427	0.03%
Pharos Fd III PE	11,604,376	0.11%	(3,536,699)	0	15,141,076	0.13%
Red Arts Capital Opp Fd I	6,731,306	0.06%	0	0	6,731,306	0.06%
RLJ Equity Fund II	10,395,193	0.10%	1,286,657	(759,411)	9,867,947	0.09%
Turning Rock Fd I	6,135,255	0.06%	(1,463,036)	257,397	7,340,894	0.06%
Turning Rock Fd II	6,769,355	0.06%	2,170,469	140,123	4,458,763	0.04%
WM Partners II	11,531,840	0.11%	66,582	0	11,465,258	0.10%
<b>CASH</b>	<b>\$223,221,842</b>	<b>2.09%</b>	<b>\$(147,625,934)</b>	<b>\$890,638</b>	<b>\$369,957,138</b>	<b>3.21%</b>
<b>TOTAL FUND</b>	<b>\$10,671,887,625</b>	<b>100.0%</b>	<b>\$(301,334,028)</b>	<b>\$(541,256,583)</b>	<b>\$11,514,478,236</b>	<b>100.0%</b>

**Chicago Teachers' Pension Fund  
Performance Evaluation Executive Summary  
Third Quarter 2022**

**Total Fund Performance vs. Target**

**Callan Public Fund Spons - Large (>1B)**



Note: Performance is shown gross-of-fees.

Current quarter Policy Target = 30.5% Russell 3000 Index, 30.5% MSCI ACWI ex US Index, 23% Bloomberg Aggregate Bond Index, 9% NFI ODCE Value Weight Index, 5% Russell 3000 Index+3.0% and 2% FTSE Developed Core Infrastructure 50/50 Net.

For the third quarter, the Fund outperformed the market benchmark by 79 basis points, gross of investment management fees (72 basis points net of fees), and ranked in the 74th percentile of its peers. Longer term performance (trailing three-years and longer) continues to be competitive relative to benchmarks.

The manager attribution effect was positive over the quarter, with infrastructure adding the most to the relative results. The manager attribution for domestic equity, real estate and international equity also added to results. However, total attribution for fixed income contributed negatively to relative performance.

The following is a brief summary of the performance of each of the major asset classes represented in the Fund (performance commentary relative to benchmarks is net of fees, while results relative to peers is gross of fees):

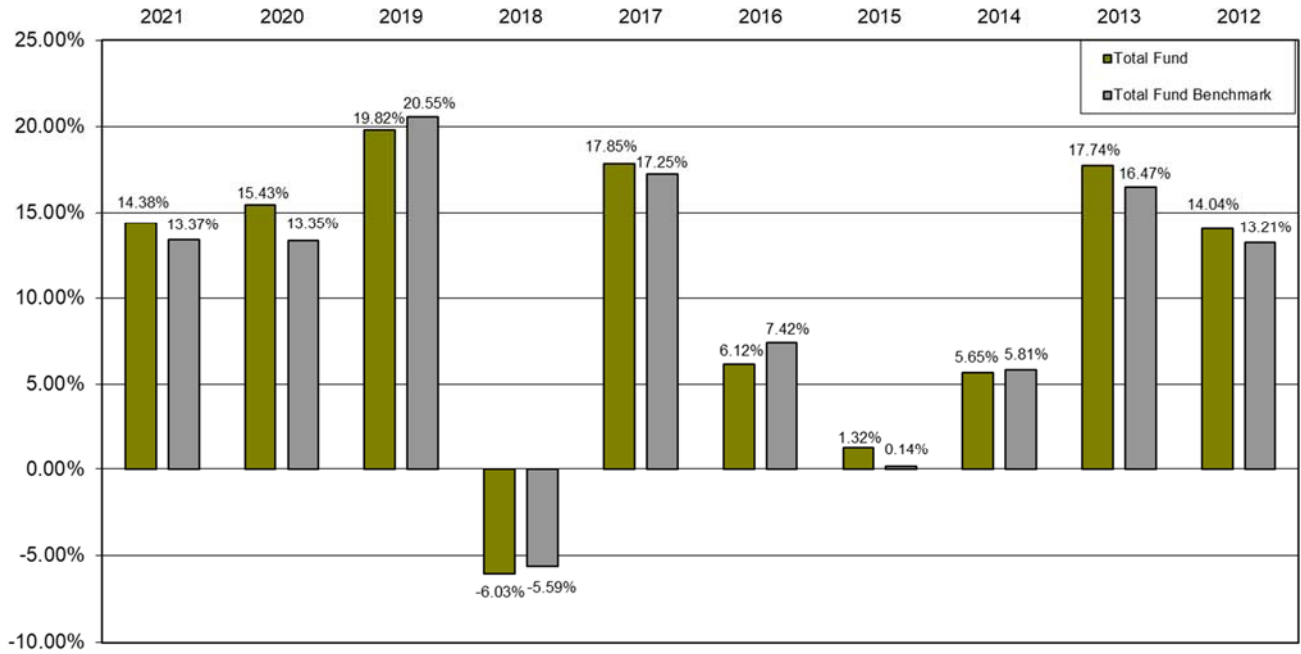
- Domestic Equity:** The domestic equity composite outperformed the Russell 3000 Index by 22 basis points over the third quarter, ranking in the 53<sup>rd</sup> percentile of its peers. Zevenbergen had an excellent quarter as growth was once again rewarded. All of the large cap managers are passively managed while the small cap managers struggled this quarter and trailed their benchmarks.
- International Equity:** The international equity composite outperformed the MSCI ACWI Ex-US IMI benchmark by 50 basis points for the quarter, and ranked in the 10<sup>th</sup> percentile of its peer group. Relative performance was mostly positive for the international equity managers this quarter. Ariel and

**Chicago Teachers' Pension Fund  
Performance Evaluation Executive Summary  
Third Quarter 2022**

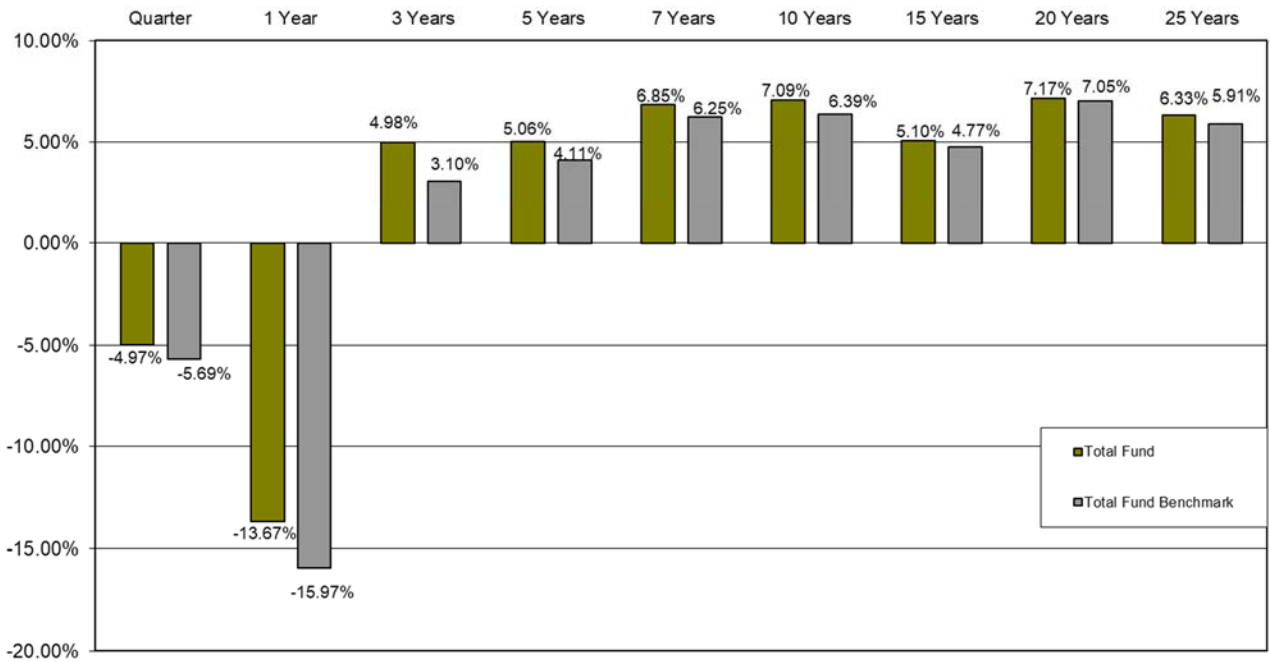
Morgan Stanley detracted from performance. William Blair Growth posted a strong quarter beating its benchmark by 209 basis points. Earnest Partners, Lazard, Strategic Global, William Blair International, DFA, Earnest Partners EM and Leading Edge contributed to relative results over the quarter.

- **Fixed Income:** The fixed income composite underperformed the Bloomberg Aggregate Index by 35 basis points for the quarter and ranked in the 94<sup>th</sup> percentile of its peers. Manager performance was mixed: SSgA, Wellington, Garcia Hamilton, WAMCO, and Pugh underperformed while LM and Ramirez outperformed their respective benchmarks.
- **Alternative Investments:** The infrastructure, real estate and private equity portfolios all outperformed their respective benchmarks. It is important to note that performance evaluation for these instruments should encompass several metrics that go beyond time-weighted return calculations. These metrics take into account the timing and magnitude of distributions and contributions over the life of these investments. This cash flow activity is imperative in evaluating the success of these instruments. Hence, these portfolios are evaluated separately and more rigorously under separate cover.

**Chicago Teachers' Pension Fund  
Performance Evaluation Executive Summary  
Third Quarter 2022**



**Total Fund Performance over Various Trailing Periods, Net of Fees**



**MANAGER PERFORMANCE**

**Chicago Teachers' Pension Fund  
Performance Evaluation Executive Summary  
Third Quarter 2022**

Table 1 presents returns for the public market domestic and international equity and fixed income managers and composites in the Chicago Teacher Pension Fund relative to appropriate benchmarks on a net of fee basis. Managers highlighted in red are currently on the Watch List.

**Table 1 (Net-of-Fees):**

CTPF Investment Strategies	Net Investment Returns as of 9/30/2022						Inception Date	Qtr-End MV
	Qtr	1 Yr	3 Yr	5 Yr	7 Yr	Since Inception		
<b>FUND</b>								
<b>Fixed Income</b>								
<b>SSgA Aggregate Bond Index</b>	<b>-4.91</b>	<b>-14.54</b>	<b>-3.30</b>	-	-	<b>-3.39</b>	Aug-19	\$394m
Bloomberg Barclays Aggregate Index	-4.75	-14.60	-3.26	-	-	-3.34		
Variance	-0.16	0.06	-0.04	-	-	-0.05		
<b>Wellington Core Bond</b>	<b>-5.08</b>	<b>-15.86</b>	<b>-3.21</b>	-	-	<b>-3.30</b>	Aug-19	\$254m
Bloomberg Barclays Aggregate Index	-4.75	-14.60	-3.26	-	-	-3.34		
Variance	-0.33	-1.26	0.05	-	-	0.04		
<b>Garcia Hamilton</b>	<b>-5.38</b>	<b>-12.73</b>	<b>-2.63</b>	<b>0.17</b>	<b>0.90</b>	<b>2.38</b>	Oct-10	\$257m
Bloomberg Barclays Aggregate Index	-4.75	-14.60	-3.26	-0.27	0.54	1.60		
Variance	-0.63	1.87	0.63	0.44	0.36	0.78		
<b>LM Capital*</b>	<b>-4.56</b>	<b>-13.96</b>	<b>-2.59</b>	<b>-0.03</b>	<b>1.02</b>	<b>3.09</b>	Nov-04	\$298m
Bloomberg Barclays Aggregate Index	-4.75	-14.60	-3.26	-0.27	0.54	2.89		
Variance	0.19	0.64	0.67	0.24	0.48	0.20		
<b>Pugh Capital Management</b>	<b>-4.76</b>	<b>-14.67</b>	<b>-2.98</b>	<b>-0.10</b>	<b>0.70</b>	<b>1.81</b>	Oct-10	\$255m
Bloomberg Barclays Aggregate Index	-4.75	-14.60	-3.26	-0.27	0.54	1.60		
Variance	-0.01	-0.07	0.28	0.17	0.16	0.21		
<b>Ramirez Fixed Income</b>	<b>-4.62</b>	-	-	-	-	<b>-6.30</b>	Dec-21	\$108m
Bloomberg Barclays Aggregate Index	-4.75	-	-	-	-	-6.17		
Variance	0.13	-	-	-	-	-0.13		
<b>Western Asset Management</b>	<b>-5.68</b>	<b>-19.17</b>	<b>-3.97</b>	<b>-0.46</b>	<b>1.18</b>	<b>3.86</b>	Feb-03	\$552m
Bloomberg Barclays Aggregate Index	-4.75	-14.60	-3.26	-0.27	0.54	3.05		
Variance	-0.93	-4.57	-0.71	-0.19	0.64	0.81		

\*LM mandate changed from Core Bond to Core Plus Bond as of 7/1/13. Peer group rankings are not applicable to the full track record given the change in mandates.

**Chicago Teachers' Pension Fund  
Performance Evaluation Executive Summary  
Third Quarter 2022**

**Table 1 (Net-of-Fees, Continued):**

CTPF Investment Strategies		Net Investment Returns as of 9/30/2022					Inception Date	Qtr-End MV
FUND	Qtr	1 Yr	3 Yr	5 Yr	7 Yr	Since Inception		
<b>Large Cap Equity</b>								
<b>Rhumbline Russell 1000 Index Fund</b>	<b>-4.49</b>	<b>-16.73</b>	<b>8.09</b>	<b>9.04</b>	<b>11.16</b>	<b>7.92</b>		
Russell 1000 Index	-4.61	-17.22	7.95	9.00	11.15	7.85	Jun-07	
Variance	0.12	0.49	0.14	0.04	0.01	0.07	\$1,890m	
<b>Rhumbline Russell 1000 Growth Index Fund</b>	<b>-3.33</b>	<b>-21.85</b>	<b>10.93</b>	-	-	<b>12.30</b>		
Russell 1000 Growth Index	-3.60	-22.59	10.67	-	-	12.17	Oct-17	
Variance	0.27	0.74	0.26	-	-	0.13	\$255m	
<b>Zevenbergen Capital Management</b>	<b>7.03</b>	<b>-52.62</b>	<b>5.75</b>	<b>8.47</b>	<b>10.64</b>	<b>10.27</b>		
Russell 3000 Growth Index	-3.37	-23.01	10.16	11.57	13.28	9.38	Oct-92	
Variance	10.40	-29.61	-4.41	-3.10	-2.64	0.89	\$78m	
<b>Channing*</b>	<b>-3.98</b>	<b>-9.09</b>	<b>8.23</b>	<b>6.79</b>	<b>8.85</b>	<b>12.21</b>		
Channing Benchmark	-5.56	-11.79	4.37	5.11	8.10	10.92	Jul-09	
Variance	1.58	2.70	3.86	1.68	0.75	1.29	\$116m	
<b>Rhumbline LCV</b>	<b>-5.58</b>	-	-	-	-	<b>-17.71</b>		
Russell 1000 Value Index	-5.62	-	-	-	-	-17.75	May-96	
Variance	0.04	-	-	-	-	0.04	\$265m	
<b>Small Cap Equity</b>								
<b>Northern Trust Small Cap</b>	<b>-4.46</b>	<b>-19.30</b>	<b>5.52</b>	<b>4.63</b>	<b>8.22</b>	<b>11.17</b>		
Russell 2000 Index	-2.19	-23.50	4.29	3.55	7.51	9.80	Jan-91	
Variance	-2.27	4.20	1.23	1.08	0.71	1.37	\$82m	
<b>Conestoga Small Cap Growth</b>	<b>-4.54</b>	<b>-28.10</b>	<b>3.53</b>	-	-	<b>1.38</b>		
Russell 2000 Growth Index	0.24	-29.30	2.94	-	-	-0.93	Jul-18	
Variance	-4.78	1.20	0.59	-	-	2.31	\$83m	
<b>Phocas Small Cap Value</b>	<b>-5.92</b>	<b>-17.25</b>	<b>5.61</b>	<b>2.92</b>	-	<b>6.16</b>		
Russell 2000 Value Index	-4.61	-17.69	4.72	2.87	-	6.84	Jul-16	
Variance	-1.31	0.44	0.89	0.05	-	-0.68	\$74m	
<b>Manager of Managers</b>								
<b>Attucks**</b>	<b>-6.47</b>	<b>-25.79</b>	<b>-0.41</b>	<b>1.08</b>	<b>4.35</b>	<b>3.70</b>		
Custom Benchmark	-6.21	-19.74	2.11	2.66	5.99	4.36	Dec-13	
Variance	-0.26	-6.05	-2.52	-1.58	-1.64	-0.66	\$211m	

\*Channing mandate changed from Mid Cap Value to All Cap Value as of 10/1/11. Channing Benchmark reflects Russell MC Value Index through 9/30/11 and Russell 3000 Value thereafter. Peer group rankings are not applicable to the full track record given the change in mandates.

\*\*In 4Q13, Attucks was transitioned from a domestic equity portfolio to a Best in Class portfolio.

**Chicago Teachers' Pension Fund  
Performance Evaluation Executive Summary  
Third Quarter 2022**

**Table 1 (Net-of-Fees, Continued):**

CTPF Investment Strategies		Net Investment Returns as of 9/30/2022					Inception Date	Qtr-End MV
FUND	Qtr	1 Yr	3 Yr	5 Yr	7 Yr	Since Inception		
<b>International Equity</b>								
<b>Ariel Investments</b>	<b>-14.02</b>	<b>-19.70</b>	<b>-2.71</b>	<b>-1.99</b>	<b>-</b>	<b>0.99</b>	Jul-16	\$62m
MSCI EAFE Index	-9.36	-25.13	-1.83	-0.84	-	3.17		
Variance	-4.66	5.43	-0.88	-1.15	-	-2.18		
<b>EARNEST Partners</b>	<b>-9.00</b>	<b>-22.12</b>	<b>1.19</b>	<b>0.73</b>	<b>5.36</b>	<b>4.20</b>	Apr-07	\$538m
MSCI ACWI ex-US Index	-9.91	-25.17	-1.52	-0.81	3.29	1.36		
Variance	0.91	3.05	2.71	1.54	2.07	2.84		
<b>Lazard</b>	<b>-9.63</b>	<b>-24.82</b>	<b>-2.91</b>	<b>-1.35</b>	<b>2.03</b>	<b>4.23</b>	Jan-01	\$494m
MSCI ACWI ex-US Index	-9.91	-25.17	-1.52	-0.81	3.29	3.55		
Variance	0.28	0.35	-1.39	-0.54	-1.26	0.68		
<b>Morgan Stanley</b>	<b>-10.79</b>	<b>-24.64</b>	<b>-2.20</b>	<b>-0.95</b>	<b>2.37</b>	<b>6.94</b>	Apr-95	\$484m
MSCI EAFE Index	-9.36	-25.13	-1.83	-0.84	2.84	4.09		
Variance	-1.43	0.49	-0.37	-0.11	-0.47	2.85		
<b>Strategic Global Advisors</b>	<b>-8.85</b>	<b>-26.18</b>	<b>-3.45</b>	<b>-2.72</b>	<b>-</b>	<b>1.64</b>	Jul-16	\$61m
MSCI EAFE Index	-9.36	-25.13	-1.83	-0.84	-	3.17		
Variance	0.51	-1.05	-1.62	-1.88	-	-1.53		
<b>William Blair Growth</b>	<b>-7.08</b>	<b>-35.49</b>	<b>1.04</b>	<b>1.34</b>	<b>4.59</b>	<b>6.03</b>	Feb-10	\$466m
MSCI ACWI ex-US IMI Growth Index	-9.17	-30.68	-1.13	0.15	4.09	4.33		
Variance	2.09	-4.81	2.17	1.19	0.50	1.70		
<b>William Blair International Small Cap</b>	<b>-6.81</b>	<b>-43.79</b>	<b>-2.13</b>	<b>-2.51</b>	<b>1.99</b>	<b>2.46</b>	Apr-07	\$167m
William Blair ISCE Benchmark*	-7.96	-33.36	0.49	-0.08	4.09	2.09		
Variance	1.15	-10.43	-2.62	-2.43	-2.10	0.37		
<b>Dimensional Fund Advisors</b>	<b>-10.01</b>	<b>-22.78</b>	<b>-0.40</b>	<b>-3.05</b>	<b>2.46</b>	<b>5.63</b>	Jun-12	\$135m
MSCI World Small Cap ex-US Value	-10.09	-25.84	-1.65	-2.03	2.98	5.08		
Variance	0.08	3.06	1.25	-1.02	-0.52	0.55		
<b>EARNEST Partners Emerging Markets</b>	<b>-9.97</b>	<b>-20.43</b>	<b>-0.40</b>	<b>0.45</b>	<b>5.63</b>	<b>1.54</b>	Mar-13	\$162m
MSCI Emerging Markets Index	-11.57	-28.11	-2.07	-1.80	3.88	0.51		
Variance	1.60	7.68	1.67	2.25	1.75	1.03		
<b>International Manager of Managers</b>								
<b>Leading Edge</b>	<b>-9.42</b>	<b>-27.11</b>	<b>-2.86</b>	<b>-2.01</b>	<b>2.52</b>	<b>2.80</b>	Apr-10	\$106m
MSCI ACWI ex-US Index	-9.91	-25.17	-1.52	-0.81	3.29	2.74		
Variance	0.49	-1.94	-1.34	-1.20	-0.77	0.06		

\* The William Blair ISCE benchmark is comprised of the MSCI ACWI ex US Small Cap Index through 5/31/12 and the MSCI ACWI ex US Small Cap Growth Index thereafter.



**Chicago Teachers' Pension Fund  
Performance Evaluation Executive Summary  
Third Quarter 2022**

**Table 1 (Net-of-Fees, Continued):**

CTPF Investment Strategies	Net Investment Returns as of 9/30/2022						Inception Date	Qtr-End MV
	FUND	Qtr	1 Yr	3 Yr	5 Yr	7 Yr		
<b>Infrastructure</b>								
Infrastructure Composite	0.71	11.15	13.95	14.22	12.04	8.45	Nov-08	\$232m
Infrastructure Benchmark*	-10.26	-7.11	-0.51	3.04	4.44	6.19		
Variance	10.97	18.26	14.46	11.18	7.60	2.26		
<b>Real Estate</b>								
Real Estate Composite	1.27	31.37	14.53	11.42	10.69	8.23	Jan-02	\$1,435m
NFI-ODCE Value Weight	0.31	20.96	11.38	9.26	8.87	7.63		
Variance	0.96	10.41	3.15	2.16	1.82	0.60		
<b>Private Equity</b>								
Private Equity Composite	-4.49	10.23	23.55	18.94	16.16	11.12	Jan-02	\$933m
Private Equity Benchmark**	-3.27	-13.85	11.63	12.36	13.62	8.76		
Variance	-1.22	24.08	11.92	6.58	2.54	2.36		

\*The Infrastructure Benchmark is 8% Annualized Return through 9/30/17 and FTSE Developed Core Infrastructure 50/50 (Net) thereafter.

\*\*The Private Equity Benchmark is Russell 3000 through 9/30/17, thereafter Russell 3000+3%.

Note: Private market investments shown above are typically reported on a one quarter lag. Private Equity returns are, at times, reported on a longer lag. Comments on Infrastructure, REITS and Real Estate are covered in the quarterly Real Estate Report. Private Equity is discussed in the quarterly Private Equity Report.

**Chicago Teachers' Pension Fund  
Performance Evaluation Executive Summary  
Third Quarter 2022**

**MANAGER PERFORMANCE**

Table 1 presents returns for the public market domestic and international equity and fixed income managers and composites in the Chicago Teacher Pension Fund relative to appropriate benchmarks on a gross of fee basis. Managers highlighted in red are currently on the Watch List.

**Table 2 (Gross-of-Fees):**

CTPF Investment Strategies	Gross Investment Returns as of 9/30/2022						Inception Date	Qtr-End MV
	Qtr	1 Yr	3 Yr	5 Yr	7 Yr	Since Inception		
<b>FUND</b>								
<b>Fixed Income</b>								
<b>SSgA Aggregate Bond Index</b>	<b>-4.90</b>	<b>-14.50</b>	<b>-3.26</b>	-	-	<b>-3.26</b>	Aug-19	\$394m
Bloomberg Barclays Aggregate Index	-4.75	-14.60	-3.26	-	-	-3.34		
Variance	-0.15	0.10	0.00	-	-	0.08		
Peer Ranking – CAI Core Bond	92	53	94	-	-			
<b>Wellington Core Bond</b>	<b>-5.03</b>	<b>-15.71</b>	<b>-3.04</b>	-	-	<b>-3.04</b>	Aug-19	\$254m
Bloomberg Barclays Aggregate Index	-4.75	-14.60	-3.26	-	-	-3.34		
Variance	-0.28	-1.11	0.22	-	-	0.30		
Peer Ranking – CAI Core Bond	93	95	86	-	-			
<b>Garcia Hamilton</b>	<b>-5.35</b>	<b>-12.62</b>	<b>-2.50</b>	<b>0.30</b>	<b>1.05</b>	<b>2.54</b>	Oct-10	\$257m
Bloomberg Barclays Aggregate Index	-4.75	-14.60	-3.26	-0.27	0.54	1.60		
Variance	-0.60	1.98	0.76	0.57	0.51	0.94		
Peer Ranking – CAI Core Bond	97	2	27	30	52			
<b>LM Capital*</b>	<b>-4.52</b>	<b>-13.84</b>	<b>-2.45</b>	<b>0.11</b>	<b>1.17</b>	<b>3.32</b>	Nov-04	\$298m
Bloomberg Barclays Aggregate Index	-4.75	-14.60	-3.26	-0.27	0.54	2.89		
Variance	0.23	0.76	0.81	0.38	0.63	0.43		
Peer Ranking - CAI Core Plus Bond	66	21	50	84	76			
<b>Pugh Capital Management</b>	<b>-4.73</b>	<b>-14.55</b>	<b>-2.85</b>	<b>0.04</b>	<b>0.84</b>	<b>1.97</b>	Oct-10	\$255m
Bloomberg Barclays Aggregate Index	-4.75	-14.60	-3.26	-0.27	0.54	1.60		
Variance	0.02	0.05	0.41	0.31	0.30	0.37		
Peer Ranking - CAI Core Bond	78	55	64	77	86			
<b>Ramirez Fixed Income</b>	<b>-4.57</b>	-	-	-	-	<b>-6.28</b>	Dec-21	\$108m
Bloomberg Barclays Aggregate Index	-4.75	-	-	-	-	-6.17		
Variance	0.18	-	-	-	-	-0.11		
Peer Ranking - CAI Core Bond	56	-	-	-	-			
<b>Western Asset Management</b>	<b>-5.64</b>	<b>-19.04</b>	<b>-3.82</b>	<b>-0.30</b>	<b>1.35</b>	<b>4.64</b>	Feb-03	\$552m
Bloomberg Barclays Aggregate Index	-4.75	-14.60	-3.26	-0.27	0.54	3.05		
Variance	-0.89	-4.44	-0.56	-0.03	0.81	1.59		
Peer Ranking - CAI Core Plus Bond	96	98	98	96	62			

\*LM mandate changed from Core Bond to Core Plus Bond as of 7/1/13. Peer group rankings are not applicable to the full track record given the change in mandates.

**Chicago Teachers' Pension Fund  
Performance Evaluation Executive Summary  
Third Quarter 2022**

**Table 2 (Gross-of-Fees, Continued):**

CTPF Investment Strategies	Gross Investment Returns as of 9/30/2022						Inception Date	Qtr-End MV
	FUND	Qtr	1 Yr	3 Yr	5 Yr	7 Yr		
<b>Large Cap Equity</b>								
<b>Rhumbline Russell 1000 Index Fund</b>	<b>-4.49</b>	<b>-16.72</b>	<b>8.10</b>	<b>9.05</b>	<b>11.17</b>	<b>8.11</b>	Jun-07	\$1,890m
Russell 1000 Index	-4.61	-17.22	7.95	9.00	11.15	7.85		
Variance	0.12	0.50	0.15	0.05	0.02	0.26		
Peer Ranking – CAI Large Cap	42	50	40	46	42			
<b>Rhumbline Russell 1000 Growth Index Fund</b>	<b>-3.33</b>	<b>-21.84</b>	<b>10.94</b>	-	-	<b>12.31</b>	Oct-17	\$255m
Russell 1000 Growth Index	-3.60	-22.59	21.67	-	-	12.17		
Variance	0.27	0.75	-10.73	-	-	0.14		
Peer Ranking - CAI Large Cap Growth	29	27	13	-	-			
<b>Zevenbergen Capital Management</b>	<b>7.14</b>	<b>-52.39</b>	<b>6.19</b>	<b>8.92</b>	<b>11.09</b>	<b>10.71</b>	Oct-92	\$78m
Russell 3000 Growth Index	-3.37	-23.01	10.16	11.57	13.28	9.38		
Variance	10.51	-29.38	-3.97	-2.65	-2.19	1.33		
Peer Ranking - CAI All Cap Growth	1	88	40	63	67			
<b>Channing*</b>	<b>-3.86</b>	<b>-8.59</b>	<b>8.75</b>	<b>7.31</b>	<b>9.37</b>	<b>12.75</b>	Jul-09	\$116m
Channing Benchmark	-5.56	-11.79	4.37	5.11	8.10	10.92		
Variance	1.70	3.20	4.38	2.20	1.27	1.83		
Peer Ranking – CAI All Cap Value	29	32	42	40	59			
<b>Rhumbline LCV</b>	<b>-5.58</b>	-	-	-	-	<b>-17.7</b>	May-96	\$265m
Russell 1000 Value Index	-5.62	-	-	-	-	-17.75		
Variance	0.04	-	-	-	-	0.05		
Peer Ranking – CAI Large Cap Value	75	-	-	-	-			
<b>Small Cap Equity</b>								
<b>Northern Trust Small Cap</b>	<b>-4.44</b>	<b>-19.23</b>	<b>5.62</b>	<b>4.72</b>	<b>8.32</b>	<b>11.25</b>	Jan-91	\$82m
Russell 2000 Index	-2.19	-23.50	4.29	3.55	7.51	9.80		
Variance	-2.25	4.27	1.33	1.17	0.81	1.45		
Peer Ranking - CAI Small Cap	72	50	52	57	56			
<b>Conestoga Small Cap Growth</b>	<b>-4.38</b>	<b>-27.67</b>	<b>4.25</b>	-	-	<b>2.64</b>	Jul-18	\$83m
Russell 2000 Growth Index	0.24	-29.30	2.94	-	-	-0.93		
Variance	-4.62	1.63	1.31	-	-	3.57		
Peer Ranking - CAI Small Cap Growth	96	40	83	-	-			
<b>Phocas Small Cap Value</b>	<b>-5.72</b>	<b>-16.51</b>	<b>6.50</b>	<b>3.79</b>	-	<b>7.01</b>	Jul-16	\$74m
Russell 2000 Value Index	-4.61	-17.69	4.72	2.87	-	6.84		
Variance	-1.11	1.18	1.78	0.92	-	0.17		
Peer Ranking - CAI Small Cap Value	70	79	47	50	-			
<b>Manager of Managers</b>								
<b>Attucks**</b>	<b>-6.33</b>	<b>-25.34</b>	<b>0.16</b>	<b>1.67</b>	<b>4.97</b>	<b>4.06</b>	Dec-13	\$211m
Custom Benchmark	-6.21	-19.74	2.11	2.66	5.99	4.36		
Variance	-0.12	-5.60	-1.95	-0.99	-1.02	-0.30		

\*Channing mandate changed from Mid Cap Value to All Cap Value as of 10/1/11. Channing Benchmark reflects Russell MC Value Index through 9/30/11 and Russell 3000 Value thereafter. Peer group rankings are not applicable to the full track record given the change in mandates.

\*\*In 4Q13, Attucks was transitioned from a domestic equity portfolio to a Best in Class portfolio.

**Chicago Teachers' Pension Fund  
Performance Evaluation Executive Summary  
Third Quarter 2022**

**Table 2 (Gross-of-Fees, Continued):**

CTPF Investment Strategies	Gross Investment Returns as of 9/30/2022						Inception Date	Qtr-End MV
	Qtr	1 Yr	3 Yr	5 Yr	7 Yr	Since Inception		
<b>International Equity</b>								
<b>Ariel Investments</b>	<b>-13.86</b>	<b>-19.14</b>	<b>-2.05</b>	<b>-1.32</b>	<b>-</b>	<b>1.65</b>	Jul-16	\$62m
MSCI EAFE Index	-9.36	-25.13	-1.83	-0.84	-	3.17		
Variance	-4.50	5.99	-0.22	-0.48	-	-1.52		
Peer Ranking - CAI Non-US Equity	98	3	73	77	-			
<b>EARNEST Partners</b>	<b>-8.90</b>	<b>-21.79</b>	<b>1.60</b>	<b>1.14</b>	<b>5.79</b>	<b>4.67</b>	Apr-07	\$538m
MSCI ACWI ex-US Index	-9.91	-25.17	-1.52	-0.81	3.29	1.36		
Variance	1.01	3.38	3.12	1.95	2.50	3.31		
Peer Ranking - CAI Non-US Equity	35	13	11	22	13			
<b>Lazard</b>	<b>-9.59</b>	<b>-24.70</b>	<b>-2.74</b>	<b>-1.18</b>	<b>2.21</b>	<b>4.55</b>	Jan-01	\$494m
MSCI ACWI ex-US Index	-9.91	-25.17	-1.52	-0.81	3.29	3.55		
Variance	0.32	0.47	-1.22	-0.37	-1.08	1.00		
Peer Ranking - CAI Non-US Equity	59	36	86	75	84			
<b>Morgan Stanley</b>	<b>-10.70</b>	<b>-24.33</b>	<b>-1.81</b>	<b>-0.56</b>	<b>2.79</b>	<b>7.40</b>	Apr-95	\$484m
MSCI EAFE Index	-9.36	-25.13	-1.83	-0.84	2.84	4.09		
Variance	-1.34	0.80	0.02	0.28	-0.05	3.31		
Peer Ranking - CAI Non-US Equity	80	32	69	59	74			
<b>Strategic Global Advisors</b>	<b>-8.73</b>	<b>-25.79</b>	<b>-2.97</b>	<b>-2.23</b>	<b>-</b>	<b>2.13</b>	Jul-16	\$61m
MSCI EAFE Index	-9.36	-25.13	-1.83	-0.84	-	3.17		
Variance	0.63	-0.66	-1.14	-1.39	-	-1.04		
Peer Ranking - CAI Non-US Equity	33	50	89	88	-			
<b>William Blair Growth</b>	<b>-6.99</b>	<b>-35.24</b>	<b>1.39</b>	<b>1.69</b>	<b>4.95</b>	<b>5.89</b>	Feb-10	\$466m
MSCI ACWI ex-US IMI Growth Index	-9.17	-30.68	-1.13	0.15	4.09	4.33		
Variance	2.18	-4.56	2.52	1.54	0.86	1.56		
Peer Ranking - CAI Core Growth Int'l Equity	12	84	27	29	51			
<b>William Blair International Small Cap</b>	<b>-6.61</b>	<b>-43.27</b>	<b>-1.32</b>	<b>-1.70</b>	<b>2.85</b>	<b>3.42</b>	Apr-07	\$167m
William Blair ISCE Benchmark*	-7.96	-33.36	0.49	-0.08	4.09	2.09		
Variance	1.35	-9.91	-1.81	-1.62	-1.24	1.33		
Peer Ranking - CAI Int'l Small Cap Equity	8	98	60	49	68			
<b>Dimensional Fund Advisors</b>	<b>-10.01</b>	<b>-22.78</b>	<b>-0.40</b>	<b>-3.05</b>	<b>2.46</b>	<b>5.65</b>	Jun-12	\$135m
MSCI World Small Cap ex-US Value	-10.09	-25.84	-1.65	-2.03	2.98	5.08		
Variance	0.08	3.06	1.25	-1.02	-0.52	0.57		
Peer Ranking - CAI Int'l Small Cap Equity	58	4	36	84	82			
<b>EARNEST Partners Emerging Markets</b>	<b>-9.84</b>	<b>-20.00</b>	<b>0.12</b>	<b>0.98</b>	<b>6.18</b>	<b>2.10</b>	Mar-13	\$162m
MSCI Emerging Markets Index	-11.57	-28.11	-2.07	-1.80	3.88	0.51		
Variance	1.73	8.11	2.19	2.78	2.30	1.59		
Peer Ranking - CAI EM Equity	41	15	42	30	30			
<b>International Manager of Managers</b>								
<b>Leading Edge</b>	<b>-9.23</b>	<b>-26.49</b>	<b>-2.08</b>	<b>-1.22</b>	<b>3.33</b>	<b>3.61</b>	Apr-10	\$106m
MSCI ACWI ex-US Index	-9.91	-25.17	-1.52	-0.81	3.29	2.74		
Variance	0.68	-1.32	-0.56	-0.41	0.04	0.87		
Peer Ranking - CAI Non-US Equity	46	59	73	76	60			

\* The William Blair ISCE benchmark is comprised of the MSCI ACWI ex US Small Cap Index through 5/31/12 and the MSCI ACWI ex US Small Cap Growth Index thereafter.

**Chicago Teachers' Pension Fund  
Performance Evaluation Executive Summary  
Third Quarter 2022**

**Table 2 (Gross-of-Fees, Continued):**

CTPF Investment Strategies	Gross Investment Returns as of 9/30/2022						Inception Date	Qtr-End MV
	Qtr	1 Yr	3 Yr	5 Yr	7 Yr	Since Inception		
<b>FUND</b>								
<b>Infrastructure</b>								
Infrastructure Composite	0.92	12.35	15.59	15.33	13.02	9.17	Nov-08	\$232m
Infrastructure Benchmark*	-10.26	-7.11	-0.51	3.04	4.44	6.19		
Variance	11.18	19.46	16.10	12.29	8.58	2.98		
<b>Real Estate</b>								
Real Estate Composite	1.35	32.42	15.52	12.27	11.52	8.77	Jan-02	\$1,435m
NFI-ODCE Value Weight	0.31	20.96	11.38	9.26	8.87	7.63		
Variance	1.04	11.46	4.14	3.01	2.65	1.14		
<b>Private Equity</b>								
Private Equity Composite	-4.31	11.09	24.94	19.91	16.93	11.41	Jan-02	\$933m
Private Equity Benchmark**	-3.27	-13.85	11.63	12.36	13.62	8.76		
Variance	-1.04	24.94	13.31	7.55	3.31	2.65		

\*The Infrastructure Benchmark is 8% Annualized Return through 9/30/17 and FTSE Developed Core Infrastructure 50/50 (Net) thereafter.

\*\*The Private Equity Benchmark is Russell 3000 through 9/30/17, thereafter Russell 3000+3%.

Note: Private market investments shown above are typically reported on a one quarter lag. Private Equity returns are, at times, reported on a longer lag. Comments on Infrastructure, REITS and Real Estate are covered in the quarterly Real Estate Report. Private Equity is discussed in the quarterly Private Equity Report.

**Chicago Teachers' Pension Fund  
Performance Evaluation Executive Summary  
Third Quarter 2022**

**Manager Watch List**

MANAGER/STRATEGY	REASON	DATE PLACED ON WATCH LIST	LAST DUE DILIGENCE MEETING	ACTIONS TAKEN	POLICY/ RECOMMENDED ACTIONS	AUM as of 9/30/2022	Current Quarter Watch List Score	Previous Quarter Watch List Score
DFA - International Small Cap	Performance Reasons	August 2019	December 2022	Monitor	Monitor	\$135 mil.	0.7	0.6
Ariel - International Equity	Personnel Turnover/Performance Reasons	July 2020/August 2020	November 2022	Monitor	Monitor	\$62 mil.	0.8	0.5
Lazard - International Equity	Performance Reasons	March 2021	December 2022	Monitor	Monitor	\$494 mil.	0.8	0.8
State Street Global Advisors - Passive Bond	Brokerage	April 2022	November 2022	Monitor	Monitor	\$394 mil.	N/A	N/A
Leading Edge - International Equity	Performance Reasons	September 2022	November 2022	Monitor	Monitor	\$106 mil.	0.7	0.7
Strategic Global Advisors - International Equity	Performance Reasons	March 2021	December 2022	Monitor	Monitor	\$61 mil.	0.8	0.8

**Policy/Recommended Actions Legend**

Remove = Policy action taken due to IPS guidelines. Remove manager from the watch list as performance improves.

Termination = Recommended action for the Board

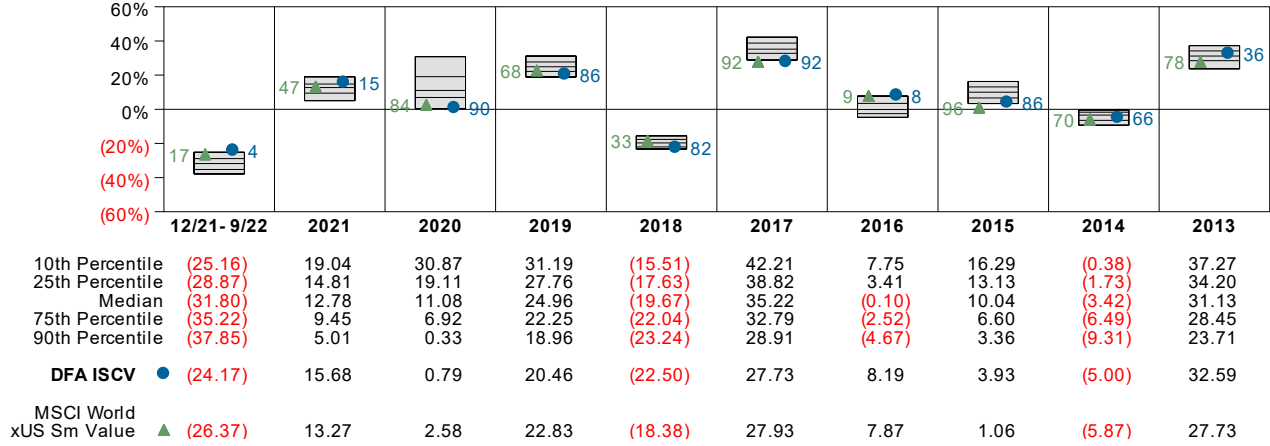
Monitor = Recommended action for the Board

Search = Board authorized a manager search

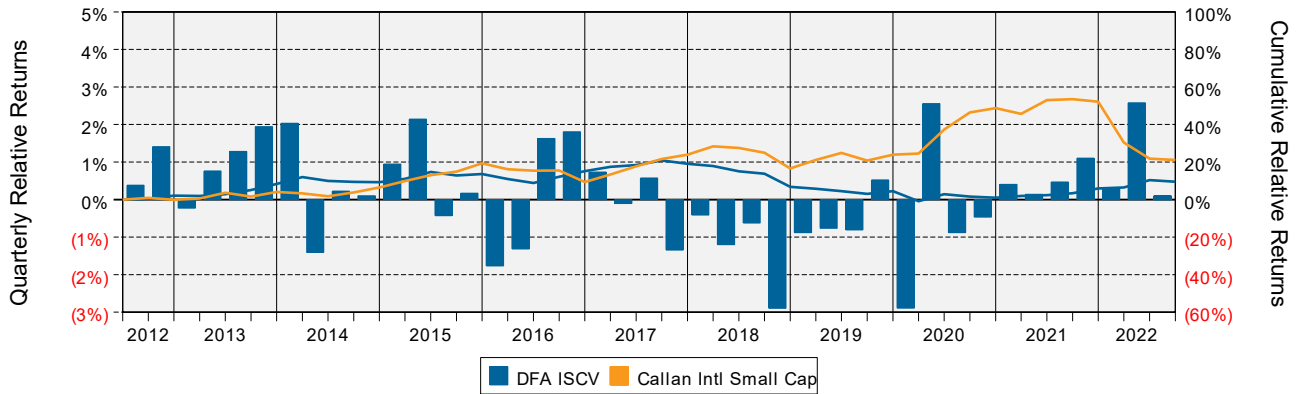
**Chicago Teachers' Pension Fund  
Performance Evaluation Executive Summary  
Third Quarter 2022**

**Manager Watch List: DFA**

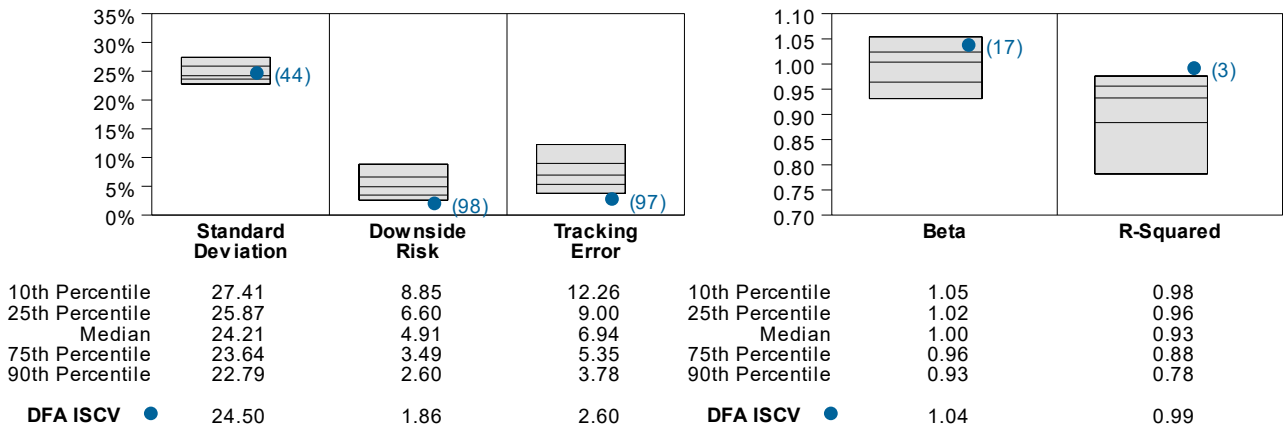
**Performance vs Callan International Small Cap (Gross)**



**Cumulative and Quarterly Relative Returns vs MSCI World xUS Sm Value**



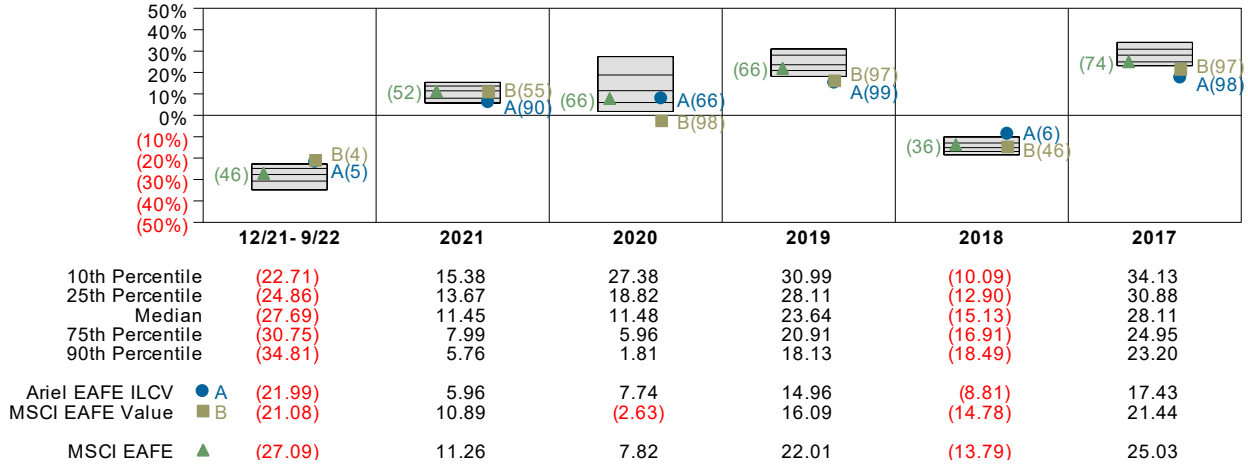
**Risk Statistics Rankings vs MSCI World xUS Small Value (Net)  
Rankings Against Callan International Small Cap (Gross)  
Five Years Ended September 30, 2022**



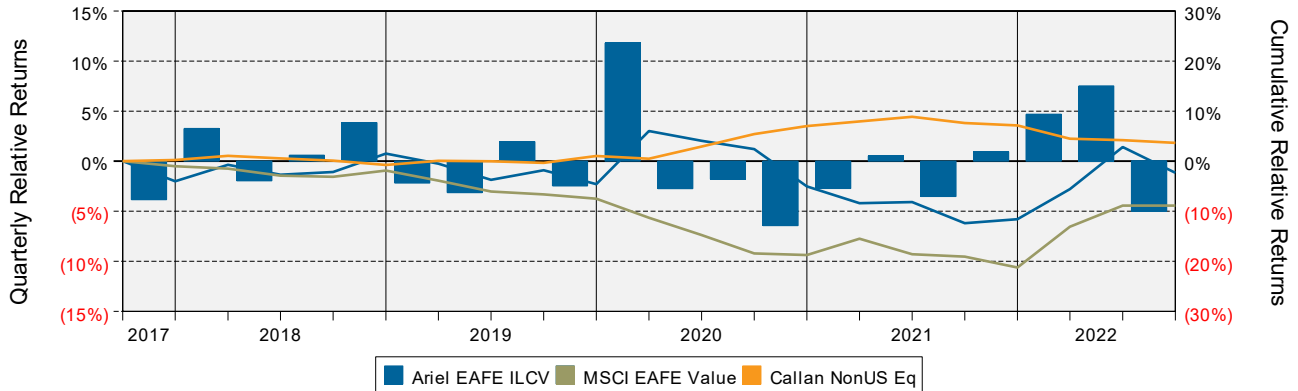
**Chicago Teachers' Pension Fund  
Performance Evaluation Executive Summary  
Third Quarter 2022**

**Manager Watch List: Ariel**

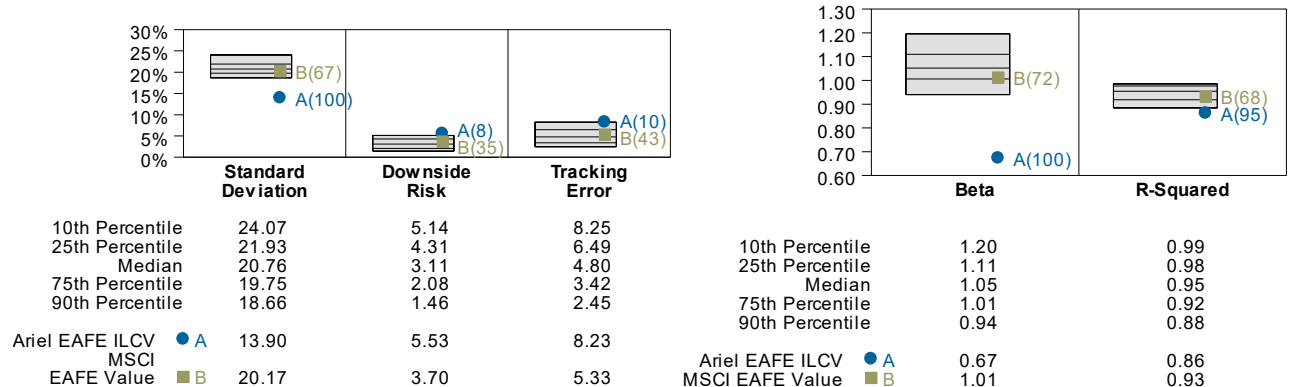
**Performance vs Callan Non-US Equity (Gross)**



**Cumulative and Quarterly Relative Returns vs MSCI EAFE**



**Risk Statistics Rankings vs MSCI EAFE (Net)  
Rankings Against Callan Non-US Equity (Gross)  
Five Years Ended September 30, 2022**

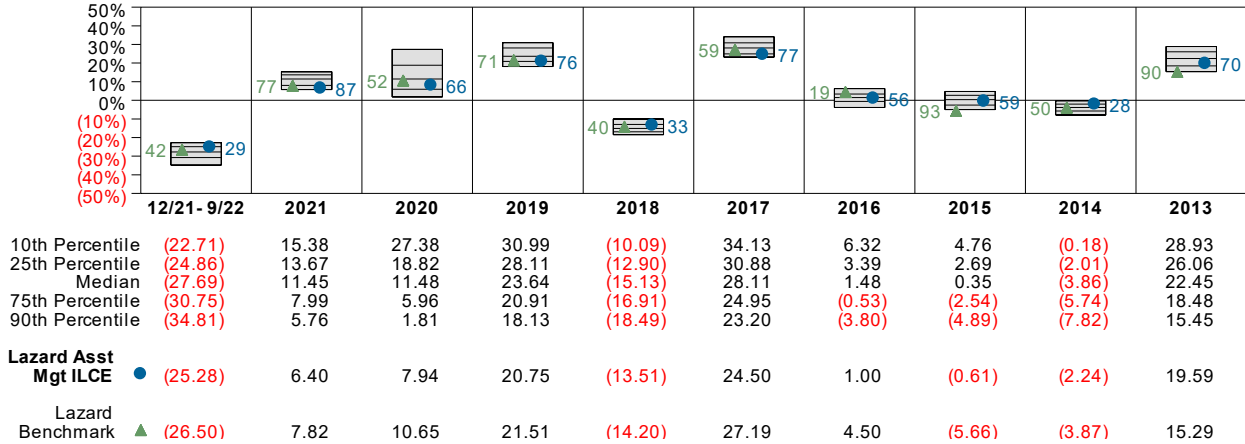




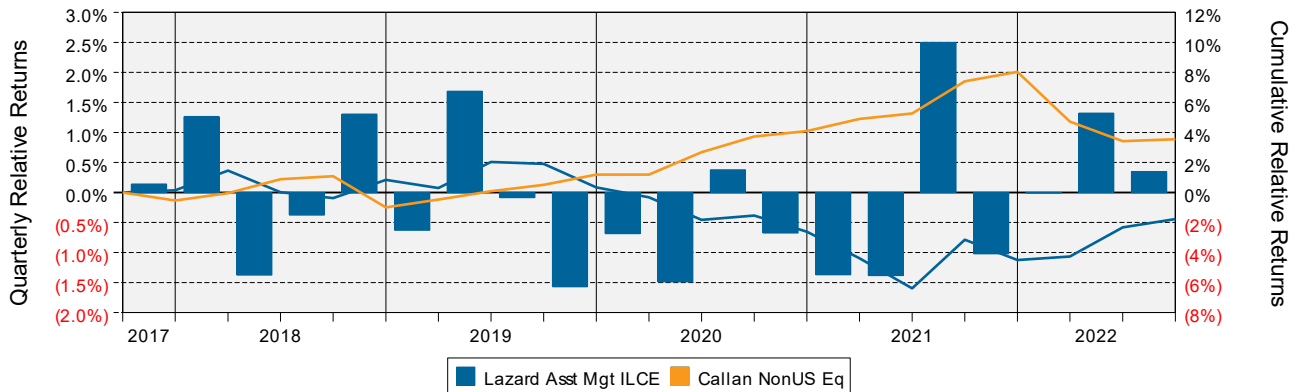
# Chicago Teachers' Pension Fund Performance Evaluation Executive Summary Third Quarter 2022

## Manager Watch List: Lazard

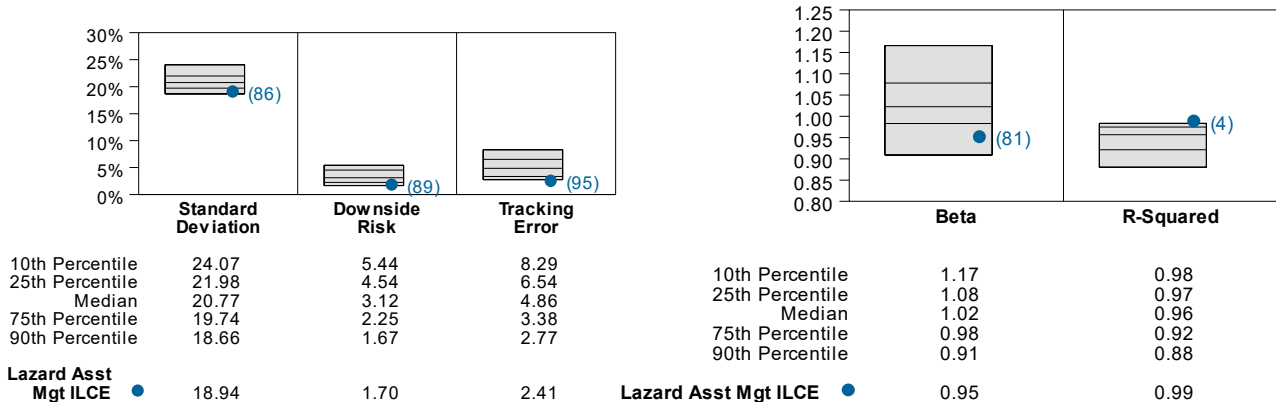
### Performance vs Callan Non-US Equity (Gross)



### Cumulative and Quarterly Relative Returns vs Lazard Benchmark



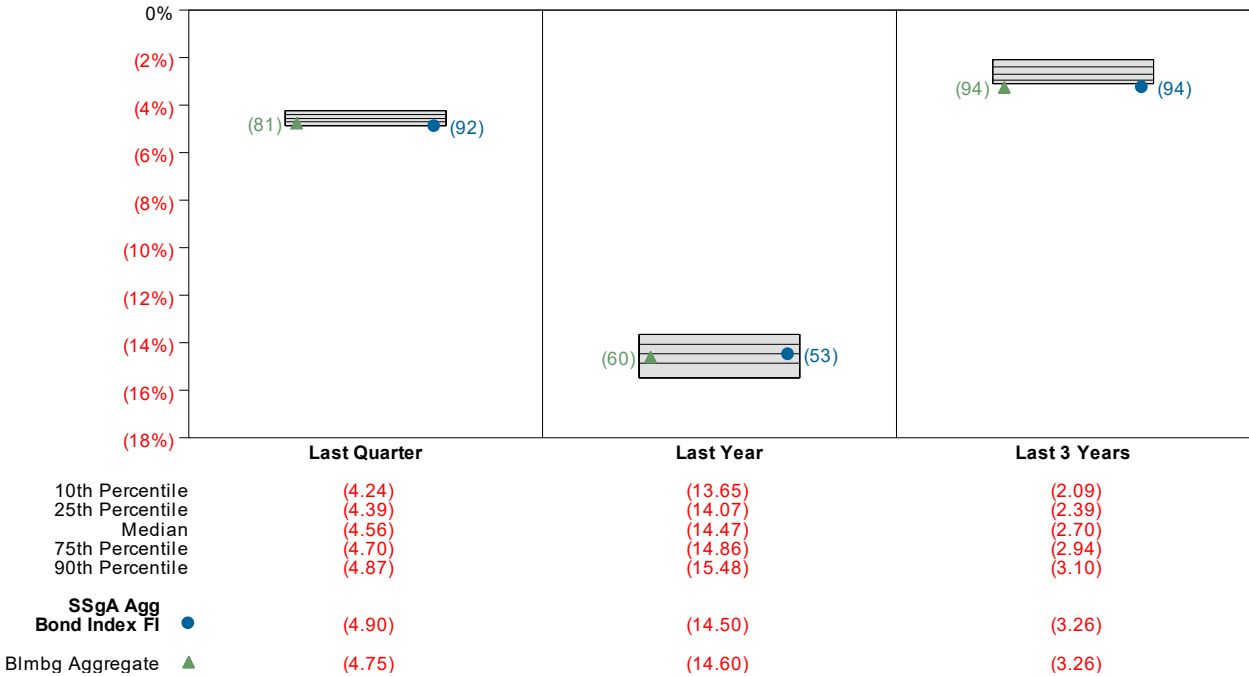
### Risk Statistics Rankings vs Lazard Benchmark Rankings Against Callan Non-US Equity (Gross) Five Years Ended September 30, 2022



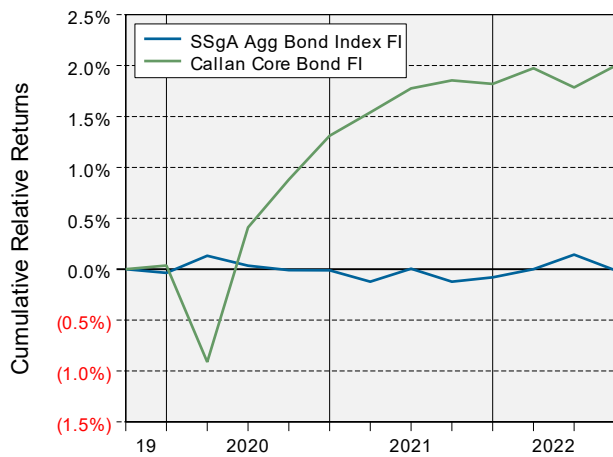
**Chicago Teachers' Pension Fund  
Performance Evaluation Executive Summary  
Third Quarter 2022**

**Manager Watch List: State Street Global Advisors**

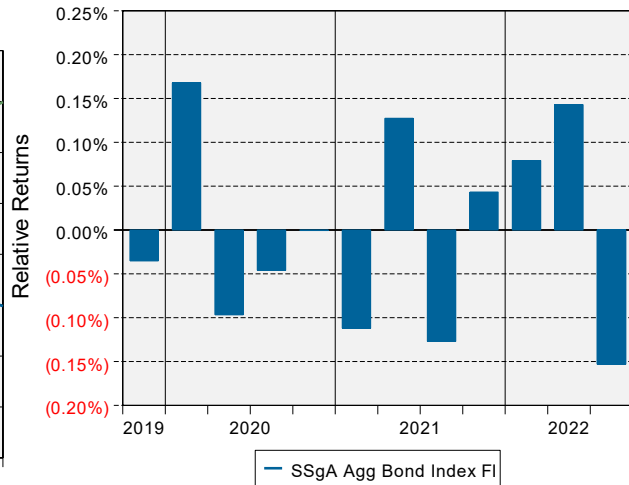
**Performance vs Callan Core Bond Fixed Income (Gross)**



**Cumulative Returns vs Blmbg Aggregate**



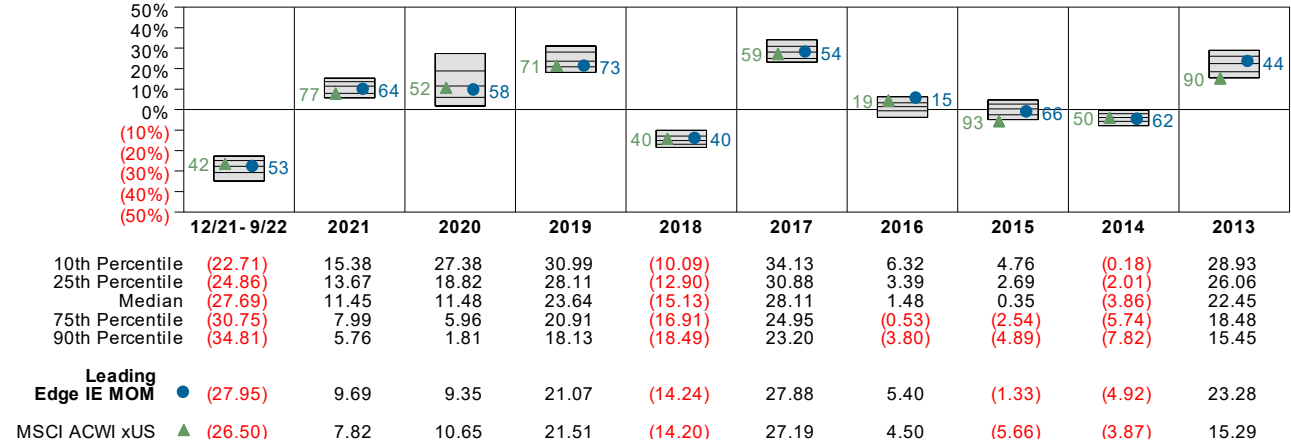
**Relative Return vs Blmbg Aggregate**



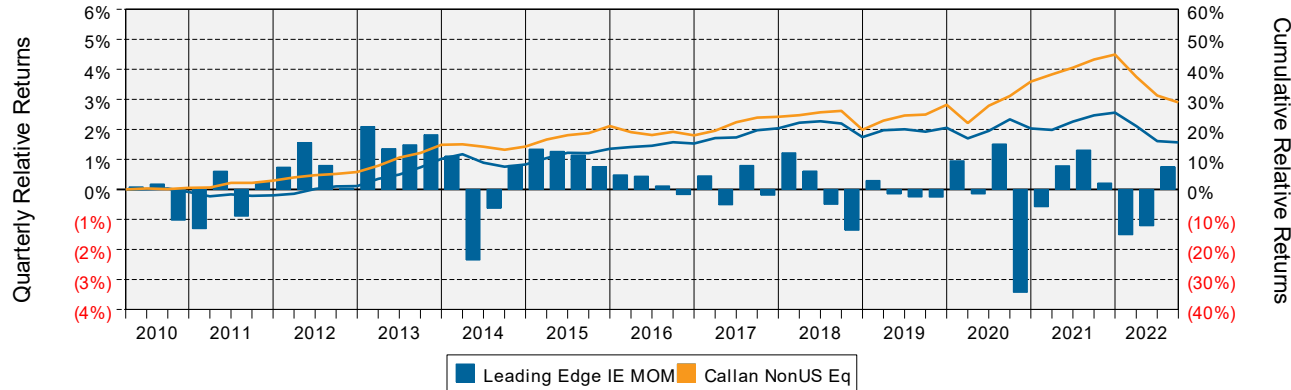
**Chicago Teachers' Pension Fund  
Performance Evaluation Executive Summary  
Third Quarter 2022**

**Manager Watch List: Leading Edge**

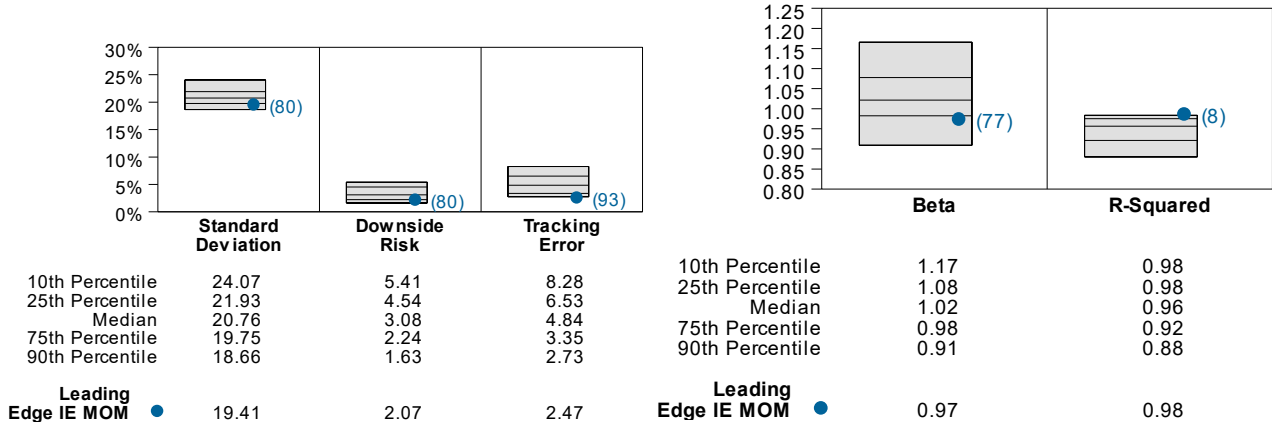
**Performance vs Callan Non-US Equity (Gross)**



**Cumulative and Quarterly Relative Returns vs MSCI ACWI xUS**



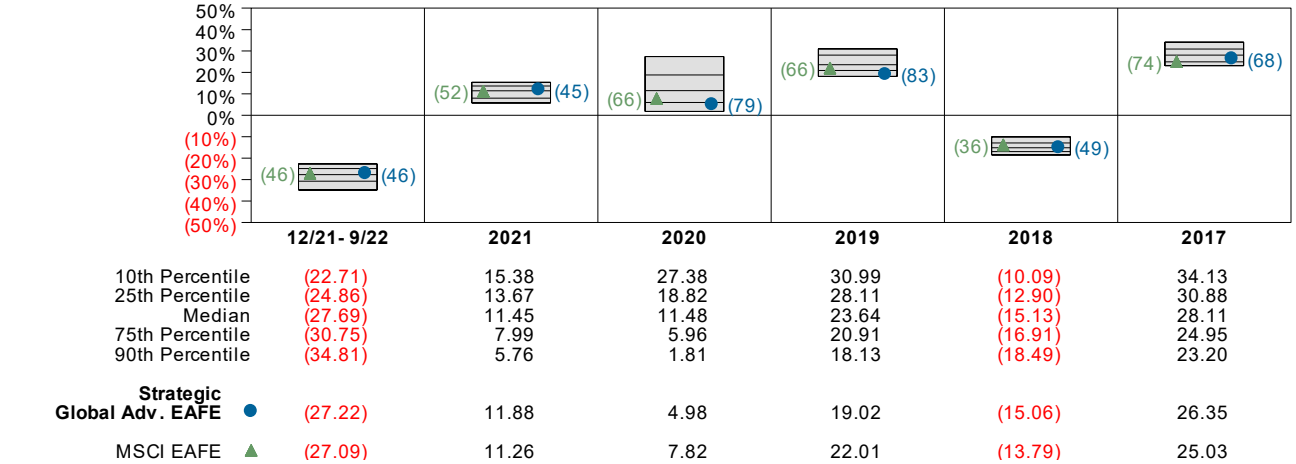
**Risk Statistics Rankings vs MSCI ACWI xUS (Net)  
Rankings Against Callan Non-US Equity (Gross)  
Five Years Ended September 30, 2022**



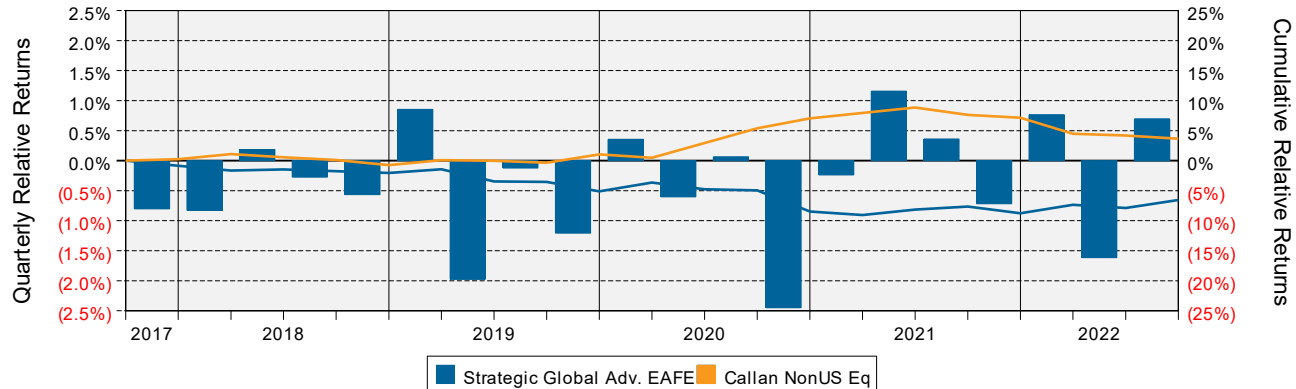
**Chicago Teachers' Pension Fund  
Performance Evaluation Executive Summary  
Third Quarter 2022**

**Manager Watch List: Strategic Global Advisors**

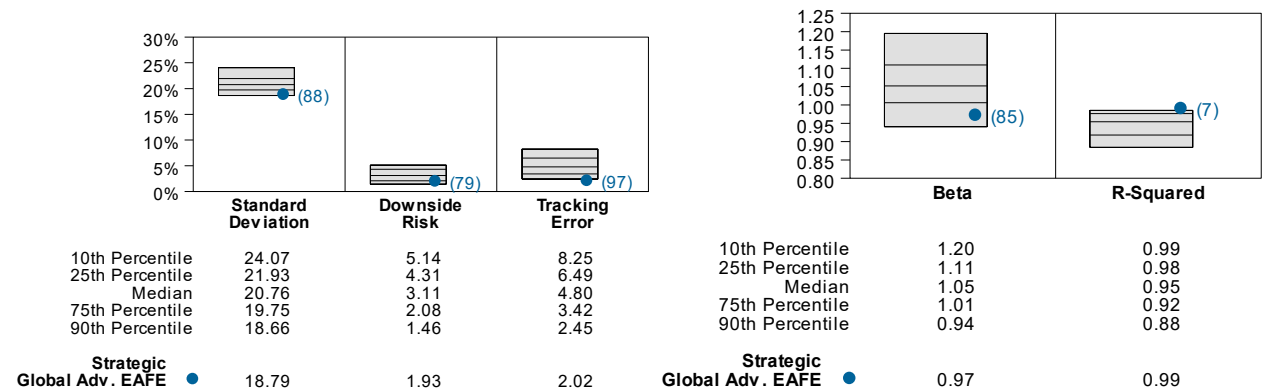
**Performance vs Callan Non-US Equity (Gross)**



**Cumulative and Quarterly Relative Returns vs MSCI EAFE**



**Risk Statistics Rankings vs MSCI EAFE (Net)  
Rankings Against Callan Non-US Equity (Gross)  
Five Years Ended September 30, 2022**



**Chicago Teachers' Pension Fund  
Performance Evaluation Executive Summary  
Third Quarter 2022**

**General Market and Economic Conditions**

While headline inflation in the U.S. moderated over the summer as gas prices declined, core inflation climbed, mostly due to increased shelter costs. The Consumer Price Index (CPI) jumped 8.3% in August (year-over-year) and Core CPI (which excludes food and energy) rose 6.3%. The Personal Consumption Expenditures (PCE) Index gained 6.2% and Core PCE increased 4.9% (YOY), well above the Federal Reserve's long-run inflation rate objective of 2% for the Core PCE Index.

The Federal Reserve has been explicit in its intent to aggressively fight inflation and is willing to see the economy slow and unemployment rise to bring it down. Following the June 75 bps hike, the FOMC again raised the Fed Funds target by 75 bps in July and in September, the first time for three consecutive 75 bps rate hikes. The Fed Funds target is now 3.0 – 3.25%, the highest since 2008. The median projection from the Fed for the rate at year-end is 4.4%; in June the year-end projection was 3.4%. More significantly, the Fed's outlook for 2023 unemployment was revised up from its June forecast of 3.9% to 4.4%, up sharply from the current 3.7% unemployment rate. At the same time, the real GDP projection for 2022 fell to just 0.2%, down from 1.7% in June. Notably, both the markets and the Fed expect inflation to fall over longer periods. The Fed's 2025 projection is 2.0%. Five-year breakeven spreads, which reflect the market's expectations for inflation over the next five years, were 2.1%, down from 2.6% at the end of 2Q.

Shelter costs have been one of the key contributors to core inflation. As mortgage rates have risen sharply, approaching 7% as of quarter-end, there have been signs of market cooling. Housing starts have moderated, mortgage applications have dropped, and permits for homebuilding have fallen to the lowest level since 2020. Housing prices have begun to decline in some areas. The median house price, which hit a record high of \$413,800 in June, fell to \$389,500 in August (according to the National Association of Realtors) but is still nearly 8% higher than one year ago. Higher mortgage rates have not helped with affordability, which remains at the lowest level since 2006.

The U.S. dollar is at a two-decade high, as measured by a basket of currencies of major trading partners. The dollar has benefited from relatively high interest rates in the U.S. as well as its perceived safe haven status. The euro is at its lowest since 2002 vs. the dollar. The Bank of Japan was forced to intervene in currency markets for the first time since 1998 to bolster its currency. The yen lost nearly 11% vs. the dollar in 3Q and is down more than 18% over the last 12 months. While a strong dollar helps to temper inflation in the U.S., it is bad for U.S. exports and hard on other economies, especially those in emerging markets that may issue debt in U.S. dollars. The labor market remained strong through the quarter. Unemployment ticked up to 3.7% but job gains were robust and the ratio of job openings to job seekers also stayed elevated, with roughly twice as many openings as seekers at the end of August. Most expect the job market to cool as inflation and higher rates take a toll on profits.

Rates rose broadly outside of the U.S. as central banks embarked on an unusually synchronized global effort to fight inflation. The European Central Bank hiked rates by 50 bps in July, emerging out of negative territory, and 75 bps in September. It increased its forecast for 2022 inflation in the euro zone from 6.8% (in June) to 8.1% given high energy and food costs as well as supply shortages. Its growth forecast for 3Q22 is 0.1% and -0.1% in 4Q as rising prices hurt consumer spending and confidence, and uncertainty over gas supply reductions and rising rates constrain activity. Full-year growth is expected to be a tepid 0.9% in 2023. The economic effects of the Russian invasion of Ukraine have been especially painful in Europe, which has relied heavily on Russia for its energy needs. Annual inflation in the euro zone was 10.0% in September, up from 9.1% in August and ahead of expectations. The Bank of England raised rates by 50 bps in September from 1.75% to 2.25%, the largest increase in nearly 30 years, to combat

## **Chicago Teachers' Pension Fund Performance Evaluation Executive Summary Third Quarter 2022**

inflation. In Britain, the CPI rose 9.9% in August from one year earlier.

China continued to languish in relative terms due largely to its policies to combat COVID (mass lockdowns) but also a falling yuan and a collapsing property sector that accounts for about 30% of economic activity. Weakness among its trading partners has also played a role. The World Bank expects growth in China to be 2.8% in 2022, sharply lower than its 8.1% in 2021 and slower than developing countries for the first time in 30 years. As the second-largest economy in the world, China's slowdown weighs heavily on the prospects for global growth.

In the U.K., a late-September announcement from Chancellor Kwasi Kwarteng of a "mini-budget" that included the largest tax cuts in 50 years (with no offsetting revenue) spurred a sharp sell-off in government bonds and caused the pound to plummet. Versus the U.S. dollar, the pound fell to an all-time low. Ten-year government bond yields climbed 100 bps on the news, and ultimately the Bank of England had to intervene with a temporary bond-purchase program to help stabilize markets. The International Monetary Fund issued a critical rebuke, warning that the suggested tax cuts would likely fuel inflation and heighten inequality, and Moody's warned the unfunded tax cuts would be a "credit negative" event. The "mini-budget" has since been modified to reverse the planned cuts to the highest tax rates, and the plan is currently undergoing further analysis by the U.K.'s Office for Budget Responsibility.

### **Third Quarter 2022 Market Performance**

The S&P 500 Index sank 4.9% in 3Q and is down 23.9% year-to-date (YTD). Returns were quite mixed across sectors with Energy (+2.3%) and Consumer Discretionary (+4.4%) posting positive results and Communication Services (-12.7%) and Real Estate (-11.0%) delivering the lowest returns. Somewhat counterintuitively, value underperformed growth (Russell 1000 Value: -5.6%; Russell 1000 Growth: -3.6%) but value remains ahead on a YTD basis (Russell 1000 Value: -17.8%; Russell 1000 Growth: -30.7%).

Global ex-U.S. markets fared worse, driven mostly by U.S. dollar strength. The MSCI ACWI ex USA Index fell 9.9% (Local: -4.9%), bringing its YTD loss to 26.5% (Local: -16.2%). The U.S. dollar continued to strengthen, benefiting from its "safe haven" status as well as attractive interest rates relative to other developed markets. The yen and euro lost 6% versus the greenback and the British pound fell 8%. Across developed market countries, losses were broad-based with several posting double-digit declines. As in the U.S., value (MSCI ACWI ex USA Value: -10.4%) underperformed growth (MSCI ACWI ex USA Growth: -9.4%). Unlike the U.S., no sectors delivered a positive return in 3Q. Emerging markets (MSCI Emerging Markets: -11.6%; Local: -8.2%) underperformed developed markets for the quarter but returns were mixed across countries. China (MSCI China: -22.5%) was one of the worst performers while several countries posted positive returns; two of the best were India (+6.5%) and Brazil (+8.5%). Returns were also mixed across regions: Latin America (+3.6%), Emerging Europe (-12.4%), and Emerging Asia (-14.0%).

The 10-year U.S. Treasury briefly touched an intra-quarter high of 4.0% in late September, the highest since 2008, before closing the quarter at 3.83%. At quarter-end, the yield curve was inverted by about 40 bps with the 10-year at 3.8% and the 2-year at 4.2%. The Bloomberg US Aggregate Bond Index fell 4.8% in 3Q, bringing its YTD return to a startling -14.6%, a historical worst for the first nine months of a year. Notably, the sharp sell-off has eroded gains over the past 10 years; the Aggregate's 10-year annualized gain is now a muted 0.9%. Mortgages and corporates underperformed U.S. Treasuries, with mortgage-

**Chicago Teachers' Pension Fund  
Performance Evaluation Executive Summary  
Third Quarter 2022**

backed securities doing especially poorly, underperforming like-duration U.S. Treasuries by 160 bps on poor technicals and rising rates. The yield-to-worst of the Aggregate Index climbed to 4.75%, up sharply from 1.75% at the beginning of the year. TIPS (Bloomberg TIPS: -5.1%; -13.6% YTD) were not immune from the sell-off. High yield corporates (Bloomberg High Yield: -0.6%) fared better, but the Index is down a similar 14.7% YTD. The yield-to-worst was 9.7% as of quarter-end.

Interest rates also rose overseas and the U.S. dollar continued to strengthen, hurting unhedged fixed income returns. The Bloomberg Global Aggregate ex USD fell 8.8% (hedged: -2.2%). The YTD differential for hedged and unhedged investors is nearly 14 percentage points (unhedged: -23.9%; hedged: -9.9%). Losses were broad-based but the U.K. fell the most sharply; 13.2% in local currency terms and 20.2% in US\$ in response to announced plans for massive fiscal stimulus in the form of unfunded tax cuts. Emerging markets performed similarly, with the JPM EMBI Global Diversified down 4.6% and the local currency JPM GBI-EM Global Diversified off 4.7%.

**Chicago Teachers' Pension Fund  
Performance Evaluation Executive Summary  
Third Quarter 2022**

**Appendix**



**Appendix - 9/30/22**

	<b>Watch List Criteria:</b> Rolling three year returns rank below median (Gross of Fees).		<b>Watch List Criteria:</b> Rolling three year returns are more than: 1. 200 basis points below the market index (Net of Fees) for equity managers. 2. 50 basis points below the market index (Net of Fees) for core fixed income managers. 3. 100 basis points below the market index (Net of Fees) for core plus fixed income managers.		<b>Watch List Criteria:</b> Rolling seven year returns rank below median (Gross of Fees).		<b>Watch List Criteria:</b> Rolling seven year returns are below the return of the index (Net of Fees).		<b>Watch List Criteria:</b> Five year information ratio is negative and ranks below median.		<b>Watch List Criteria:</b> Five year up market capture is below 90% and ranks below median.		<b>Watch List Criteria:</b> Five year down market capture is above 90% and ranks below median.		<b>Weighted Averages</b>	
	6/30/2022	9/30/2022	6/30/2022	9/30/2022	6/30/2022	9/30/2022	6/30/2022	9/30/2022	6/30/2022	9/30/2022	6/30/2022	9/30/2022	6/30/2022	9/30/2022	6/30/2022	9/30/2022
<b>Manager</b>																
<i>Small Cap Growth Equity</i>																
Conestoga**	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	0.00	0.10
<i>Small Cap Value Equity</i>																
Phocas*	No	No	No	No	Yes	Yes	Yes	Yes	No	No	No	No	Yes	Yes	0.50	0.50
<i>Small Cap Equity</i>																
NTGI Structured Small Cap	Yes	Yes	No	No	Yes	Yes	No	No	No	No	No	No	No	No	0.30	0.30
<i>All Cap Growth Equity</i>																
Zevenbergen	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes	0.90	0.60
<i>All Cap Value Equity</i>																
Channing	No	No	No	No	Yes	Yes	No	No	No	No	No	No	Yes	Yes	0.30	0.30
<i>International Equity</i>																
EARNEST Partners	No	No	No	No	No	No	No	No	No	No	No	No	No	No	0.00	0.00
Lazard	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	0.80	0.80
Morgan Stanley	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	No	No	No	No	No	0.50	0.50
Leading Edge	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	0.70	0.70
William Blair	No	No	No	No	Yes	Yes	No	No	No	No	No	No	Yes	Yes	0.30	0.30
Ariel*	No	Yes	No	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	0.50	0.80
Strategic Global*	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	0.80	0.80
<i>International Small Cap</i>																
William Blair	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes	0.90	0.70
DFA	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	0.60	0.70
<i>Emerging Market Equity</i>																
EARNEST Partners	No	No	No	No	No	No	No	No	No	No	No	No	No	No	0.00	0.00
<i>Active Core Fixed Income</i>																
Ramirez***	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	0.10	0.10
Pugh	Yes	Yes	No	No	Yes	Yes	No	No	No	No	No	No	Yes	Yes	0.40	0.40
Garcia Hamilton	No	No	No	No	No	Yes	No	No	No	No	No	No	No	No	0.00	0.20
Wellington**	Yes	Yes	No	No	Yes	Yes	No	No	No	No	No	No	Yes	Yes	0.00	0.00
<i>Active Core Plus Fixed Income</i>																
LM Capital	No	No	No	No	Yes	Yes	No	No	No	No	No	No	No	No	0.20	0.20
<i>Active Opportunistic Fixed Income</i>																
WAMCO	Yes	Yes	No	No	Yes	Yes	No	No	No	No	No	No	Yes	Yes	0.40	0.40

\*Manager does not yet have 7 years of portfolio data. CTPF portfolio data has been linked with a representative historical manager composite to populate columns requiring at least 7 years of data in the analysis above.

\*\*Manager does not yet have 5 years of portfolio data. CTPF portfolio data has been linked with a representative historical manager composite to populate all columns requiring at least 5 years of data in the analysis above.

\*\*\*Manager does not yet have 3 years of portfolio data. CTPF portfolio data has been linked with a representative historical manager composite to populate all columns in the analysis above.