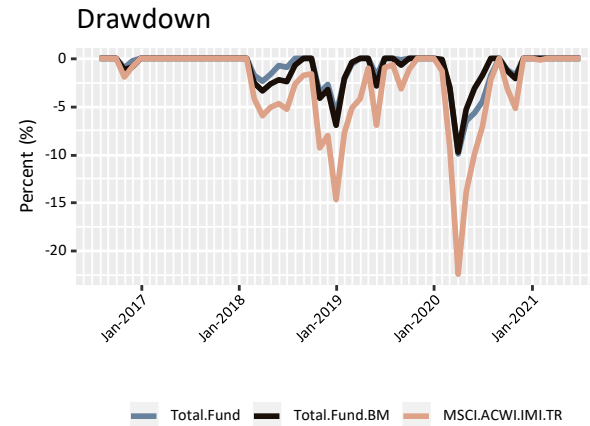
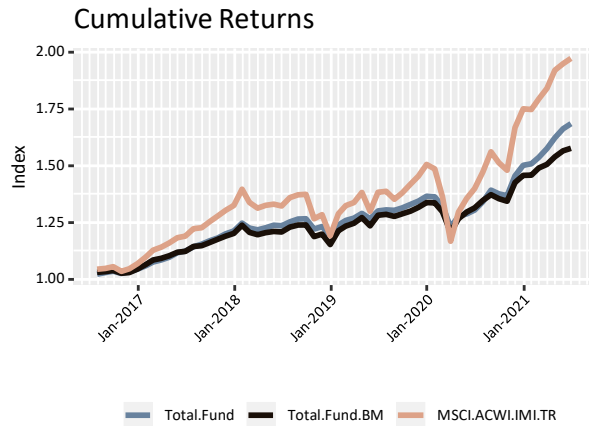


# ERS Performance

## Plan Level and Asset Class Composites



Asset Class	AUM	Weight	Excess Weight	Annualized SD	T12M Return	T12M Excess Return	Annualized Return	Annualized Excess Return	IR	SR	TE	Beta	R <sup>2</sup>
Total Fund	\$33,902,876,972	100.00	NA	6.92	29.17	9.19	11.02	1.46	0.71	1.42	2.05	0.90	92.60
Total Return Seeking Assets	\$28,603,471,747	84.37	4.78	8.91	35.15	9.42	12.66	1.90	0.64	1.28	2.78	0.87	92.50
Total Risk Reduction	\$5,299,405,225	15.63	-4.78	1.67	4.12	4.10	3.53	0.81	1.05	1.43	0.76	0.89	81.28



# ERS Performance

## Plan Level and Asset Class Composites



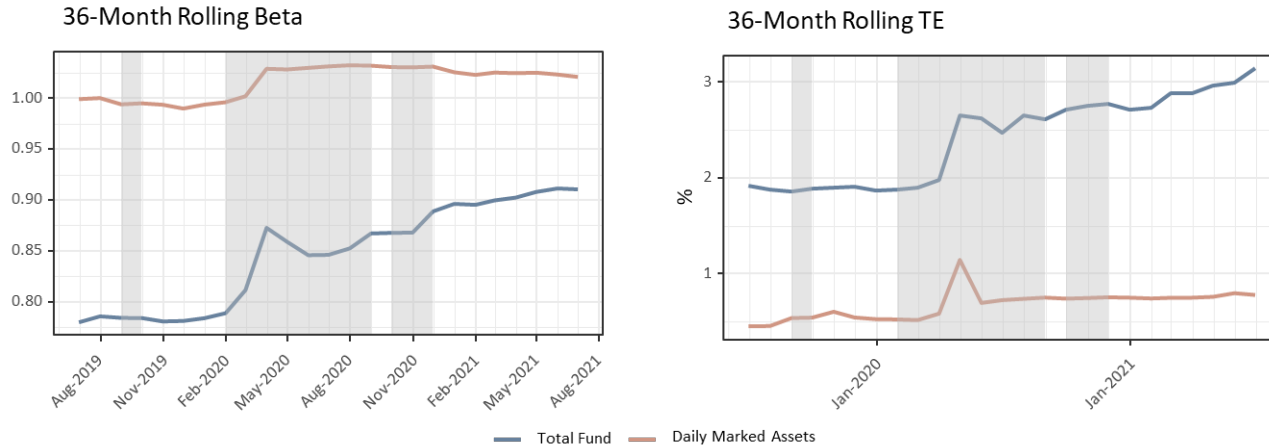
Asset Class	AUM	Weight	Excess Weight	Annualized SD	T12M Return	T12M Excess Return	Annualized Return	Annualized Excess Return	IR	SR	TE	Beta	R <sup>2</sup>
Global Public Equity	\$13,953,071,216	41.74	4.74	14.62	41.66	0.37	14.46	-0.43	-0.35	0.90	1.25	0.98	99.32
Global Private Equity	\$5,901,110,449	17.65	4.65	27.72	45.06	29.11	15.02	4.91	0.38	1.78	12.78	0.03	0.15
Internal Global Credit	\$2,368,089,654	7.08	NA	8.72	21.01	5.67	6.94	-0.53	-0.25	0.66	2.09	1.15	95.92
External Global Credit	\$838,939,844	2.51	NA	7.75	42.36	27.46	11.67	4.36	0.78	1.34	5.59	0.77	54.23
Public Real Estate	\$1,269,062,030	3.80	0.80	15.65	34.62	0.18	6.16	0.51	0.42	0.32	1.20	0.96	99.58
Private Real Estate	\$2,495,864,344	7.47	-1.53	22.94	9.92	4.51	9.49	3.22	1.23	2.82	2.61	1.29	20.81
Private Infrastructure	\$1,299,312,467	3.89	-2.11	15.54	17.42	8.12	6.47	1.51	0.59	0.63	2.55	1.01	90.89
Total Rates	\$3,238,779,494	9.69	-1.31	2.33	-1.05	0.14	2.08	0.15	1.00	0.41	0.15	0.97	99.66
Total Cash	\$576,940,589	1.73	-2.69	0.93	0.02	-0.08	1.57	0.40	0.45	0.51	0.89	0.20	0.11
Absolute Return	\$1,483,685,142	4.44	-0.56	3.13	20.04	16.43	7.96	2.90	0.87	2.15	3.33	-12.59	29.79

Tracking error limit - Global Public Equity: 300bps, Global Credit: 300bps, Real Assets: 300bps, Rates: 100bps.

Annualized Return, Annualized Excess Return, IR, TE, and Beta computed are based on 5 years of data (or less). A data smoothing technique has been applied to Private Real Estate benchmark data. Returns data for the following assets: Global Private Equity, Private Real Estate, Private Infrastructure, External Global Credit and Absolute Returns have been lagged by 1 month in order to account for timing difference between reporting date and the time returns were generated.

# ERS Plan Level Risk Analysis

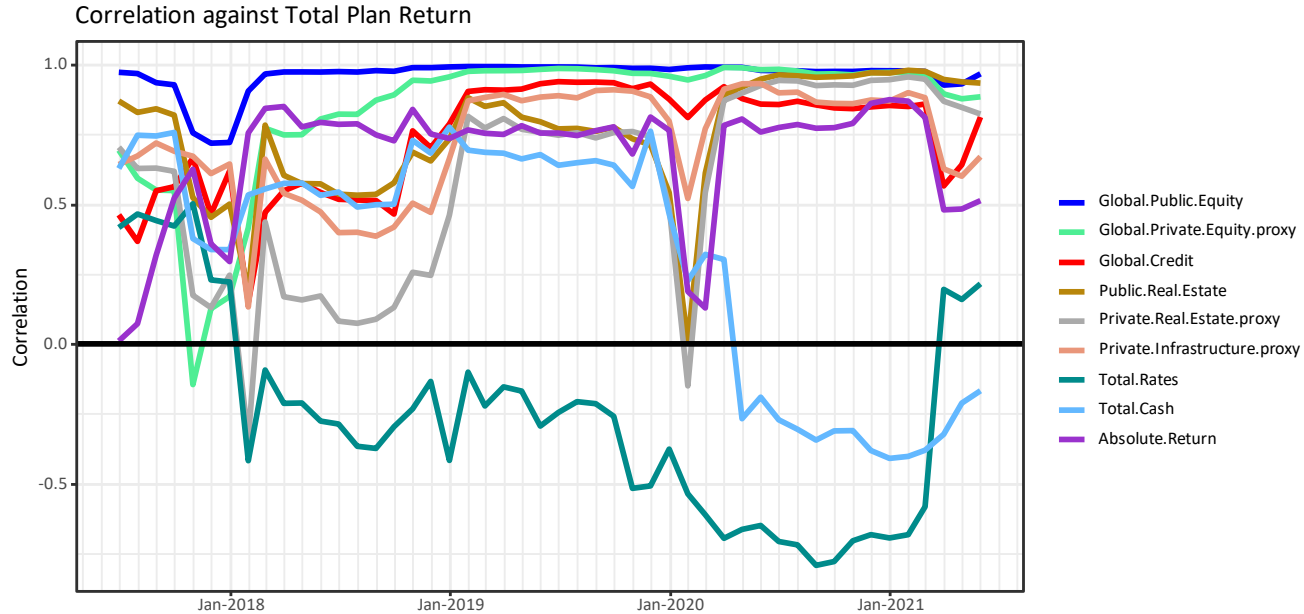
## Sensitivity to Policy Benchmark, TE and Illiquid Assets



- The total fund 36-month rolling beta and tracking error remained stable for daily marked assets.
- While total plan level market sensitivity to policy benchmark (beta) appears to have reached a plateau tracking error continues to trend higher reflecting an increase in the volatility of total plan excess return stemming from variance in returns between illiquid assets and their underlying policy benchmarks.

# ERS Plan Level Risk Analysis

## Clustering of “Risk-On” vs “Risk-Off” Asset Correlations

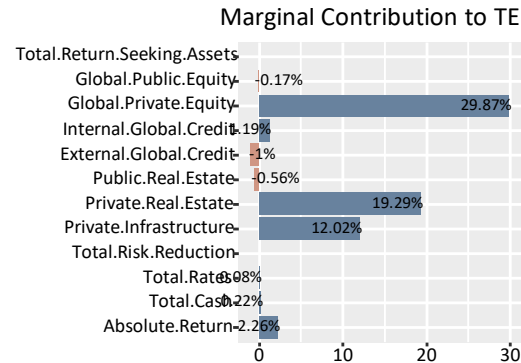
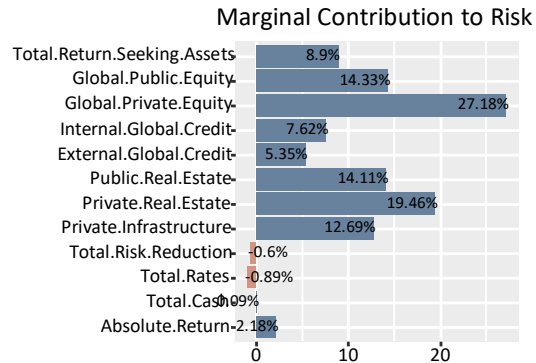
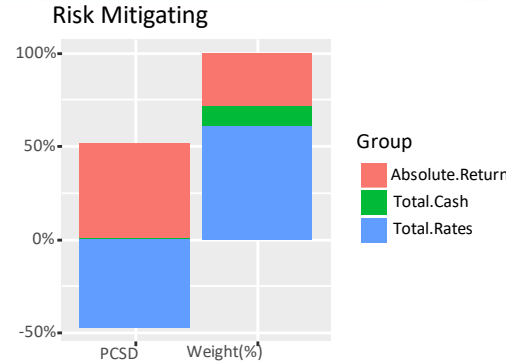
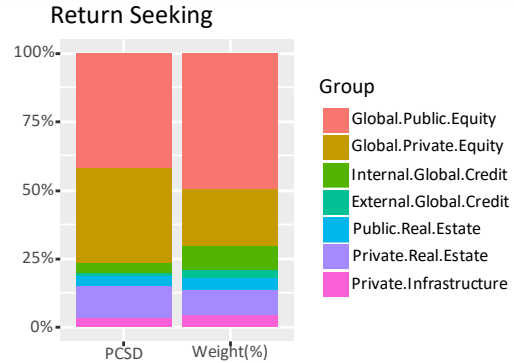


- The surge in the pairwise correlation of returns have diminished diversification benefits and increased total plan level risk.

# ERS Plan Level Risk Analysis



## Percent Contribution and Marginal Contribution to Risk



### Percent Contribution to Risk

- Within the Return Seeking Asset Group, Private Equity exerts a larger than proportionate risk relative to its dollar allocation.
- Within the Risk Mitigating Asset Group, the Rates portfolio helps to reduce total risk

### Marginal Contribution to TE

- An additional allocation to External Global Credit and Public Real Estate would tend to reduce active risk