

# AKSIA LLC

## PENNSYLVANIA PUBLIC SCHOOL EMPLOYEES' RETIREMENT SYSTEM QUARTERLY UPDATE

AS OF DECEMBER 31, 2020

# PSERS QUARTERLY UPDATE

## Table of Contents:

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- Section I: Executive Summary
- Section II: Hedge Fund Industry Review
- Section III: PSERS Portfolio Review

# ABSOLUTE RETURN PROGRAM REVIEW

## Investment Policy and Program Objectives

- Reduce the risk and/or enhance the returns of PSERS' overall investment program through investment in a diversified basket of portfolios that incorporate various investment strategies, asset types, and investment vehicles
- Target risk-adjusted returns in excess of the benchmark, net of fees, over a full market cycle
- Target managers which provide idiosyncratic returns and portfolios that exhibit low correlation to equities, fixed income, commodities, and other sources of low-cost beta over a full market cycle

	Target Allocation	Current Allocation as of 12/31/2020
Absolute Return Program	10% <sup>3</sup>	9.8%

Sector Constraints	Allocation Range	Current Allocation as of 12/31/2020
Long/Short Equity	0% - 20%	0%
Event Driven	0% - 50%	15%
Relative Value	0% - 65%	51%
Tactical Trading	0% - 65%	34%

Manager/Fund Constraints	Maximum	Note
Allocation to any one manager	20%	
Allocation to any one separate account	12% <sup>2</sup>	
Allocation to any one fund	10% <sup>2</sup>	1 fund currently >10% <sup>1</sup>

<sup>1</sup> The Absolute Return Program is permitted to have one fund or manager that exceeds the maximum allocation guidelines noted above. In no case may the maximum allocation exceed 25%. The Absolute Return Program is currently in compliance with the 25% maximum allocation guideline.

<sup>2</sup> In addition to the one fund allocation greater than 10%, there was one fund allocation at 10%. Accordingly, staff requested that the Absolute Return Policy be adjusted to increase the allocation to any one separate account from 12% to 15% and to increase the allocation to any one fund from 10% to 15%. This request was approved by the Board on March 5, 2021.

<sup>3</sup> Effective April 1, 2021, the Target Allocation will decrease from 10% to 8%.

# I. EXECUTIVE SUMMARY

## ABSOLUTE RETURN PROGRAM REVIEW – PERFORMANCE

**Performance Objective:** Target risk-adjusted returns in excess of the HRFI Fund of Funds Conservative Index +1%, net of fees, over a full market cycle

Time Period	Actual Performance		Beta-Adjusted Performance ("Alpha") <sup>2</sup>	
	PSERS <sup>1</sup>	HFRI FOF Conservative + 1%	PSERS <sup>1</sup>	HFRI FOF Conservative + 1%
Current Fiscal YTD (Jul '20 - Dec '20)	7.9%	9.1%	4.1%	4.1%
Last Fiscal Year (Jul '19 - Jun '20)	-0.5%	0.5%	-1.4%	-1.0%
CYTD 2020	4.4%	7.5%	-0.1%	2.5%
One Year	4.4%	7.5%	-0.1%	2.5%
Three Year	4.1%	4.9%	2.3%	2.2%
Five Year	4.1%	4.6%	2.4%	2.1%
Inception to Date (Oct 2005 - Dec 2020)	5.0%	3.6%	4.6%	1.7%
<b>Risk and Return (Oct 2005 - Dec 2020)</b>		<b>(Oct 2008 - Dec 2020)<sup>2</sup></b>		
Return (Ann.)	5.0%	3.6%	4.6%	1.7%
Volatility (Ann.)	4.9%	4.3%	3.7%	2.7%
Sharpe Ratio	0.72	0.48	1.04	0.38
Correlation with S&P 500	0.42	0.68	-	-
Beta to S&P 500	0.14	0.20	-	-

<sup>1</sup> Net of hedge fund fees and expenses but gross of Aksia's fees.

<sup>2</sup> The beta-adjustment calculation requires 36 months of data, therefore the first available date for beta-adjusted performance is October 2008. The referenced index used to calculate Beta-adjusted performance is the S&P 500 TR.

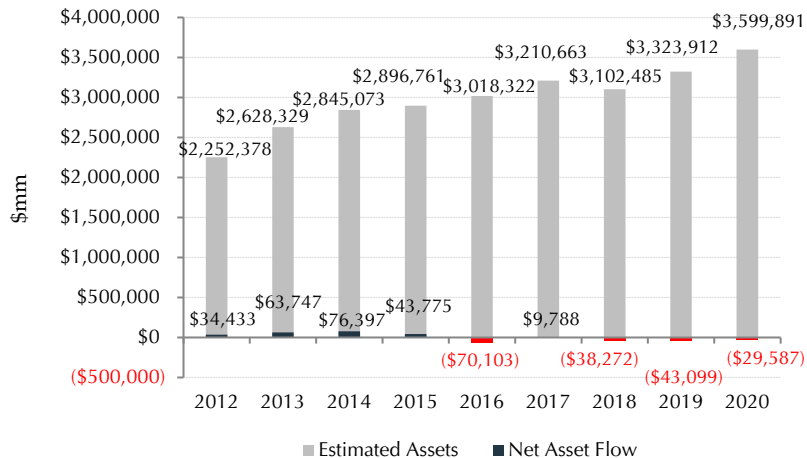
## PORTFOLIO ACTIVITY – ABSOLUTE RETURN PORTFOLIO

Q4 2020	Fund	Transaction	Amount
October	Caspian Keystone Focused Fund LP - Class B	Capital Distribution	-\$10.0mm
	Falko RAOF GP II Limited	Capital Call	+\$8.4mm
	HS Group Sponsor Fund II Ltd	Capital Call	+\$13.4mm
	Oceanwood Opportunities Fund	Capital Distribution	-\$56.5mm
	Perry Partners LP	Capital Distribution	-\$1.5mm
	Two Sigma Risk Premia Enhanced Fund LP	Full Redemption	-\$186.4mm
November	Aeolus Property Catastrophe Keystone PF Fund LP - J17	Capital Distribution	-\$1.4mm
	Aeolus Property Catastrophe Keystone PF Fund LP - J18	Capital Distribution	-\$8.4mm
	Aeolus Property Catastrophe Keystone PF Fund LP - MY18	Capital Distribution	-\$3.5mm
	Aeolus Property Catastrophe Keystone PF Fund LP - J19	Capital Distribution	-\$9.0mm
	Aeolus Property Catastrophe Keystone PF Fund LP - MY19	Capital Distribution	-\$3.1mm
	Caspian Keystone Focused Fund LP - Class B	Capital Distribution	-\$10.0mm
	HS Group Sponsor Fund II Ltd	Capital Call	+\$2.3mm
December	Brigade Leveraged Capital Structures Offshore Ltd	Partial Redemption	-\$16.2mm
	Caspian Keystone Focused Fund LP - Class A	Capital Distribution	-\$0.5mm
	Caspian Keystone Focused Fund LP - Class B	Capital Distribution	-\$9.9mm
	Falko RAOF GP II Limited	Capital Call	+\$0.3mm
	Falko RAOF GP II Limited	Capital Distribution	-\$0.8mm
Total Activity During the Quarter			-\$292.8mm

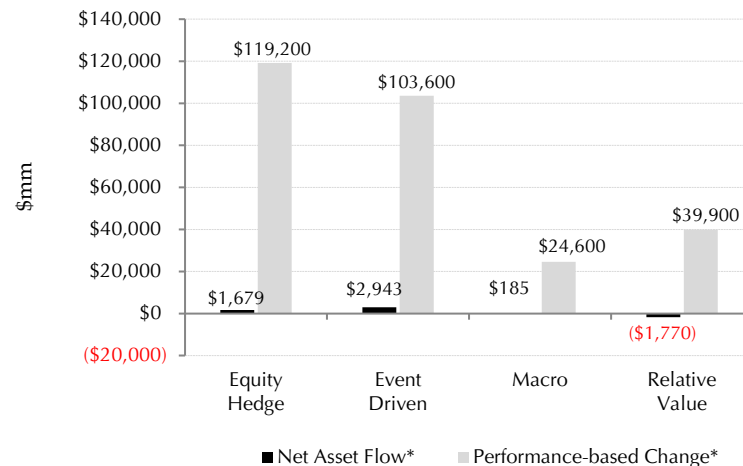
## II. HEDGE FUND INDUSTRY REVIEW

# HEDGE FUND INDUSTRY REVIEW

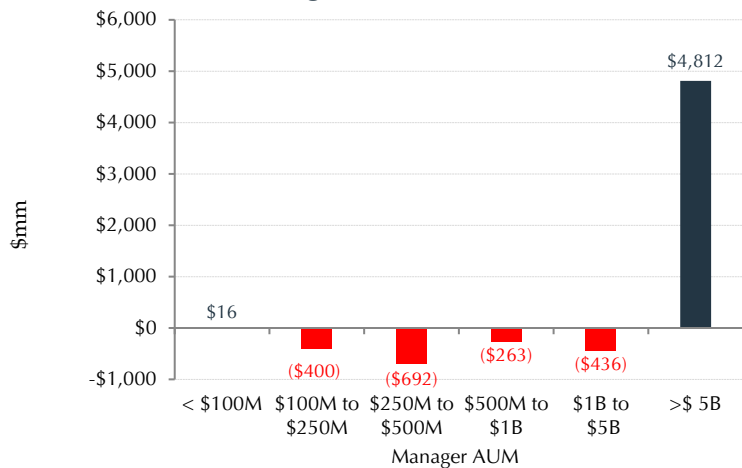
**Industry Assets Have Been Mostly Steady Year-Over-Year (as of Q4 2020)**



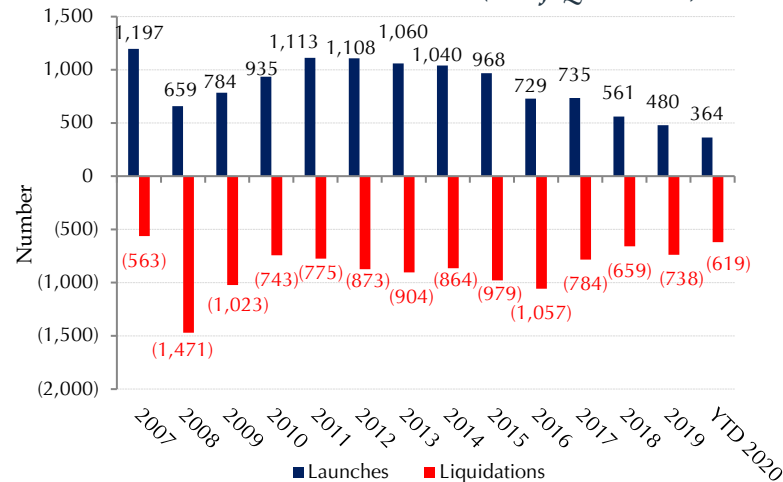
**Positive Performance Across All Sectors Accompanied Mostly Flat Net Flows in Q4 2020**



**Q4 2020 Capital Inflows Were Most Notable Among Managers with >\$5B in AUM**



**Liquidations Are On Track to Outpace New Launches For The Sixth Consecutive Year (as of Q3 2020\*\*)**



Source: Q4 2020 Global Report

\*Figures are rounded to the nearest \$100M

\*\*Chart data is one quarter lagged



### III. PSERS PORTFOLIO REVIEW

## ABSOLUTE RETURN PORTFOLIO - AS OF DECEMBER 31, 2020 (1 OF 3)

Sector	Strategy	Fund Name	NAV (\$MM)	Multiple of Cost	IRR	TWR Since Investment*	Investment as of
Event Driven	Event Credit	Caspian Keystone Focused Fund LP	15.8	1.15	18.1%	N/A	May-16
		Caspian Select Credit International Ltd	289.4	1.45	3.9%	3.9%	Mar-11
		Oceanwood Investments SPC	14.1	1.26	15.3%	N/A	Sep-18
		Venor Capital Offshore Ltd	213.4	1.42	8.5%	8.5%	Sep-16
	Event & Merger	Oceanwood Opportunities Fund	248.0	1.50	6.9%	7.3%	Sep-14
		Perry Partners LP	6.9	0.84	-4.8%	-4.0%	Dec-13
	Real Assets	SASOF V LP**	-0.9	-0.59	0.0%	N/A	May-20
		SASOF IV LP	65.7	0.90	-8.4%	N/A	Mar-18
		SASOF III LP	20.4	1.20	13.4%	N/A	Feb-15
		Sciens Aviation Special Opportunities Investment Fund II LP	0.8	1.37	15.5%	N/A	Mar-13
		Falko Regional Aircraft Opportunities Fund II LP	49.4	0.95	-7.3%	N/A	Jul-19
<b>Total Event Driven</b>			<b>923.0</b>				

PART 1 OF 3

\*Annualized net performance shown is since inception of the fund in the PSERS portfolio.

\*\*SASOF V LP shows negative NAV as of December 31, 2020 due to the early stage of the fund and fund expenses exceeding capital calls for the fund's investment period.

## ABSOLUTE RETURN PORTFOLIO - AS OF DECEMBER 31, 2020 (2 OF 3)

Sector	Strategy	Fund Name	NAV (\$MM)	Multiple of Cost	IRR	TWR Since Investment*	Investment as of	
Relative Value	Fixed Income Arbitrage	Capula Global Relative Value Fund Limited	520.4	1.28	6.6%	6.6%	Feb-11	
		Garda Fixed Income Relative Value Opportunity Fund Ltd	612.4	1.75	7.6%	7.4%	Nov-11	
		Aeolus Property Catastrophe Keystone PF Fund LP - Composite	319.8	1.08	8.1%	6.6%	Jun-12	
	Insurance Linked	Palmetto Fund Ltd	201.8	1.22	3.4%	2.4%	Jul-11	
		RenaissanceRe Medici Fund Ltd	68.7	1.19	4.6%	4.6%	Feb-16	
		RenaissanceRe Upsilon Diversified Fund	102.1	1.02	0.9%	-16.8%	Jan-17	
		DaVinci Reinsurance Ltd	61.3	1.12	3.7%	2.2%	Jan-16	
		Nimbus Weather Fund Ltd	157.0	1.05	1.7%	2.0%	Jan-18	
		Long/Short Credit	Brigade Leveraged Capital Structures Offshore Ltd	308.3	1.53	6.5%	4.9%	Sep-07
			PIMCO Global Credit Opportunity Offshore Fund Ltd	306.1	2.23	8.3%	7.8%	Feb-08
	Structured Credit	OWS Credit Opportunity Offshore Fund III Ltd	375.4	1.36	8.0%	7.4%	Dec-15	
	Multi-Strategy	HS Group Sponsor Fund II Ltd	86.8	1.18	10.6%	5.3%	May-18	
	<b>Total Relative Value</b>			<b>3,120.0</b>				

PART 2 OF 3

\*Annualized net performance shown is since inception of the fund in the PSERS portfolio.

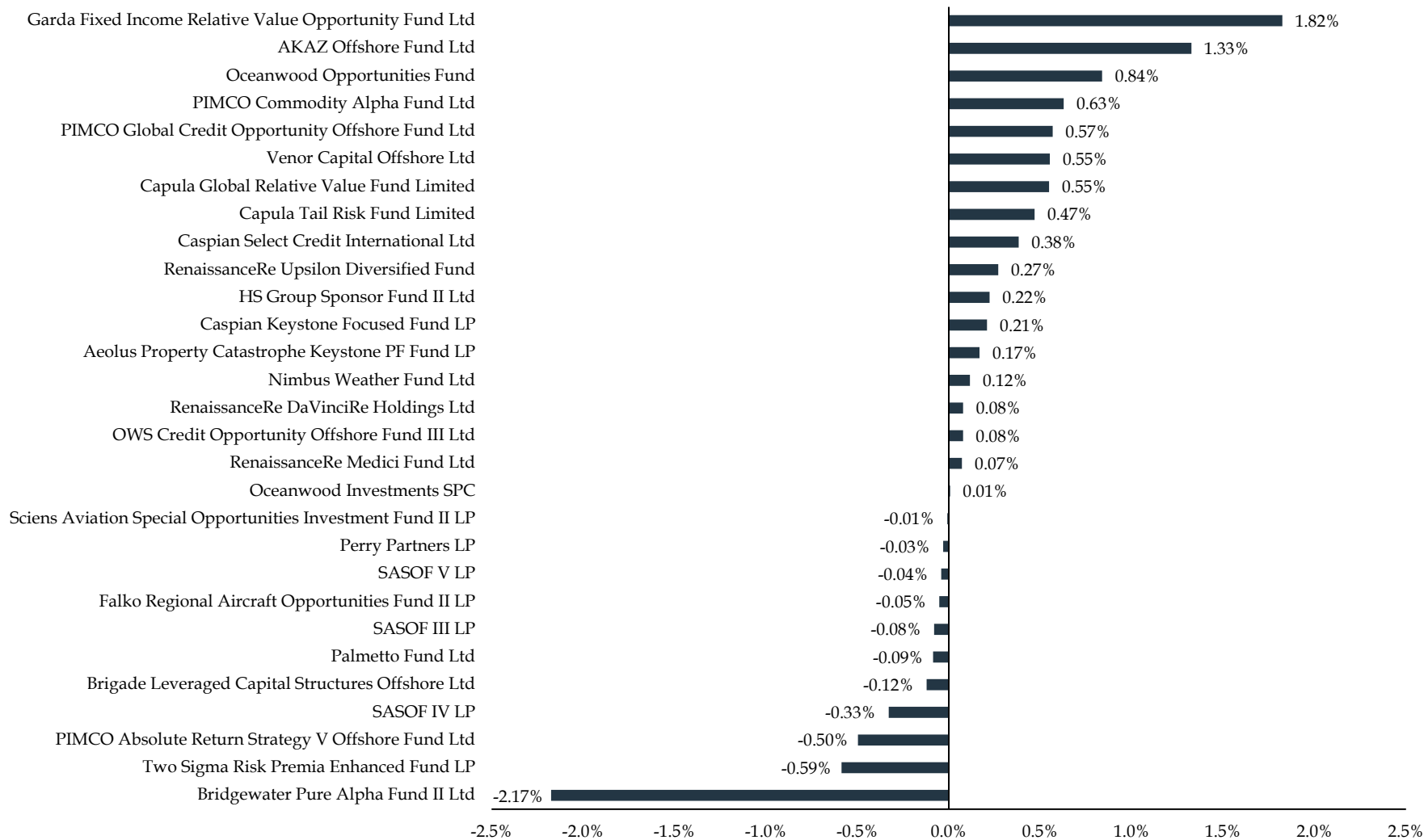
## ABSOLUTE RETURN PORTFOLIO - AS OF DECEMBER 31, 2020 (3 OF 3)

Sector	Strategy	Fund Name	NAV (\$MM)	Multiple of Cost	IRR	TWR Since Investment*	Investment as of
Tactical Trading	Global Macro	Bridgewater Pure Alpha Fund II Ltd	927.3	3.12	11.8%	9.3%	Nov-05
		AKAZ Offshore Fund Ltd	253.5	1.27	12.6%	12.6%	Jan-19
		PARS V Offshore Fund I Ltd	281.2	2.57	10.9%	9.1%	Feb-08
	Discretionary Commodities	PIMCO Commodity Alpha Fund Ltd**	373.7	1.92	12.4%	12.3%	Apr-15
	Risk Mitigators	Capula Tail Risk Fund Limited	244.6	0.95	-0.9%	-1.1%	Jun-11
<b>Total Tactical Trading</b>			<b>2,080.4</b>				
<b>PSERS Total</b>			<b>6,123.4</b>	<b>1.28</b>	<b>5.26%</b>	<b>5.0%</b>	<b>Oct-05</b>

\*Annualized net performance shown is since inception of the fund in the PSERS portfolio.

\*\*PIMCO Commodity Alpha was transferred into the PSERS AR portfolio on Jan 1, 2019. The fund-level statistics shown include its performance prior to the transfer.

# ABSOLUTE RETURN PORTFOLIO MANAGER ATTRIBUTION (YTD THROUGH DECEMBER 31, 2020)

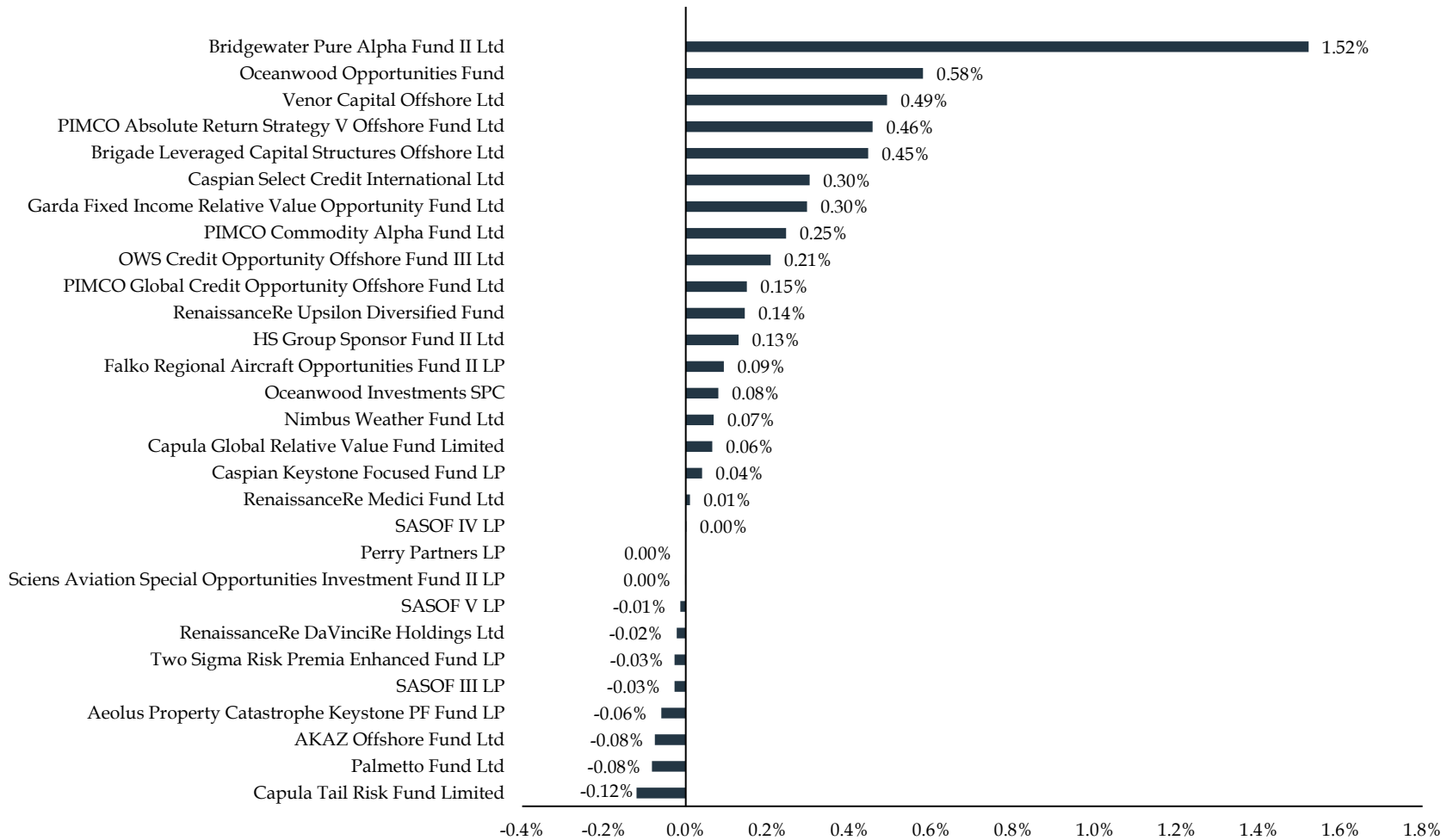


YTD through December 31, 2020 Return

PSERS Absolute Return Portfolio

4.36%

# ABSOLUTE RETURN PORTFOLIO MANAGER ATTRIBUTION (QTD THROUGH DECEMBER 31, 2020)



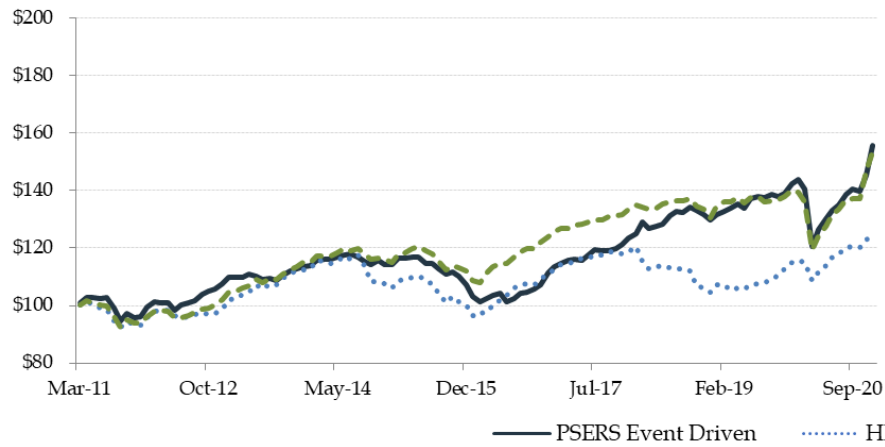
**QTD through December 31, 2020 Return**

PSERS Absolute Return Portfolio

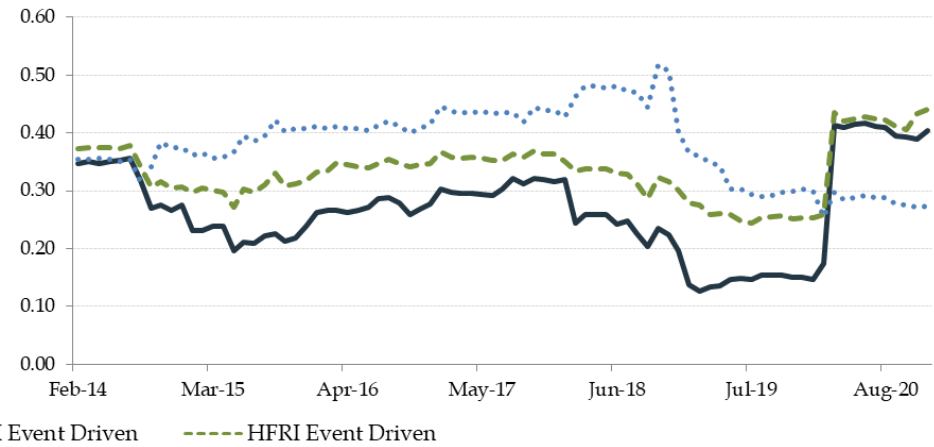
4.89%

# PSERS EVENT DRIVEN CARVE OUT (AS OF DECEMBER 31, 2020)

**Cumulative Performance**  
\$100 Invested on March 1, 2011



**Beta to S&P 500**  
3yr Rolling

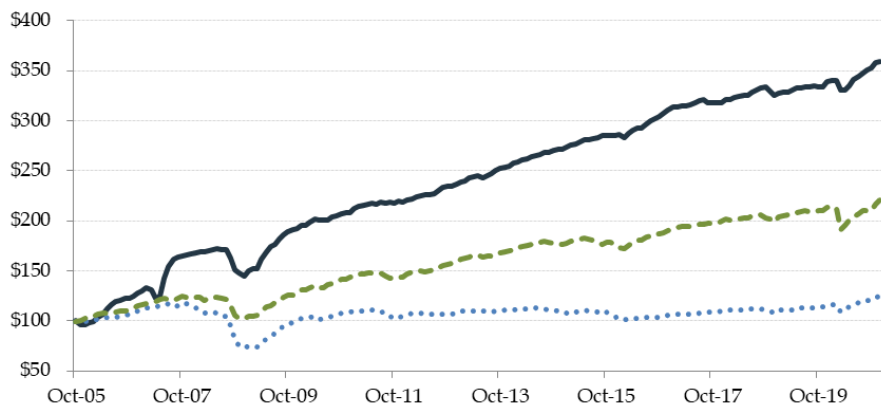


\* Analysis for PSERS Event Driven Carve Out is based on realized performance of PSERS' Event Driven hedge funds. The track record includes current funds and funds that have been formerly redeemed.

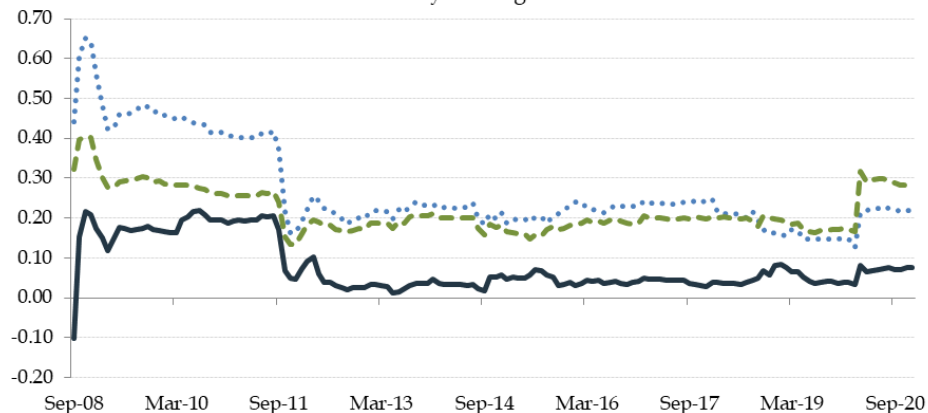
\* Aksia has included both HFRI & HFRX indices as together they provide a decent indicator of hedge fund performance by strategy. HFRX indices are considered 'investable,' whereas HFRI indices are equally weighted across funds in the HFR database. We believe that HFRX indices have a negative selection bias (funds willing to accept new investments may be non-institutional and/or struggling to raise assets), while HFRI has a self-reporting bias (funds who self-report are likely to have recently outperformed, and funds who do poorly may stop reporting). As a result of these biases, we expect HFRX to understate and HFRI to overstate institutional hedge fund performance, over the long run.

# PSERS RELATIVE VALUE CARVE OUT (AS OF DECEMBER 31, 2020)

**Cumulative Performance**  
\$100 Invested on October 1, 2005



**Beta to S&P 500**  
3yr Rolling



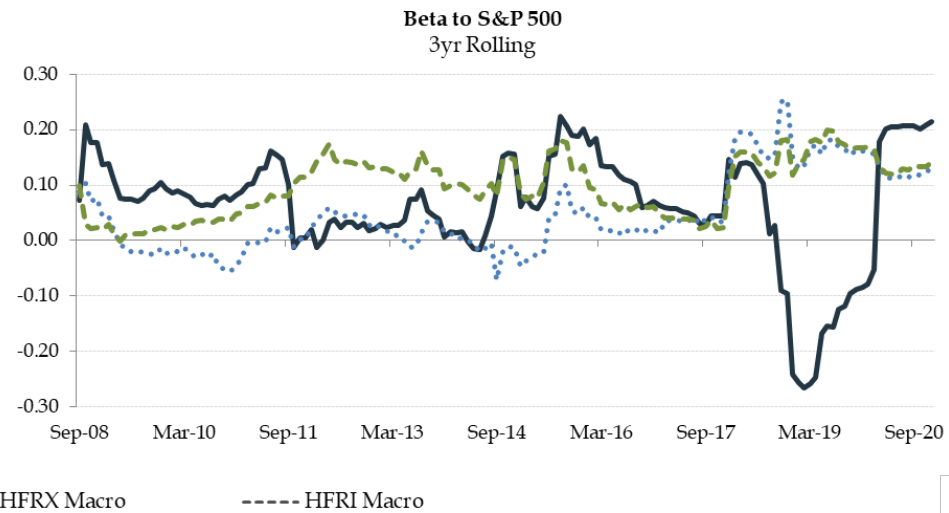
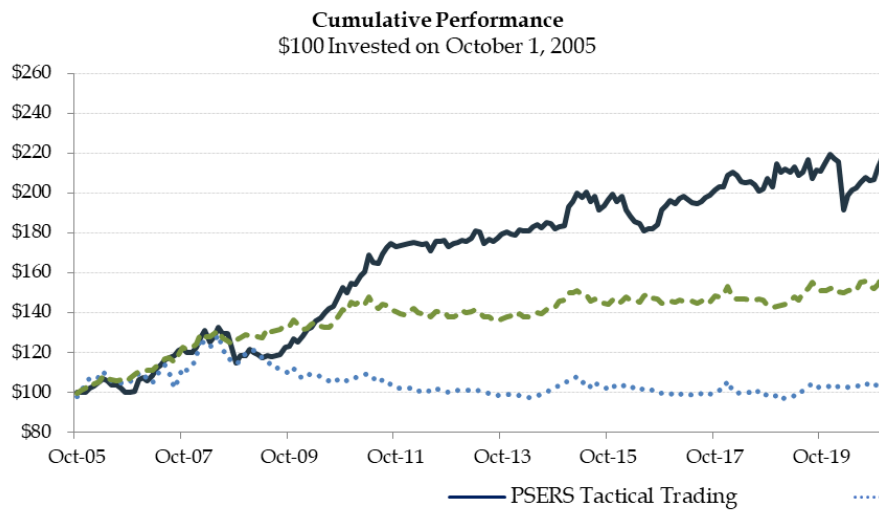
— PSERS Relative Value    ..... HFRX Relative Value    - - - HFRI Relative Value

\* Analysis for PSERS Relative Value Carve Out is based on realized performance of PSERS' Relative Value hedge funds. The track record includes current funds and funds that have been formerly redeemed.

\* Aksia has included both HFRI & HFRX indices as together they provide a decent indicator of hedge fund performance by strategy. HFRX indices are considered 'investable,' whereas HFRI indices are equally weighted across funds in the HFR database. We believe that HFRX indices have a negative selection bias (funds willing to accept new investments may be non-institutional and/or struggling to raise assets), while HFRI has a self-reporting bias (funds who self-report are likely to have recently outperformed, and funds who do poorly may stop reporting). As a result of these biases, we expect HFRX to understate and HFRI to overstate institutional hedge fund performance, over the long run.



# PSERS TACTICAL TRADING CARVE OUT (AS OF DECEMBER 31, 2020)

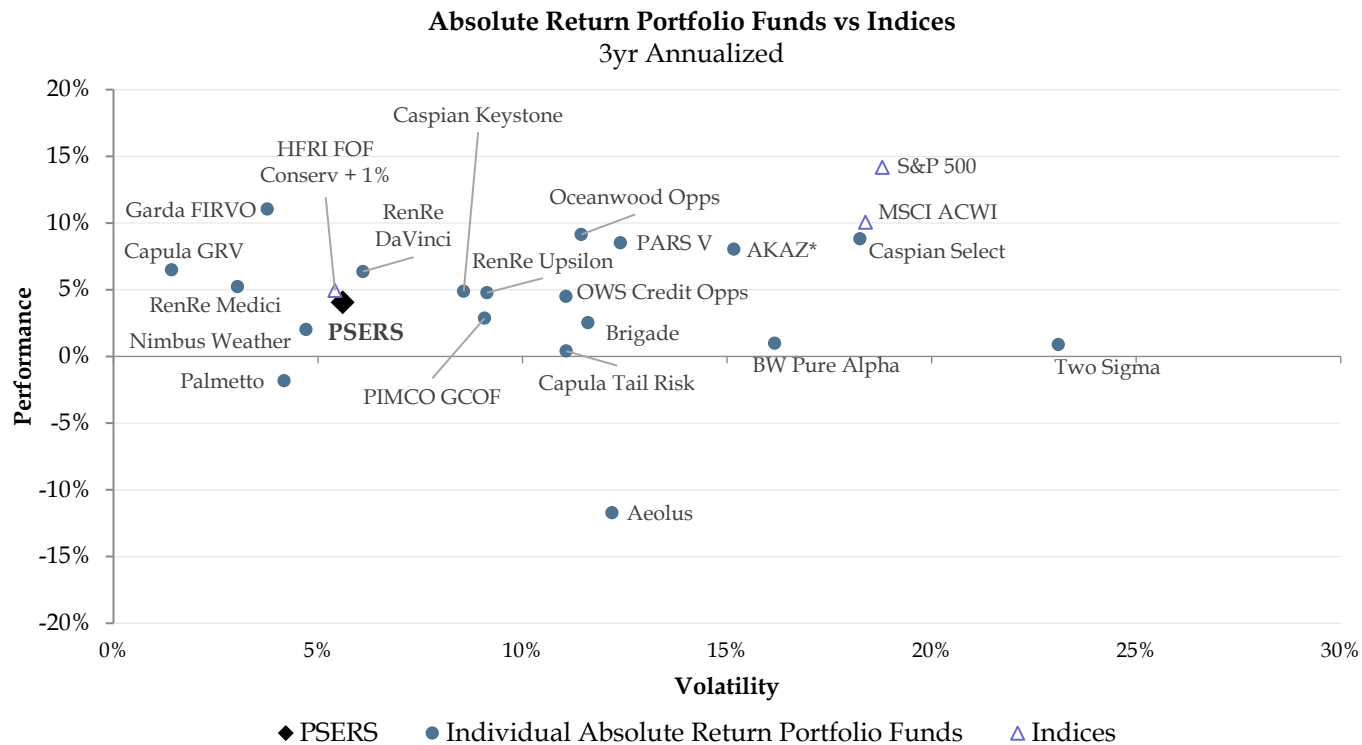


\* Analysis for PSERS Tactical Trading Carve Out is based on realized performance of PSERS' Tactical Trading hedge funds. The track record includes current funds and funds that have been formerly redeemed.

\* Aksia has included both HFRI & HFRX indices as together they provide a decent indicator of hedge fund performance by strategy. HFRX indices are considered 'investable,' whereas HFRI indices are equally weighted across funds in the HFR database. We believe that HFRX indices have a negative selection bias (funds willing to accept new investments may be non-institutional and/or struggling to raise assets), while HFRI has a self-reporting bias (funds who self-report are likely to have recently outperformed, and funds who do poorly may stop reporting). As a result of these biases, we expect HFRX to understate and HFRI to overstate institutional hedge fund performance, over the long run.

# PERFORMANCE & VOLATILITY (AS OF DECEMBER 31, 2020)

PSERS Absolute Return Portfolio has exhibited performance and volatility in line with program objectives



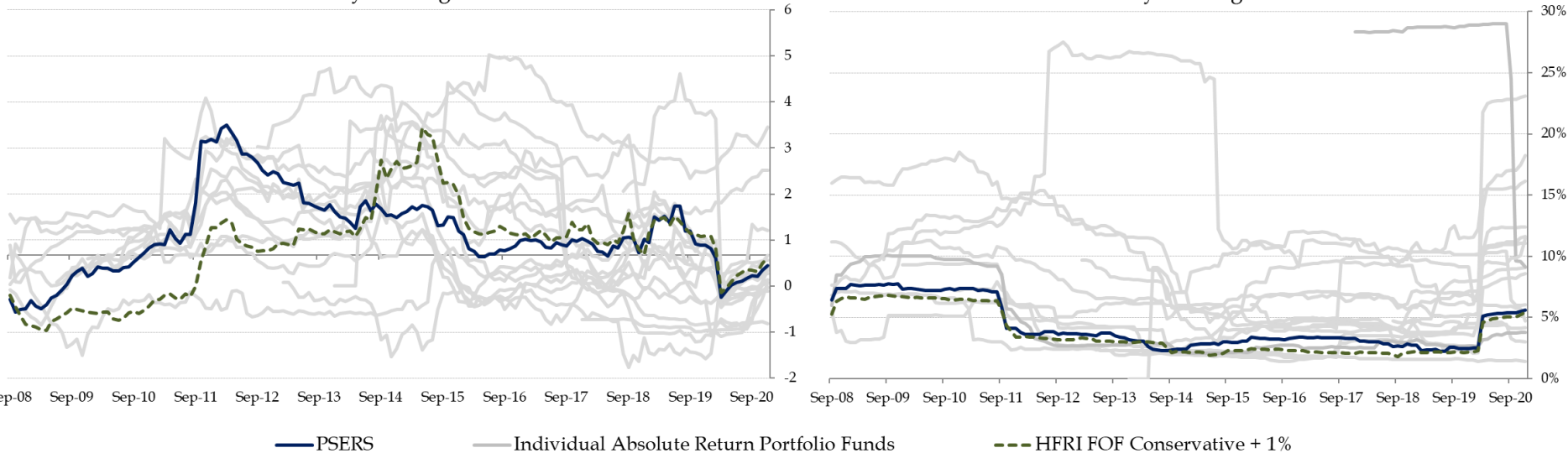
- The return and volatility analysis for the Absolute Return portfolio funds utilizes PSERS’ realized performance for the 36-month period prior to and including December 2020. If PSERS has been invested in a fund for less than 36 months, the analysis uses the blended performance of realized returns and fund-level returns prior to PSERS initial investment date. Please see pages 9-11 in this presentation for the inception date of each fund in PSERS portfolio. Analysis for PSERS is performed on realized performance for the Absolute Return portfolio.
- \*AKAZ Offshore Fund Applied Calculation Period: Jul 2018 – Dec 2020

## RISK-ADJUSTED PERFORMANCE & VOLATILITY (AS OF DECEMBER 31, 2020)

PSERS Absolute Return Portfolio has exhibited similar volatility and risk-adjusted returns as the HFRI FOF Conservative Index + 1%

**Sharpe Ratio**  
3yr Rolling

**Volatility**  
3yr Rolling



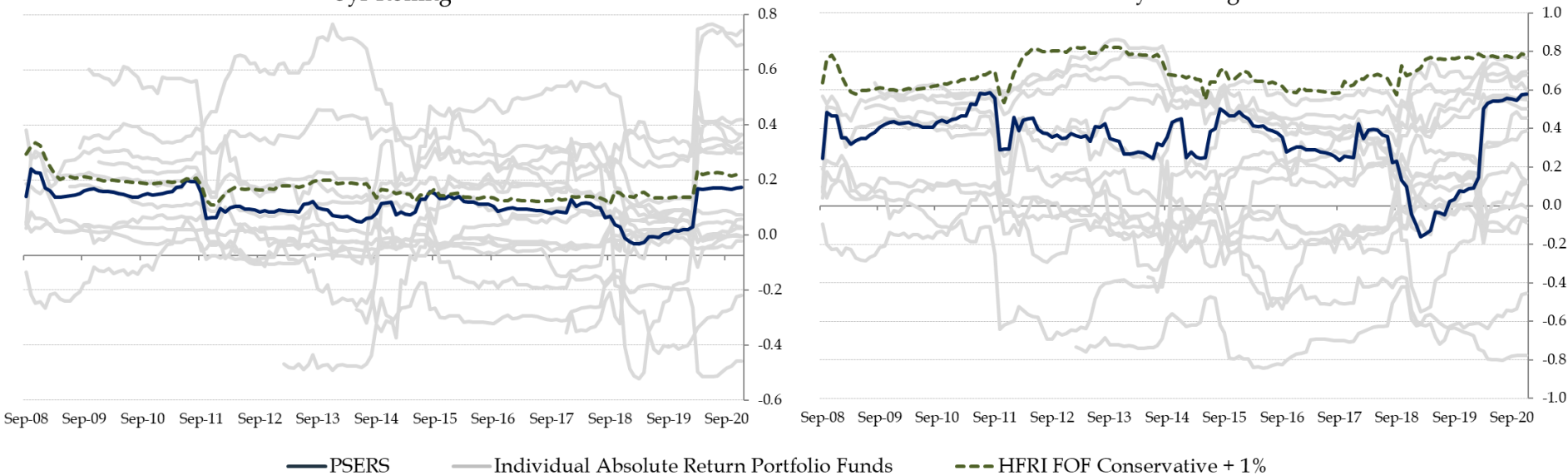
- The Sharpe and volatility analysis for the Absolute Return portfolio funds utilizes PSERS' realized performance for the 36-month period prior to and including December 2020. If PSERS has been invested in a fund for less than 36 months, the analysis uses the blended performance of realized returns and fund-level returns prior to PSERS initial investment date. Please see pages 9-11 in this presentation for the inception date of each fund in PSERS portfolio. Analysis for PSERS is performed on realized performance for the Absolute Return portfolio. Sharpe Ratio uses LIBOR as the risk-free rate.
- For a broad indicator of average 'hedge fund portfolio' performance, Aksia prefers to use the HFRI FOF index group, as there tends to be less self-reporting/dropout bias and losses and side pockets are captured by the FOF vehicle.

## BETA & CORRELATION (AS OF DECEMBER 31, 2020)

PSERS Absolute Return Portfolio has exhibited consistently low beta and correlation to U.S. equities

**Beta to S&P 500**  
3yr Rolling

**Correlation to S&P 500**  
3yr Rolling



- The beta and correlation analysis for the Absolute Return portfolio funds utilizes PSERS' realized performance for the 36-month period prior to and including December 2020. If PSERS has been invested in a fund for less than 36 months, the analysis uses the blended performance of realized returns and fund-level returns prior to PSERS initial investment date. Please see pages 9-11 in this presentation for the inception date of each fund in PSERS portfolio. Analysis for PSERS is performed on realized performance for the Absolute Return portfolio.
- For a broad indicator of average 'hedge fund portfolio' performance, Aksia prefers to use the HFRI FOF index group, as there tends to be less self-reporting/dropout bias and losses and side pockets are captured by the FOF vehicle.

## APPENDIX – ABSOLUTE RETURN PROGRAM REVIEW – PERFORMANCE

**Performance Objective:** Target risk-adjusted returns in excess of the HRFI Fund of Funds Conservative Index +1%, net of fees, over a full market cycle

Time Period	Actual Performance			Beta-Adjusted Performance ("Alpha") <sup>3</sup>	
	PSERS <sup>1</sup>	Policy Index <sup>2</sup>	HFRI FOF Conservative + 1%	PSERS <sup>1</sup>	HFRI FOF Conservative + 1%
Current Fiscal YTD (Jul '20 - Dec '20)	7.9%	9.1%	9.2%	4.1%	4.2%
Last Fiscal Year (Jul '19 - Jun '20)	-0.5%	1.7%	0.5%	-1.4%	-1.0%
CYTD 2020	4.4%	7.5%	7.5%	-0.1%	2.5%
2019	4.0%	6.4%	7.4%	4.4%	3.2%
2018	3.8%	5.8%	0.1%	2.8%	0.8%
2017	4.2%	4.7%	5.2%	2.3%	2.5%
2016	4.0%	4.2%	2.9%	2.7%	1.4%
2015	3.8%	3.8%	1.4%	3.9%	1.2%
2014	3.1%	5.6%	4.2%	2.1%	1.8%
2013	4.8%	7.5%	8.8%	2.2%	3.1%
2012	3.5%	7.5%	5.3%	2.2%	2.9%
2011	7.7%	7.7%	-2.6%	8.7%	-2.4%
2010	17.3%	8.0%	6.1%	14.5%	3.0%
2009	15.3%	-	10.7%	11.4%	5.9%
2008	-8.6%	-	-19.0%	0.0%	-4.2%
2007	8.2%	-	8.7%		
2006	3.7%	-	10.3%		
2005	0.2%	-	1.7%		

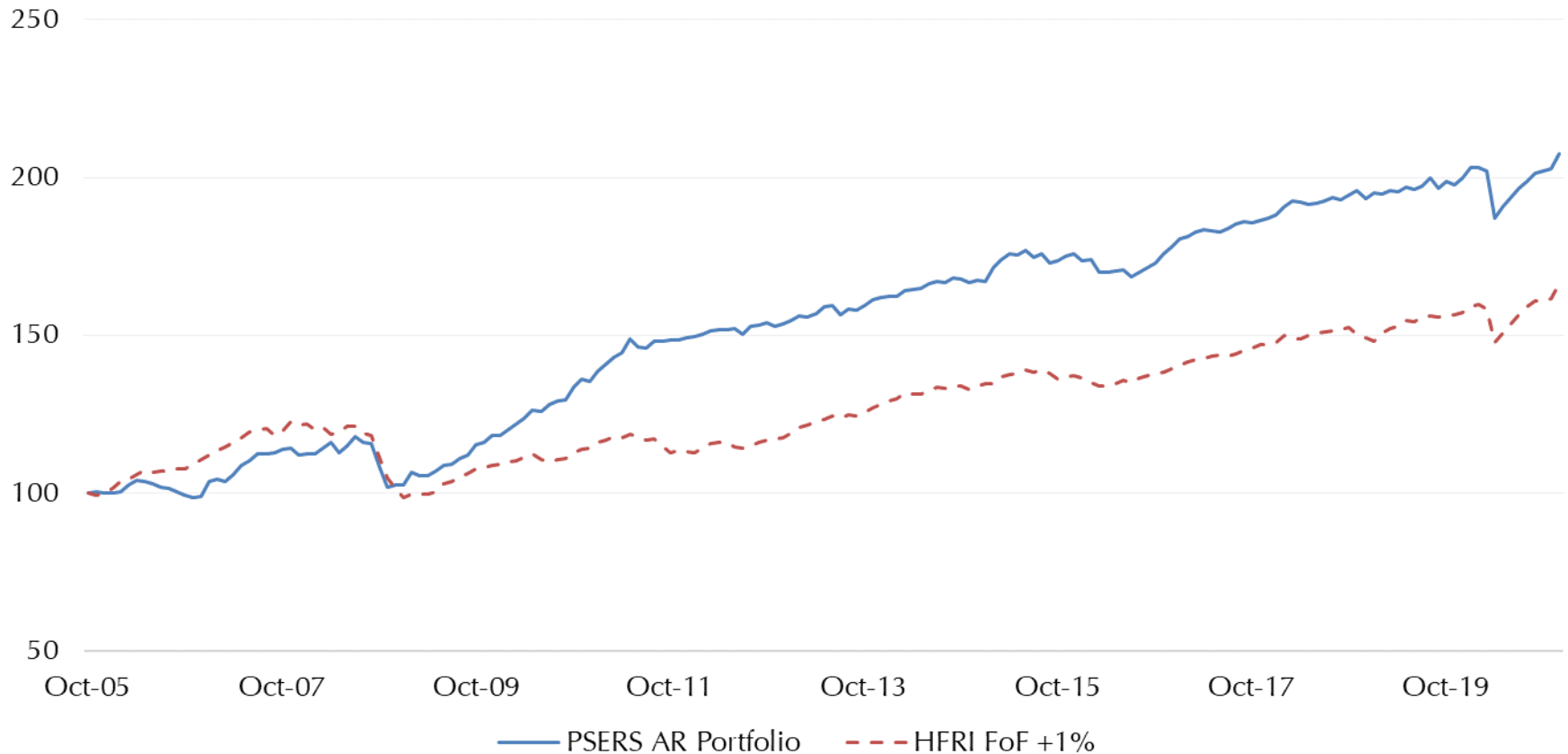
<sup>1</sup> Net of hedge fund fees and expenses but gross of Aksia's fees.

<sup>2</sup> The Policy Index is comprised of the following: April 2009 (this is when Absolute Return became a separate part of the Asset Allocation) - June 2011: 8% annualized return, July 2011 - June 2014: 7.5% annualized return, July 2014 - September 2019: 3m LIBOR plus 3.5%, October 2019 - Present: HFRI FOF Conservative Index plus 1%.

<sup>3</sup> The beta-adjustment calculation requires 36 months of data, therefore the first available date for beta-adjusted performance is October 2008. The referenced index used to calculate Beta-adjusted performance is the S&P 500 TR.

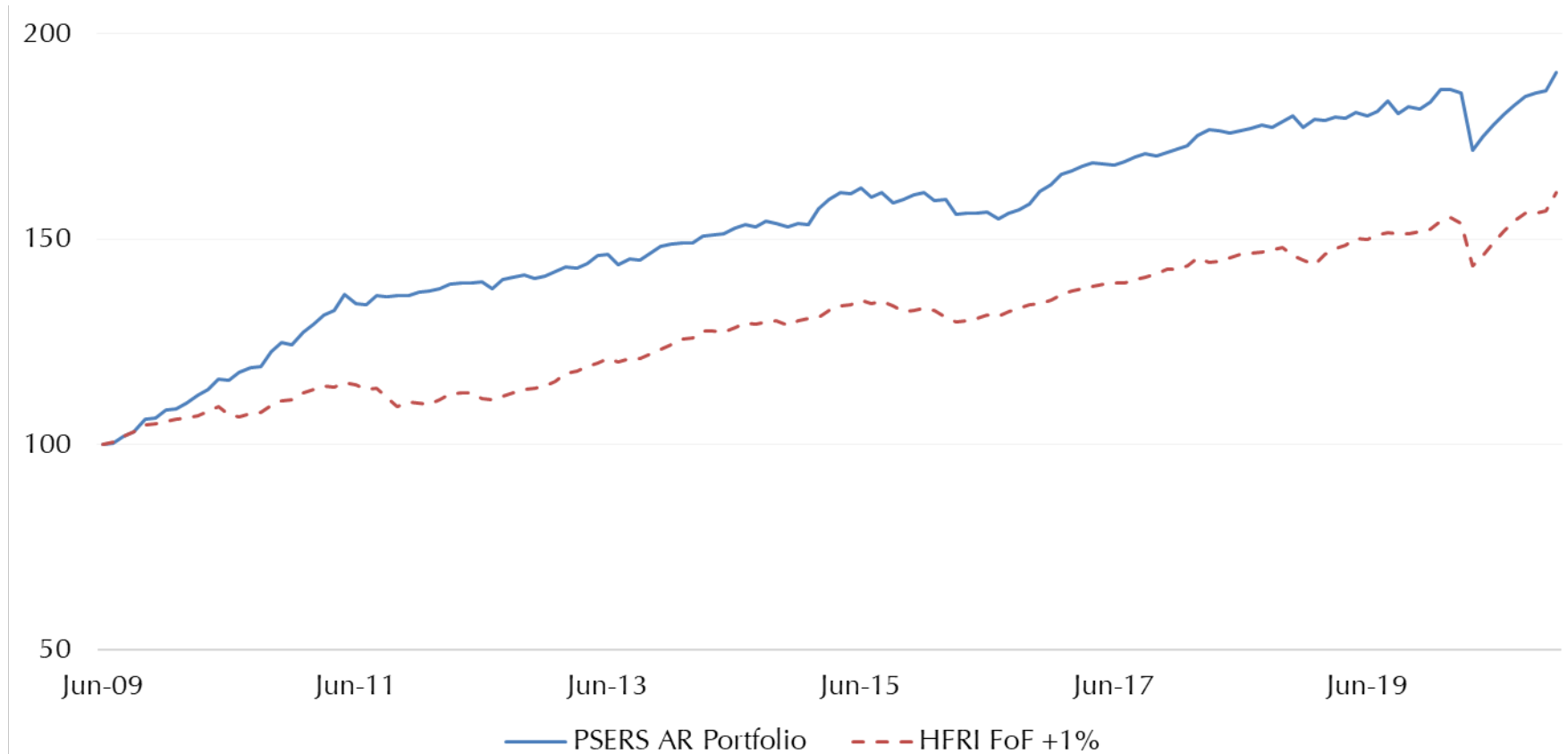
## APPENDIX – PORTFOLIO RETURNS VS HFRI FOF CONSERVATIVE + 1%

\$100 INVESTED OCTOBER 1, 2005 (INCEPTION DATE OF THE ABSOLUTE RETURN PROGRAM)



## APPENDIX – PORTFOLIO RETURNS VS HFRI FOF CONSERVATIVE + 1%

\$100 INVESTED JUNE 1, 2009 (END OF FINANCIAL CRISIS)



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