# **Dallas Police & Fire Pension System**

Quarterly Review As of September 30, 2018



MEKETA INVESTMENT GROUP

BOSTON MASSACHUSETTS CHICAGO Illinois Miami Florida Portland Oregon SAN DIEGO California

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# **DPFP 3Q18 Flash Summary**

Category	Result	Notes
Total Fund Performance Return	Positive	+1.6%
Performance vs. Index	Trailed	1.6% vs. 2.0% Policy Index
Asset Allocation vs. Targets	Additive	Overweight global equity helped. Underweight EMD and EM equity helped.
Safety Reserve Exposure	Sufficient	\$303 million (approximately 15%)
Performance vs. Peers	Trailed	85th percentile in peer group in 3Q18 <sup>1</sup>
Active Management	Hurt	PE, Natural Resources and Infrastructure
Compliance with Targets	No	Under private debt minimum

<sup>1</sup> InvestorForce Public DB \$1-\$5 billion net accounts.

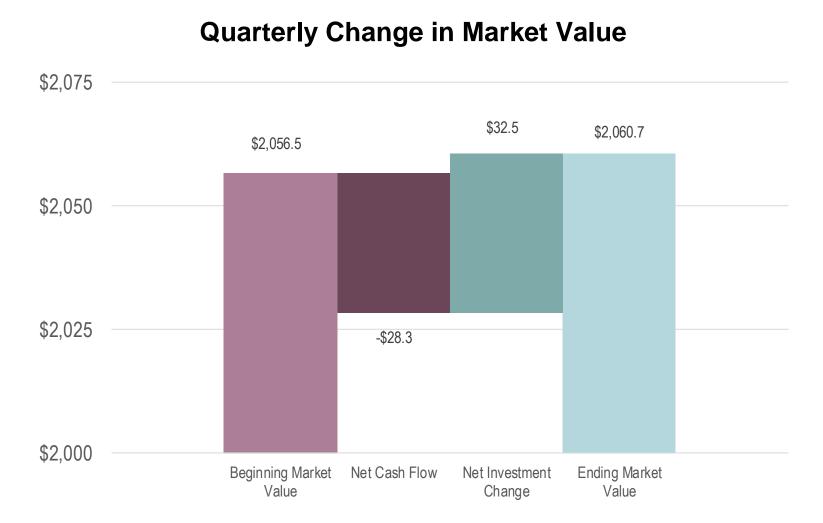
# DPFP Trailing One-Year Flash Summary

Category	Trailing 1 YR Result	1 YR Notes
Total Fund Performance Return	Positive	+3.3%
Asset Allocation vs. Targets	Additive	Underweight EMD helped
Performance vs. Index	Trailed	3.3% vs. 5.6% Policy Index
Performance vs. Peers	Trailed	99th percentile in peer group <sup>1</sup>
Active Management	Hurt	PE, NR and RE Negative Selection

## **DPFP Trailing Three-Year Flash Summary**

Category	Trailing 3 YR Result	3 YR Notes
<b>Total Fund Performance Return</b>	Positive	+1.9%
Performance vs. Index	Trailed	1.9% vs. 9.9% Policy Index
Performance vs. Peers	Trailed	99th percentile in peer group <sup>1</sup>
Active Management	Hurt	PE, NR and RE Negative Selection

<sup>&</sup>lt;sup>1</sup> InvestorForce Public DB \$1-\$5 billion net accounts.

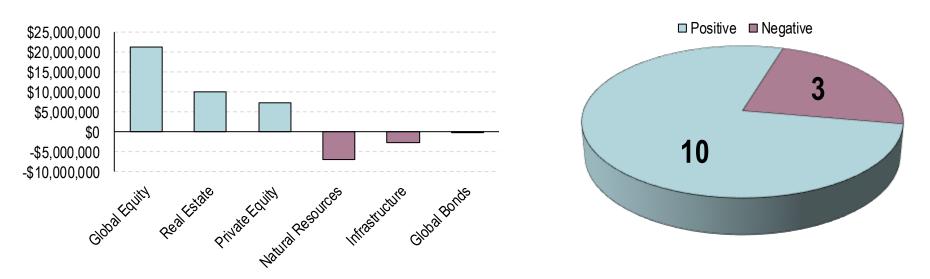


• Total market value increased due to positive investment performance.

## **Quarterly Absolute Performance**

#### Asset Classes Dollar<sup>1</sup> Gain/Loss Top Three and Bottom Three

#### **Asset Class Absolute Performance**

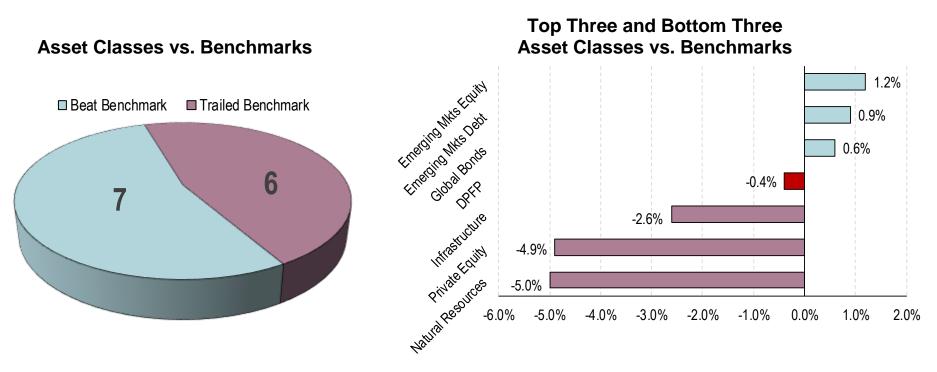


- In absolute terms, global equity appreciated the most during the quarter, adding over \$21.2 million in market value to DPFP.
- Natural Resources declined the most, and lost \$7.0 million in market value in the third quarter.
- In the quarter, ten out of thirteen asset classes generated positive absolute performance (approximately 77%).

Estimated gain calculated by multiplying beginning market value by quarterly performance.

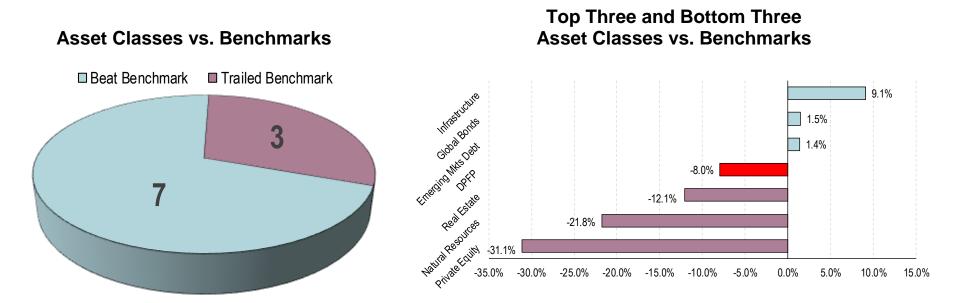


## **Quarterly Relative Performance**



- In the quarter, the best relative performance came from emerging market equities, emerging market debt, and global bonds.
- Natural resources, private equity, and infrastructure had the worst relative performance in the quarter.
- Seven of the thirteen asset classes (approximately 54%) delivered positive relative performance versus respective benchmarks.

## **Trailing Three-Year Relative Performance**

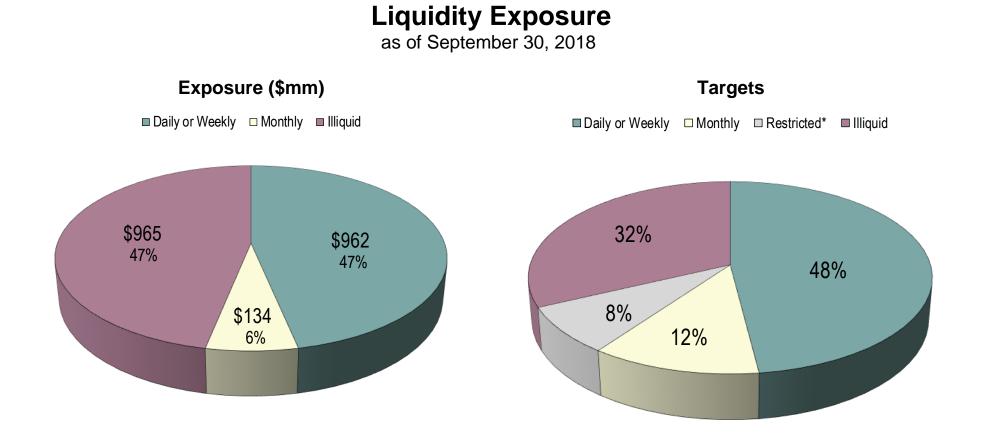


- Seven of the ten asset classes with trailing three-year return history have delivered positive relative performance versus respective benchmarks.
- Over the trailing three-year period, the best relative performance came from the infrastructure and global bonds asset classes.
- Private equity, natural resources, and real estate had the worst relative performance in the trailing period and have historically accounted for approximately 40-50% of DPFP's asset allocation.

# **Public Manager Alpha**

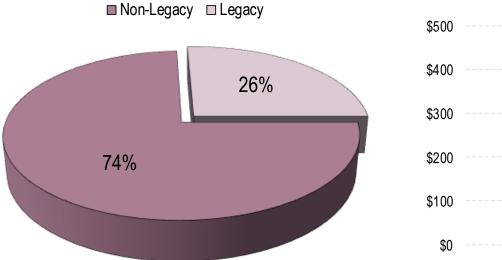


• 7 out of the 11 public markets managers matched or outperformed their respective benchmarks in the quarter.



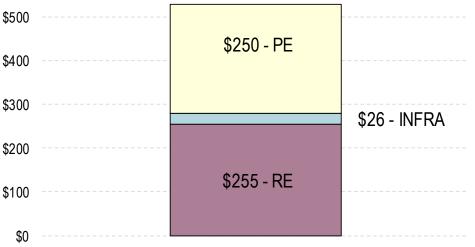
• Approximately 47% of the System's assets are illiquid versus 32% of the target allocation.

\*Assets can be redeemed between monthly and annual basis often with gating, lock-ups or notice of more than 30 days required.



# Legacy Assets

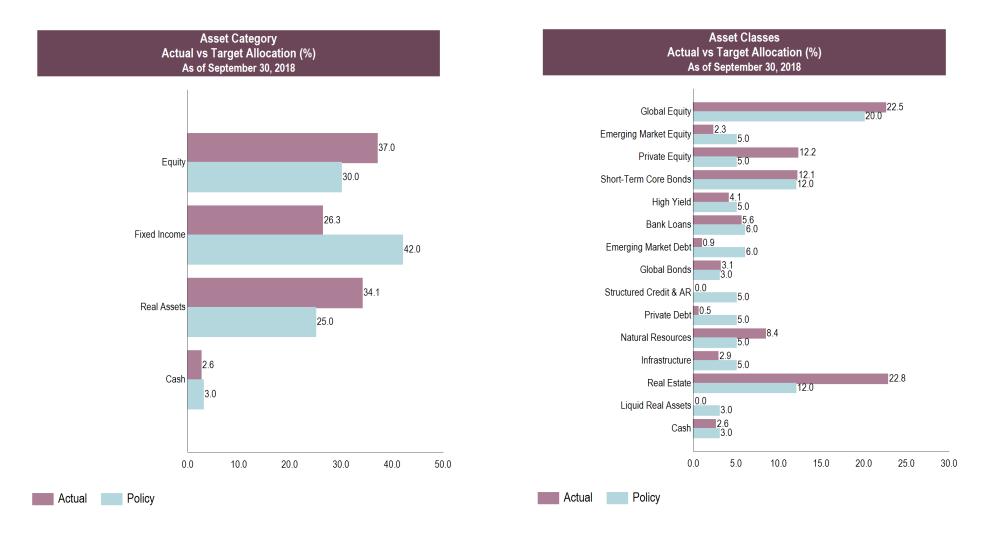
Exposure (\$ mm)



# \$531 million

Net Asset Value of Legacy Assets

# **3Q18 Review**

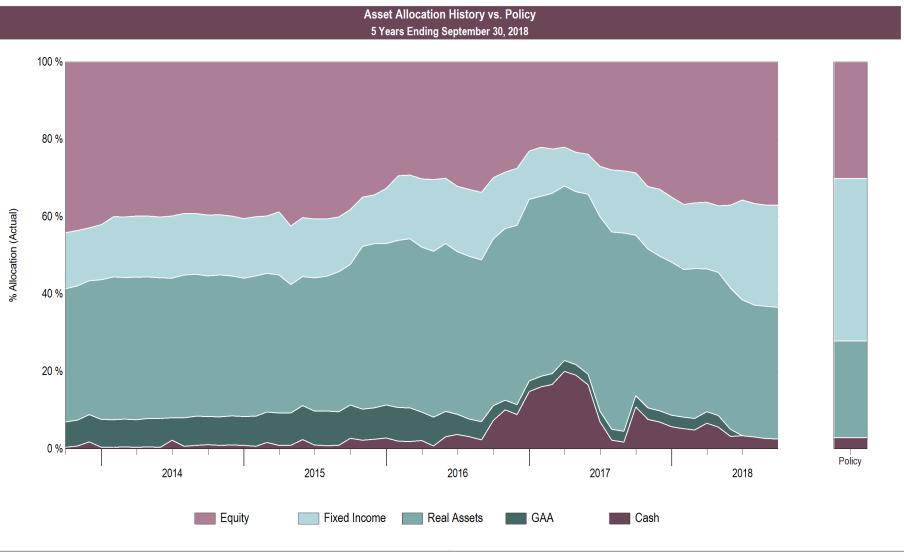


As of September 30, 2018

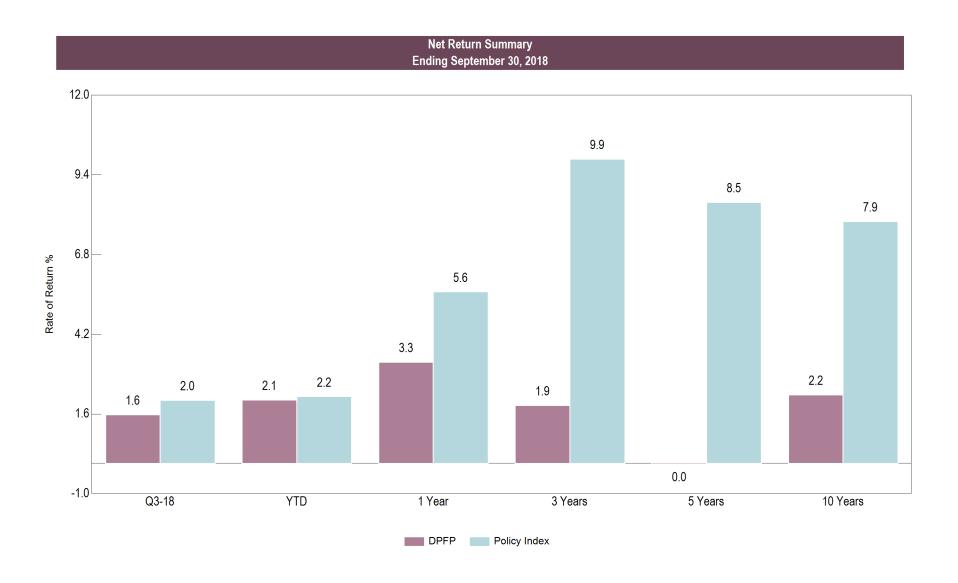
	Allocation vs. Targe	ts and Policy			
	Current Balance	Current Allocation	Policy	Policy Range	Within IPS Range?
Equity	\$762,739,353	37%	30%	20% - 40%	Yes
Global Equity	\$463,799,950	23%	20%	10% - 23%	Yes
Emerging Market Equity	\$46,782,723	2%	5%	0% - 8%	Yes
Private Equity	\$252,156,680	12%	5%	4% - 15%	Yes
Fixed Income	\$542,929,844	26%	42%	25% - 48%	Yes
Short-Term Core Bonds	\$249,845,653	12%	12%	10% - 15%	Yes
High Yield	\$84,127,820	4%	5%	2% - 8%	Yes
Bank Loans	\$114,559,243	6%	6%	3% - 9%	Yes
Emerging Market Debt	\$19,237,166	1%	6%	0% - 9%	Yes
Global Bonds	\$64,521,684	3%	3%	0% - 6%	Yes
Private Debt	\$10,638,279	1%	5%	2% - 7%	No
Structured Credit & AR			5%	0% - 9%	Yes
Real Assets	\$701,912,882	34%	25%	20% - 45%	Yes
Real Estate	\$468,980,285	23%	12%	10% - 25%	Yes
Natural Resources	\$173,674,047	8%	5%	3% - 10%	Yes
Infrastructure	\$59,258,551	3%	5%	3% - 10%	Yes
Liquid Real Assets	-		3%	0% - 6%	Yes
Cash	\$53,096,446	3%	3%	0% - 6%	Yes
Cash	\$53,096,446	3%	3%	0% - 6%	Yes
Total	\$2,060,678,525	100%	100%		

<sup>1</sup> Current allocation column may not add up 100% due to rounding. Policy targets temporarily add to 101% because the approval of the Safety Reserve resulted in a 11% increase to Short-Term Core Bonds and Cash, offset by only a 10% reduction in GAA. Due to performance reporting software limitations, Fixed Income and Structured Credit & AR are showing policy targets of 42% and 5%, respectively. Actual Policy Targets are equal to 43% and 6%, respectively. Policy ranges for cash, short term core bonds, and fixed income were modified slightly to accommodate the safety reserve implementation. As of 9/30/2018, the Safety Reserve exposure was approximately \$302.9 million (14.7%). New asset allocation targets and ranges were approved in October 2018 and will be reflected in the 4Q 2018 report.

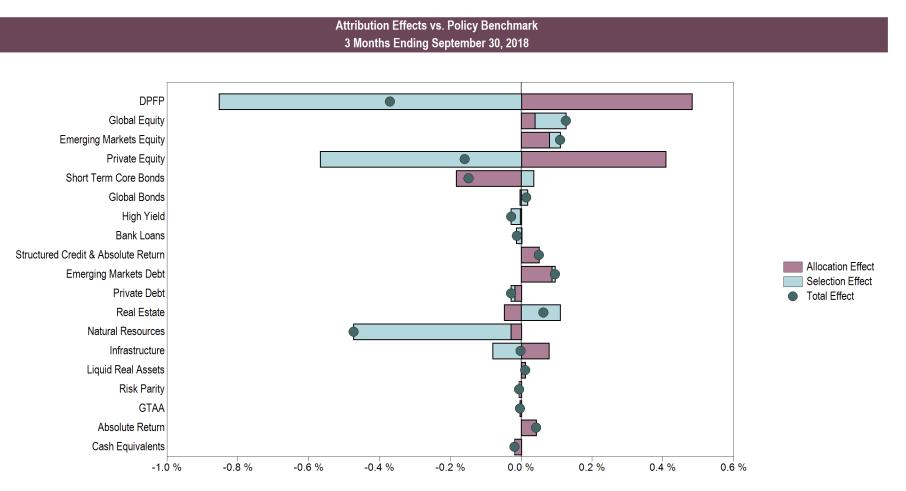
As of September 30, 2018



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As of September 30, 2018

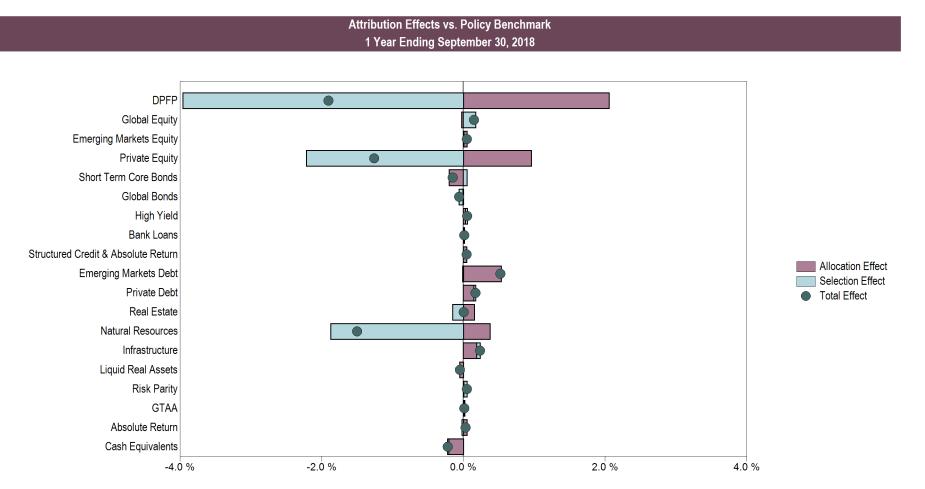


Attribution Summary										
3 Months Ending September 30, 2018										
	Wtd. Actual	Wtd. Index	Excess	Selection	Allocation	Total				
	Return	Return	Return	Effect	Effect	Effects				
Total	1.7%	2.1%	-0.4%	-0.9%	0.5%	-0.4%				

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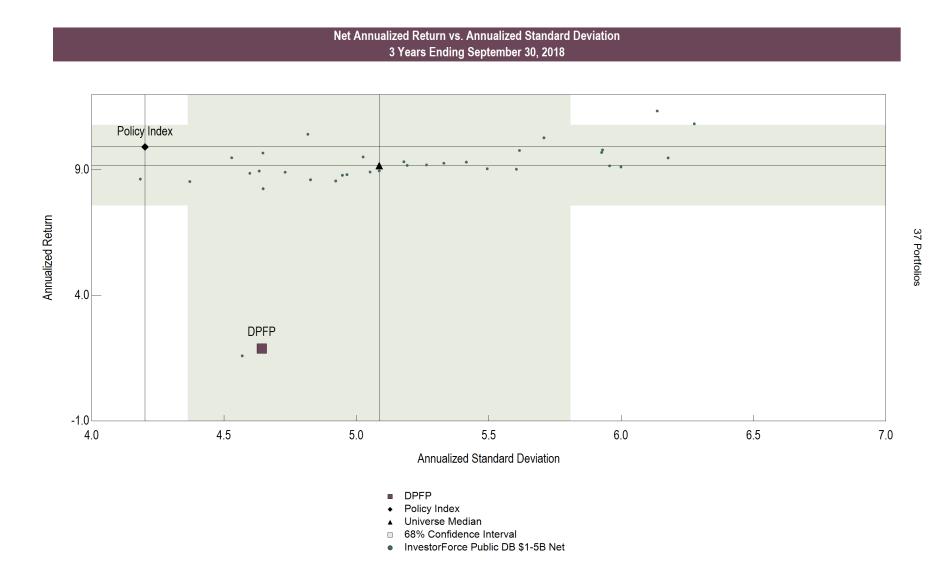
As of September 30, 2018

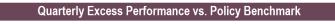


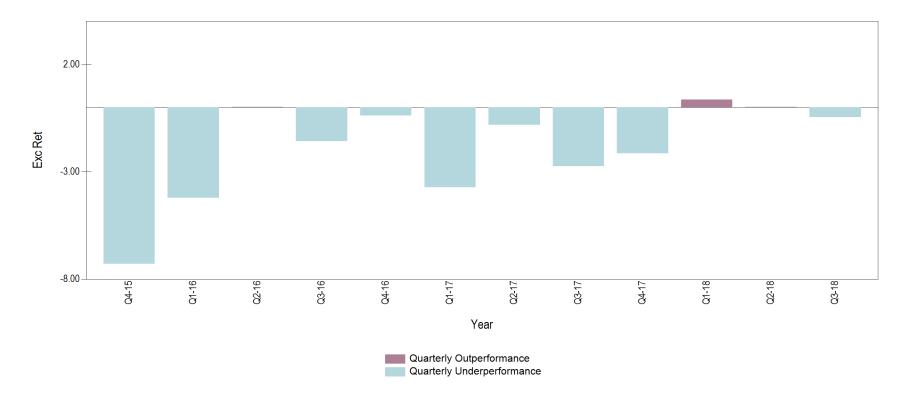
		Attribution Summa	ry								
1 Year Ending September 30, 2018											
	Wtd. Actual	Wtd. Index	Excess	Selection	Allocation	Total					
	Return	Return	Return	Effect	Effect	Effects					
Total	3.9%	5.7%	-1.9%	-3.9%	2.1%	-1.9%					

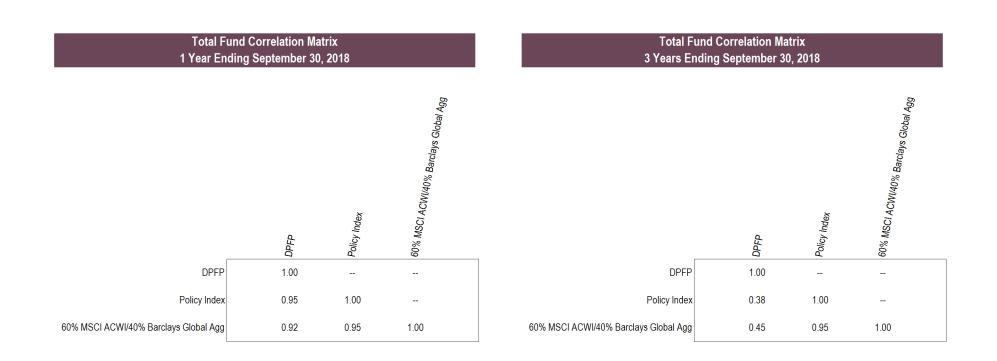


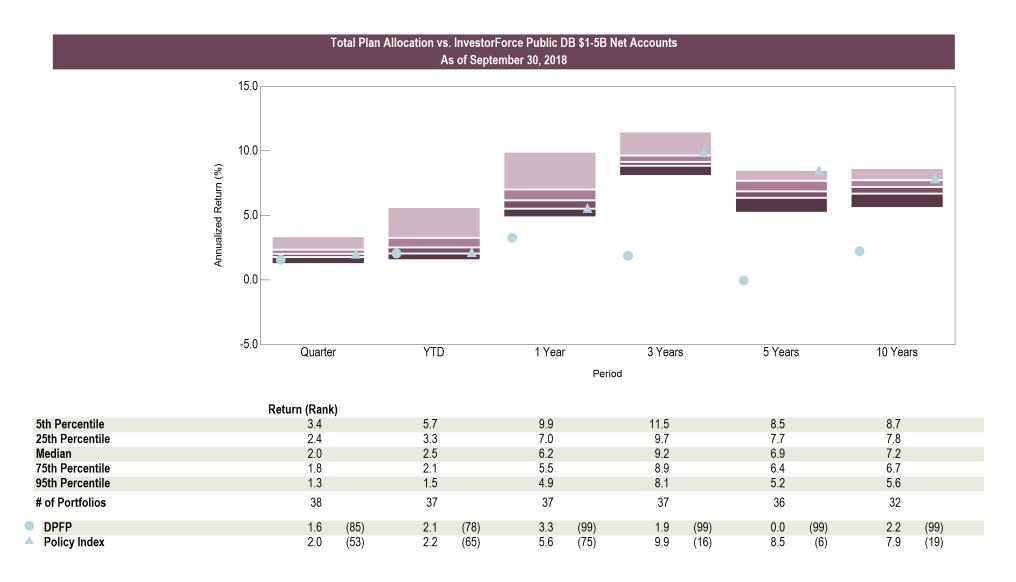
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### Dallas Police & Fire Pension System

As of September 30, 2018

Fund Watch List / Compliance As of September 30, 2018												
Name	Status	1 YR Return Above Benchmark	3 YR Return Above Benchmark	3 YR Sharpe Ratio Above Peers	3 YR Return Above Peers							
Global Equity												
Boston Partners Global Equity Fund	Hold	No	-									
Manulife Global Equity Strategy	Hold	No										
OFI Global Equity Strategy	Hold	Yes	Yes	Yes	No							
Walter Scott Global Equity Fund	Hold	Yes	Yes	No	Yes							
Emerging Markets Equity												
RBC Emerging Markets Equity Hold												
Short Term Core Bonds												
IR&M 1-3 Year Strategy	Hold	Yes										
Global Bonds	11010	100										
Brandywine Global Fixed Income	Hold	No	Yes	Yes	Yes							
High Yield												
Loomis Sayles High Yield Fund	Hold	Yes	Yes	Yes	Yes							
Bank Loans												
Loomis Sayles Senior Rate and Fixed Income	Hold	Yes	Yes	Yes	Yes							
Pacific Asset Management Corporate (Bank) Loan Strategy	Hold	No										
Emerging Markets Debt												
Ashmore EM Blended Debt	Hold											

1 YR Return Above Benchmark - 1 YR Return Above Benchmark

3 YR Return Above Benchmark - 3 YR Return Above Benchmark

3 YR Sharpe Ratio Above Peers - 3 YR Sharpe Ratio Above Peer Group Median

3 YR Return Above Peers - 3 YR Return Above Peer Group Median

As of September 30, 2018

	Asset Class Perfo	rmance Sur	nmary (N	et)						
	Market Value (\$)	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
DPFP	2,060,678,526	100.0	1.6	2.1	3.3	1.9	0.0	2.2	5.9	Jun-96
Policy Index			2.0	2.2	5.6	9.9	8.5	7.9		Jun-96
Allocation Index			2.5	4.2	7.0	10.1	8.7	7.0	7.4	Jun-96
Global Equity	463,799,950	22.5	4.8	5.2	11.2	14.5	9.8	8.9	6.7	Jul-06
Global Equity Weighted Index			4.4	4.3	10.3	14.4	9.0	8.6	6.6	Jul-06
Emerging Markets Equity	46,782,723	2.3	0.3	-7.2					-7.2	Jan-18
MSCI Emerging Markets Gross			-0.9	-7.4	-0.4	12.8	4.0	5.8	-7.4	Jan-18
Private Equity	252,156,680	12.2	3.0	0.1	0.8	-10.6	-11.3	-4.2	-0.6	Oct-05
Private Equity Custom Benchmark			7.9	13.0	21.1	20.5	16.8	15.3	12.4	Oct-05
Short Term Core Bonds	249,845,653	12.1	0.5	0.8	0.6				0.8	Jun-17
BBgBarc US Treasury 1-3 Yr TR			0.2	0.2	0.0	0.4	0.6	1.1	0.2	Jun-17
Global Bonds	64,521,684	3.1	-0.3	-2.7	-2.7	3.5	1.7	-	2.5	Dec-10
BBgBarc Global Aggregate TR			-0.9	-2.4	-1.3	2.0	0.7	2.9	1.5	Dec-10
High Yield	84,127,820	4.1	1.8	2.7	3.6	8.9	4.7		6.8	Dec-10
BBgBarc US High Yield TR			2.4	2.6	3.0	8.1	5.5	9.5	6.7	Dec-10
Bank Loans	114,559,243	5.6	1.6	3.8	5.4	5.8			4.4	Jan-14
S&P/LSTA Leveraged Loan			1.8	4.0	5.2	5.3			4.0	Jan-14
Emerging Markets Debt	19,237,166	0.9	1.1	-5.7	-5.6	7.2	2.6		3.1	Dec-10
50% JPM EMBI/50% JPM GBI-EM			0.2	-5.6	-4.6	5.8	1.6		2.6	Dec-10
Private Debt	10,638,279	0.5	0.8	8.2	7.6				-4.7	Jan-16
Barclays Global High Yield +2%			2.5	0.9	2.3	9.7			10.8	Jan-16
Real Estate	468,980,285	22.8	2.1	6.8	6.5	-4.3	-6.5	-4.7	3.8	Mar-85
NCREIF Property Index			1.7	5.3	7.2	7.8	9.6	6.4	8.0	Mar-85
Natural Resources	173,674,047	8.4	-3.8	-3.6	-5.7	-2.2	2.0		4.1	Dec-10
Natural Resources Benchmark (Linked)			1.2	4.6	13.5	19.6	16.3		13.4	Dec-10
Infrastructure	59,258,551	2.9	-4.2	-0.9	-1.0	17.1	10.6		9.4	Jul-12
S&P Global Infrastructure TR USD	,,		-1.6	-4.6	-2.8	8.0	6.1	6.1	7.7	Jul-12
Cash Equivalents	53,096,446	2.6	0.6	1.3	1.6	1.2			1.2	Apr-15
91 Day T-Bills			0.5	1.3	1.6	0.9	0.5	0.3	0.7	Apr-15

<sup>1</sup> Please see the Appendix for composition of the Custom Benchmarks. <sup>2</sup> As of 9/30/2018 the Safety Reserve exposure was approximately \$302.9 million (14.7%).<sup>3</sup> All private market data is preliminary until valuations are finalized.



	Tra	ailing Net P	erforman	се							
	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
DPFP	2,060,678,526	100.0		1.6	2.1	3.3	1.9	0.0	2.2	5.9	Jun-96
Policy Index				2.0	2.2	5.6	9.9	8.5	7.9		Jun-96
Allocation Index				2.5	4.2	7.0	10.1	8.7	7.0	7.4	Jun-96
InvestorForce Public DB \$1-5B Net Rank				85	78	99	99	99	99	80	Jun-96
Total Equity	762,739,353	37.0	37.0	3.9	2.9	6.9	1.4	2.1		4.5	Dec-10
Total Equity Policy Index				4.1	3.7	10.2					Dec-10
Public Equity	510,582,673	24.8	66.9	4.4	4.0	9.9	14.1	9.5	8.8	6.6	Jul-06
Public Equity Weighted Index				3.9	3.1	9.1	14.0	8.7	8.5	6.5	Jul-06
eV All Global Equity Net Rank				36	47	43	27	37	44	43	Jul-06
Global Equity	463,799,950	22.5	90.8	4.8	5.2	11.2	14.5	9.8	8.9	6.7	Jul-06
Global Equity Weighted Index				4.4	4.3	10.3	14.4	9.0	8.6	6.6	Jul-06
eV All Global Equity Net Rank				28	36	34	22	32	43	42	Jul-06
Boston Partners Global Equity Fund	111,313,268	5.4	24.0	4.5	2.2	8.5				9.9	Jul-17
MSCI ACWI Gross				4.4	4.3	10.3	14.0	9.2	8.8	12.8	Jul-17
eV Global Large Cap Value Eq Net Rank				29	46	21				34	Jul-17
Manulife Global Equity Strategy	116,567,584	5.7	25.1	5.3	1.6	5.6				6.2	Jul-17
MSCI ACWI Gross				4.4	4.3	10.3	14.0	9.2	8.8	12.8	Jul-17
eV Global Large Cap Value Eq Net Rank				18	57	60				81	Jul-17
OFI Global Equity Strategy	113,191,146	5.5	24.4	1.8	4.8	11.4	15.0	10.5	10.7	6.6	Oct-07
MSCI ACWI Gross				4.4	4.3	10.3	14.0	9.2	8.8	5.0	Oct-07
eV Global Large Cap Growth Eq Net Rank				75	78	76	57	68	40	52	Oct-07
Walter Scott Global Equity Fund	122,727,952	6.0	26.5	7.6	12.4	19.3	16.2	10.2		10.3	Dec-09
MSCI ACWI Gross				4.4	4.3	10.3	14.0	9.2	8.8	9.6	Dec-09
eV Global Large Cap Growth Eq Net Rank				3	11	15	46	71		78	Dec-09

As of September 30, 2018

	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Emerging Markets Equity	46,782,723	2.3	9.2	0.3	-7.2					-7.2	Jan-18
MSCI Emerging Markets Gross				-0.9	-7.4	-0.4	12.8	4.0	5.8	-7.4	Jan-18
eV Emg Mkts Equity Net Rank				18	21					21	Jan-18
RBC Emerging Markets Equity	46,782,723	2.3	100.0	0.3	-7.2					-7.2	Jan-18
MSCI Emerging Markets Gross				-0.9	-7.4	-0.4	12.8	4.0	5.8	-7.4	Jan-18
eV Emg Mkts Equity Net Rank				18	21					21	Jan-18
Private Equity	252,156,680	12.2	33.1	3.0	0.1	0.8	-10.6	-11.3	-4.2	-0.6	Oct-05
Private Equity Custom Benchmark				7.9	13.0	21.1	20.5	16.8	15.3	12.4	Oct-05
Total Fixed Income	542,929,845	26.3	26.3	0.8	1.2	1.9	4.4	2.8	6.3	5.4	Jul-06
Total Fixed Income Policy Index				1.2	0.2	1.3	6.0				Jul-06
eV All Global Fixed Inc Net Rank				41	20	22	37	49	26	33	Jul-06
Public Fixed Income	532,291,566	25.8	98.0	0.8	1.2	1.9	6.9	3.7	-	5.4	Dec-10
Public Fixed Income Weighted Index				0.7	0.3	1.1	5.8	3.9		4.9	Dec-10
Short Term Core Bonds	249,845,653	12.1	46.9	0.5	0.8	0.6				0.8	Jun-17
BBgBarc US Treasury 1-3 Yr TR				0.2	0.2	0.0	0.4	0.6	1.1	0.2	Jun-17
IR&M 1-3 Year Strategy	249,845,653	12.1	100.0	0.5	0.8	0.6				0.8	Jul-17
BBgBarc US Treasury 1-3 Yr TR				0.2	0.2	0.0	0.4	0.6	1.1	0.2	Jul-17
eV US Short Duration Fixed Inc Net Rank				41	28	39				47	Jul-17
Global Bonds	64,521,684	3.1	12.1	-0.3	-2.7	<b>-2</b> .7	3.5	1.7		2.5	Dec-10
BBgBarc Global Aggregate TR				-0.9	-2.4	-1.3	2.0	0.7	2.9	1.5	Dec-10
eV All Global Fixed Inc Net Rank				70	75	83	54	67		65	Dec-10
Brandywine Global Fixed Income	64,521,684	3.1	100.0	-0.3	-2.7	-2.7	3.9	1.8	5.3	4.6	Oct-04
BBgBarc Global Aggregate TR				-0.9	-2.4	-1.3	2.0	0.7	2.9	3.3	Oct-04
eV All Global Fixed Inc Net Rank				70	75	83	46	67	42	48	Oct-04

<sup>1</sup> Please note, private market data is preliminary until valuations are finalized.

As of September 30, 2018

	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
High Yield	84,127,820	4.1	15.8	1.8	2.7	3.6	8.9	4.7		6.8	Dec-10
BBgBarc US High Yield TR				2.4	2.6	3.0	8.1	5.5	9.5	6.7	Dec-10
eV US High Yield Fixed Inc Net Rank				82	24	20	7	55		18	Dec-10
Loomis Sayles High Yield Fund	84,127,820	4.1	100.0	1.8	2.7	3.6	9.2	5.6	10.1	9.6	Oct-98
BBgBarc US High Yield TR				2.4	2.6	3.0	8.1	5.5	9.5	6.9	Oct-98
eV US High Yield Fixed Inc Net Rank				82	24	20	6	19	3	1	Oct-98
Bank Loans	114,559,243	5.6	21.5	1.6	3.8	5.4	5.8			4.4	Jan-14
S&P/LSTA Leveraged Loan	,,			1.8	4.0	5.2	5.3			4.0	Jan-14
eV US Float-Rate Bank Loan Fixed Inc Net Rank				75	30	18	17			17	Jan-14
Loomis Sayles Senior Rate and Fixed Income	61,548,678	3.0	53.7	1.4	3.8	5.4	5.8			4.4	Jan-14
S&P/LSTA Leveraged Loan				1.8	4.0	5.2	5.3			4.0	Jan-14
eV US Float-Rate Bank Loan Fixed Inc Net Rank				97	37	17	17			17	Jan-14
Pacific Asset Management Corporate (Bank) Loan Strategy	53,010,565	2.6	46.3	1.9	3.9	5.3				5.0	Aug-17
Credit Suisse Leveraged Loan				1.9	4.4	5.6	5.4			5.0	Aug-17
eV US Float-Rate Bank Loan Fixed Inc Net Rank				27	25	20				12	Aug-17
Emerging Markets Debt	19,237,166	0.9	3.6	1.1	-5.7	-5.6	7.2	2.6		3.1	Dec-10
50% JPM EMBI/50% JPM GBI-EM				0.2	-5.6	-4.6	5.8	1.6		2.6	Dec-10
eV All Emg Mkts Fixed Inc Net Rank				48	57	65	17	56		56	Dec-10
Ashmore EM Blended Debt	19,237,166	0.9	100.0	1.1	-5.7					-4.1	Dec-17
Ashmore Blended Debt Benchmark				0.4	-4.6	-3.4	5.2	2.0		-3.6	Dec-17
eV All Emg Mkts Fixed Inc Net Rank				48	57					46	Dec-17
Private Debt	10,638,279	0.5	2.0	0.8	8.2	7.6				-4.7	Jan-16
Barclays Global High Yield +2%				2.5	0.9	2.3	9.7			10.8	Jan-16

<sup>1</sup> Please note, private market data is preliminary until valuations are finalized.

As of September 30, 2018

	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Real Assets	701,912,883	34.1	34.1	0.1	0.6	1.4	-0.2	-3.0		-2.3	Dec-10
Total Real Assets Policy Index				0.9	3.2	6.5					Dec-10
Real Estate	468,980,285	22.8	66.8	2.1	6.8	6.5	-4.3	-6.5	-4.7	3.8	Mar-85
NCREIF Property Index				1.7	5.3	7.2	7.8	9.6	6.4	8.0	Mar-85
Natural Resources	173,674,047	8.4	24.7	-3.8	-3.6	-5.7	-2.2	2.0		4.1	Dec-10
Natural Resources Benchmark (Linked)				1.2	4.6	13.5	19.6	16.3		13.4	Dec-10
Infrastructure	59,258,551	2.9	8.4	-4.2	-0.9	-1.0	17.1	10.6		9.4	Jul-12
S&P Global Infrastructure TR USD				-1.6	-4.6	-2.8	8.0	6.1	6.1	7.7	Jul-12
Cash Equivalents	53,096,446	2.6	2.6	0.6	1.3	1.6	1.2			1.2	Apr-15
91 Day T-Bills				0.5	1.3	1.6	0.9	0.5	0.3	0.7	Apr-15

<sup>1</sup> Please note, private market data is preliminary until valuations are finalized.

Statistics Summary 5 Years Ending September 30, 2018							
DPFP	0.0%	5.8%	-1.5	0.6	-0.1	5.6%	
Policy Index	8.5%	3.9%		1.0	2.1	0.0%	
Public Equity	9.5%	9.8%	0.5	1.0	0.9	1.8%	
Public Equity Weighted Index	8.7%	9.9%		1.0	0.8	0.0%	
Global Equity	9.8%	9.8%	0.5	1.0	0.9	1.8%	
Global Equity Weighted Index	9.0%	9.9%		1.0	0.9	0.0%	
Private Equity	-10.5%	19.1%	-1.3	0.0	-0.6	21.3%	
Private Equity Custom Benchmark	16.8%	9.7%		1.0	1.7	0.0%	
Public Fixed Income	3.7%	4.8%	-0.1	1.1	0.7	1.5%	
Public Fixed Income Weighted Index	3.9%	4.2%		1.0	0.8	0.0%	
Global Bonds	1.7%	6.1%	0.3	1.1	0.2	3.7%	
BBgBarc Global Aggregate TR	0.7%	4.4%		1.0	0.1	0.0%	
High Yield	4.7%	6.2%	-0.4	1.2	0.7	2.3%	
BBgBarc US High Yield TR	5.5%	5.0%		1.0	1.0	0.0%	
Emerging Markets Debt	2.6%	8.3%	0.4	1.0	0.2	2.1%	
50% JPM EMBI/50% JPM GBI-EM	1.6%	8.1%		1.0	0.1	0.0%	
Real Estate	-6.9%	13.7%	-1.0	-1.4	-0.5	15.7%	
NCREIF Property Index	9.6%	4.0%		1.0	2.3	0.0%	
Natural Resources	2.0%	4.8%	-1.2	0.1	0.3	11.8%	
Natural Resources Benchmark (Linked)	16.3%	11.5%		1.0	1.4	0.0%	
Infrastructure	10.7%	29.2%	0.1	0.0	0.3	30.9%	
S&P Global Infrastructure TR USD	6.1%	9.9%		1.0	0.6	0.0%	

		Benchmark History As of September 30, 2018
DPFP		
4/1/2016	Present	20% MSCI ACWI Gross / 5% MSCI Emerging Markets Gross / 5% Private Equity Custom Benchmark / 2% BBgBarc US Treasury 1-3 Yr TR / 3% BBgBarc Global Aggregate TR / 5% BBgBarc Global High Yield TR / 6% S&P/LSTA Leveraged Loan / 6% HFRI RV: FI (50/50-ABS/Corp) / 6% 50% JPM EMBI/50% JPM GBI-EM / 5% Barclays Global High Yield +2% / 5% 60% MSCI ACWI/40% Barclays Global Agg / 3% 60% MSCI ACWI/40% Barclays Global Agg / 2% HFRX Absolute Return Index / 5% Natural Resources Benchmark (Linked) / 5% S&P Global Infrastructure TR USD / 12% NCREIF Property Index / 3% CPI + 5% (Seasonally Adjusted) / 2% 91 Day T-Bills
4/1/2014	3/31/2016	15% MSCI ACWI / 15% S&P 500 + 2% / 10% Total Global Natural Resources Custom Benchmark / 15% BBgBarc Global Aggregate TR / 20% CPI + 5% (Seasonally Adjusted) / 10% CPI + 5% (Seasonally Adjusted) / 15% NCREIF Property Index
1/1/2014	3/31/2014	15% MSCI ACWI / 15% Private Markets / 10% Total Global Natural Resources Custom Benchmark / 15% BBgBarc Global Aggregate TR / 20% CPI + 5% (Seasonally Adjusted) / 10% Infrastructure / 15% Real Estate
Total Equity		
1/1/2016	Present	66.67% MSCI ACWI Gross / 16.67% MSCI Emerging Markets Gross / 16.66% Private Equity Custom Benchmark
Public Equity		
2/1/2018	Present	Weighted Average of MSCI ACWI Gross / MSCI Emerging Markets
1/1/2018	1/31/2018	Weighted Average of MSCI ACWI Gross / MSCI Emerging Markets / FTSE EPRA/NAREIT Linked 91 Day Tbill
12/1/2017	12/31/2017	Weighted Average of MSCI ACWI Gross / FTSE EPRA/NAREIT Linked 91 Day Tbill
7/1/2006	11/30/2017	100% Global Equity Weighted Index
Global Equity		
2/1/2018	Present	MSCI ACWI Gross
1/1/2018	1/31/2018	Weighted Average of MSCI ACWI Gross / FTSE EPRA/NAREIT Global
12/1/2017	12/31/2017	Weighted Average of MSCI ACWI Gross / FTSE EPRA/NAREIT Linked 91 Day Tbill
8/1/2017	11/30/2017	Weighted Average of MSCI ACWI Gross / FTSE EPRA/NAREIT Linked 91 Day Tbill / MSCI ACWI Gross Linked 91 Day TBill
7/1/2017	7/31/2017	Weighted Average of MSCI ACWI Gross / FTSE EPRA/NAREIT Linked 91 Day Tbill / MSCI ACWI Gross Linked 91 Day TBill
5/1/2017	6/30/2017	Weighted Average of MSCI ACWI Gross / FTSE EPRA/NAREIT Linked 91 Day Tbill / MSCI ACWI Gross Linked 91 Day TBill / MSCI ACWI Gross
4/1/2017	4/30/2017	Weighted Average of MSCI ACWI Gross / FTSE EPRA/NAREIT Linked 91 Day Tbill / MSCI ACWI Gross Linked 91 Day TBill / MSCI ACWI Gross / Russell 2000
12/1/2016	3/31/2017	Weighted Average of MSCI ACWI Gross / FTSE EPRA/NAREIT Linked 91 Day Tbill / MSCI ACWI Gross Linked 91 Day TBill / MSCI ACWI Gross / Russell 2000 / Dow Jones Equal Wtd. Oil & Gas
11/1/2016	11/30/2016	Weighted Average of Russell 2000 / MSCI ACWI Gross Linked 91 Day TBill / MSCI ACWI Gross / FTSE EPRA/NAREIT Linked 91 Day Tbill / Dow Jones Equal Wtd. Oil & Gas / MSCI ACWI Gross
9/1/2016	10/31/2016	Weighted Average of Russell 2000 / MSCI ACWI Gross Linked 91 Day TBill / MSCI ACWI Gross / FTSE EPRA/NAREIT Global / Dow Jones Equal Wtd. Oil & Gas / MSCI ACWI Gross



Private Equity		
10/1/2005	Present	Russell 3000+3%
Total Fixed Income		
1/1/2016	Present	6.07% BBgBarc US Treasury 1-3 Yr TR / 9.09% BBgBarc Global Aggregate TR / 15.15% BBgBarc Global High Yield TR / 18.18% S&P/LSTA Leveraged Loan / 18.18% HFRI RV: FI (50/50-ABS/Corp) / 18.18% 50% JPM EMBI/50% JPM GBI-EM / 15.15% Barclays Global High Yield +2%
Public Fixed Income		
5/1/2018	Present	Weighted Average of BBgBarc US Treasury 1-3 Yr TR / BBgBarc Global Aggregate TR / BBgBarc Global High Yield TR / S&P/LSTA Leveraged Loan / Credit Suisse
12/1/2017	4/30/2018	Weighted Average of BBgBarc US Treasury 1-3 Yr TR / BBgBarc Global Aggregate TR / BBgBarc Global High Yield TR / S&P/LSTA Leveraged Loan / Credit Suisse Leveraged Loan / Ashmore Blended Debt Benchmark / JP Morgan GBI EM Global Diversified TR USD
10/1/2017	11/30/2017	Weighted Average of BBgBarc US Treasury 1-3 Yr TR / BBgBarc Global Aggregate TR / BBgBarc Global High Yield TR / S&P/LSTA Leveraged Loan / Credit Suisse Leveraged Loan / JP Morgan GBI EM Global Diversified TR USD
9/1/2017	9/30/2017	Weighted Average of BBgBarc US Treasury 1-3 Yr TR / BBgBarc Global Aggregate TR / BBgBarc Global High Yield TR / S&P/LSTA Leveraged Loan / JP Morgan GBI EM Global Diversified TR USD / Credit Suisse Leveraged Loan
7/1/2017	8/31/2017	Weighted Average of BBgBarc US Treasury 1-3 Yr TR / BBgBarc Global Aggregate TR / BBgBarc Global High Yield TR / S&P/LSTA Leveraged Loan / JP Morgan GBI EM Global Diversified TR USD
4/1/2017	6/30/2017	Weighted Average of BBgBarc Global Aggregate TR / BBgBarc Global High Yield TR / S&P/LSTA Leveraged Loan / JP Morgan GBI EM Global Diversified TR USD / JP Morgan EMBI Global Diversified Diversified TR USD / JP Morgan EMBI Global Diversified Diversified TR USD / JP Morgan EMBI Global Diversified Diversified TR USD / JP Morgan EMBI Global Diversified Diversified TR USD / JP Morgan EMBI Global Diversified Diversified TR USD / JP Morgan EMBI Global Diversified Diversified TR USD / JP Morgan EMBI Global Diversified Diversified TR USD / JP Morgan EMBI Global Diversified Diversified TR USD / JP Morgan EMBI Global Diversified Diversified TR USD / JP Morgan EMBI Global Diversified TR USD / JP Morgan EMBI Global Diversified Diversified TR USD / JP Morgan EMBI Global Diversified TR USD / JP Morgan EMBI Global Diversified Diversified TR USD / JP Morgan EMBI Global
Ashmore EM Blende	ed Debt	
12/1/2017	Present	50% JP Morgan EMBI Global Diversified / 25% JPM ELMI+ TR USD / 25% JP Morgan GBI EM Global Diversified TR USD
Total Real Assets		
1/1/2016	Present	20% Natural Resources Benchmark (Linked) / 20% S&P Global Infrastructure TR USD / 48% NCREIF Property Index / 12% CPI + 5% (Seasonally Adjusted)
Natural Resources		
1/1/2016	Present	S&P Global Natural Resources Net USD
12/31/2010	12/31/2015	Total Global Natural Resources Custom Benchmark

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