

# Plymouth County Retirement Association

December 15, 2020

Meeting Materials

## Agenda

1. Estimated Retirement Association Performance As of November 30, 2020
2. Performance Update As of October 31, 2020
3. Current Issues
  - International Growth Manager Finalist Review
  - Active Passive Discussion
4. Appendix
  - Disclaimer, Glossary, and Notes

**Estimated Retirement Association Performance  
As of November 30, 2020**

### Estimated Aggregate Performance<sup>1</sup>

	November <sup>2</sup> (%)	QTD (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
Total Retirement Association	7.3	7.2	6.9	10.1	5.7	7.3	7.6
Policy Benchmark	6.8	5.8	8.0	10.6	7.3	8.4	8.2

### Benchmark Returns

	November (%)	QTD (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
Russell 3000	12.2	9.7	15.7	19.0	13.2	14.0	14.0
MSCI EAFE	15.5	10.9	3.0	6.4	3.3	6.2	5.9
MSCI Emerging Markets	9.3	11.5	10.2	18.4	4.9	10.7	3.6
Barclays Aggregate	1.0	0.5	7.4	7.3	5.5	4.3	3.7
Barclays TIPS	1.1	0.5	9.7	10.2	5.8	4.7	3.5
Barclays High Yield	4.0	4.5	5.1	7.2	5.7	7.6	6.8
JPM GBI-EM Global Diversified (Local Currency)	5.5	5.9	-0.8	3.3	2.5	5.5	1.5
S&P Global Natural Resources	17.6	13.7	-6.1	-0.5	0.6	8.2	1.0

### Estimated Total Assets

	Estimate
Total Retirement Association	\$1,158,780,947

<sup>1</sup> The November performance estimates are calculated using index returns as of November 30, 2020 for each asset class. No performance estimate was included for private equity, real estate, infrastructure, and private natural resources asset classes.

<sup>2</sup> As of November 30, 2020.

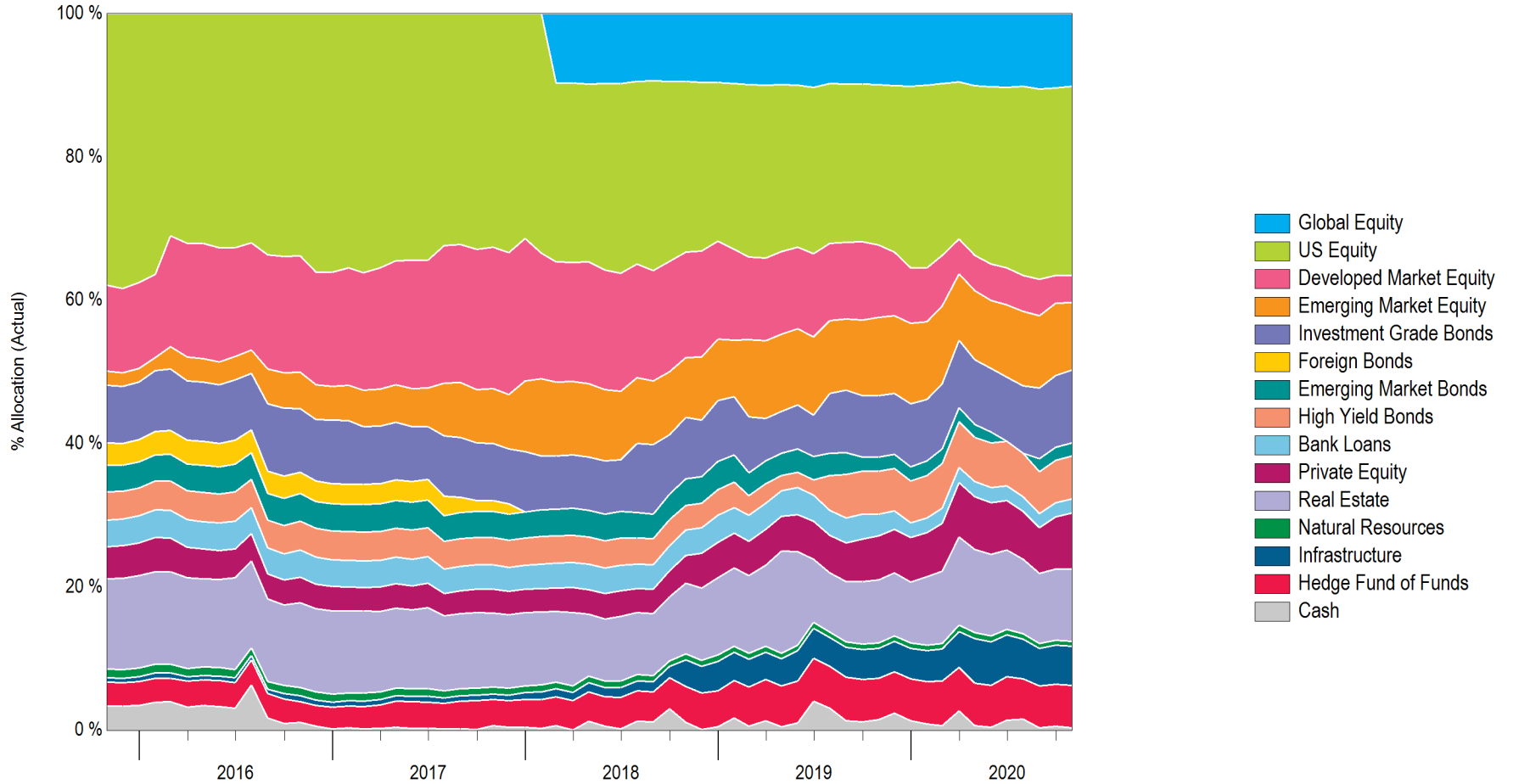
**Performance Update  
As of October 31, 2020**

DRAFT

	Allocation vs. Target				
	Current Balance	Current Allocation	Policy	Policy Range	Within IPS Range?
Domestic Equity	\$287,474,090	26%	26%	21% - 36%	Yes
International Developed Market Equity	\$41,116,895	4%	6%	1% - 16%	Yes
International Emerging Market Equity	\$102,433,298	9%	10%	5% - 20%	Yes
Global Equity	\$110,934,974	10%	10%	5% - 20%	Yes
Core Bonds	\$110,197,224	10%	9%	4% - 14%	Yes
Value-Added Fixed Income	\$107,146,792	10%	6%	2% - 12%	Yes
Private Equity	\$84,565,586	8%	13%	4% - 18%	Yes
Real Estate	\$110,277,190	10%	10%	5% - 15%	Yes
Real Assets	\$66,865,264	6%	6%	2% - 10%	Yes
Hedge Fund of Funds	\$64,604,337	6%	4%	2% - 8%	Yes
Cash	\$3,672,824	0%	0%	0% - 3%	Yes
<b>Total</b>	<b>\$1,089,288,475</b>	<b>100%</b>	<b>100%</b>		

	Current Balance	Current Allocation	Policy	Policy Range	Within IPS Range?
Total Equity	\$684,729,236	63%	69%	60% - 80%	Yes
Total Fixed Income	\$217,344,016	20%	15%	5% - 25%	Yes
Total Real Assets and Real Estate	\$183,542,398	17%	16%	13% - 19%	Yes
Cash	\$3,672,824	0%	0%	0% - 3%	Yes

Asset Allocation History  
5 Years Ending October 31, 2020



#### Asset Class Net Performance Summary

	Market Value (\$)	% of Portfolio	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Total Retirement Association</b>	<b>1,089,288,475</b>	<b>100.0</b>	<b>-0.1</b>	<b>-0.4</b>	<b>4.1</b>	<b>3.7</b>	<b>6.1</b>	<b>6.9</b>	<b>7.6</b>	<b>Nov-89</b>
<i>Custom Benchmark - Policy Benchmark (Net) (1)</i>			-1.0	1.2	4.8	5.3	6.9	7.4	--	Nov-89
<b>Domestic Equity Assets</b>	<b>287,474,090</b>	<b>26.4</b>	<b>0.0</b>	<b>4.0</b>	<b>12.2</b>	<b>9.4</b>	--	--	<b>12.2</b>	<b>Jan-16</b>
<i>Russell 3000</i>			-2.2	3.1	10.1	10.0	11.5	12.8	12.3	Jan-16
<b>International Developed Market Equity Assets</b>	<b>41,116,895</b>	<b>3.8</b>	<b>-3.4</b>	<b>-14.3</b>	<b>-9.9</b>	<b>-4.4</b>	--	--	<b>2.1</b>	<b>Jan-16</b>
<i>MSCI EAFE</i>			-4.0	-10.8	-6.9	-1.2	2.8	3.8	3.6	Jan-16
<b>International Emerging Market Equity Assets</b>	<b>102,433,298</b>	<b>9.4</b>	<b>3.1</b>	<b>3.3</b>	<b>10.0</b>	<b>1.7</b>	--	--	<b>8.6</b>	<b>Jan-16</b>
<i>MSCI Emerging Markets</i>			2.1	0.9	8.3	1.9	7.9	2.4	9.6	Jan-16
<b>Global Equity Assets</b>	<b>110,934,974</b>	<b>10.2</b>	<b>-2.7</b>	<b>-3.6</b>	<b>1.6</b>	--	--	--	<b>1.6</b>	<b>Feb-18</b>
<i>MSCI ACWI</i>			-2.4	-1.1	4.9	5.5	8.1	7.9	2.6	Feb-18
<b>Core Fixed Income</b>	<b>110,197,224</b>	<b>10.1</b>	<b>-0.2</b>	<b>4.7</b>	<b>5.0</b>	<b>4.4</b>	--	--	<b>4.1</b>	<b>Jan-16</b>
<i>75% Bbg Barclays Aggregate/25% Bbg Barclays US TIPs 1-10 year</i>			-0.4	6.3	6.4	4.9	4.0	3.3	4.2	Jan-16
<b>Value Added Fixed Income</b>	<b>107,146,792</b>	<b>9.8</b>	<b>0.5</b>	<b>0.1</b>	<b>2.2</b>	<b>3.3</b>	--	--	<b>5.9</b>	<b>Jan-16</b>
<i>Custom Benchmark (2)</i>			0.2	1.5	3.0	4.0	--	--	6.4	Jan-16
<b>Hedge Funds</b>	<b>64,604,337</b>	<b>5.9</b>	<b>0.1</b>	<b>-9.7</b>	<b>-4.9</b>	<b>-0.9</b>	<b>1.8</b>	<b>3.3</b>	<b>3.5</b>	<b>Feb-10</b>
<i>Custom Benchmark</i>			0.2	2.8	5.7	2.8	3.1	2.9	3.0	Feb-10
<b>Real Estate (3)</b>	<b>110,277,190</b>	<b>10.1</b>	<b>0.1</b>	<b>-0.5</b>	<b>1.7</b>	<b>5.1</b>	--	--	<b>4.8</b>	<b>Jan-16</b>
<i>80% NCREIF ODCE / 20% Wilshire REIT</i>			-0.5	-4.1	-3.6	3.7	--	--	4.7	Jan-16
<b>Private Equity (4)</b>	<b>84,565,586</b>	<b>7.8</b>	<b>0.0</b>	<b>7.0</b>	<b>10.2</b>	<b>8.0</b>	--	--	<b>6.0</b>	<b>Jan-16</b>
<i>Cambridge Associates FoF Composite 1Q Lagged</i>			0.0	3.3	3.9	9.8	8.7	11.4	8.9	Jan-16
<b>Real Assets (5)</b>	<b>66,865,264</b>	<b>6.1</b>	<b>-0.2</b>	<b>-1.9</b>	<b>0.5</b>	<b>1.0</b>	--	--	<b>-0.8</b>	<b>Jan-16</b>
<i>CPI + 3%</i>			0.3	3.2	4.2	4.8	4.8	4.7	4.9	Jan-16
<b>Cash and Cash Equivalent</b>	<b>3,672,824</b>	<b>0.3</b>								

(1) The custom benchmark is comprised of 26% Russell 3000/ 6% MSCI EAFE/ 10% MSCI Emerging Markets/ 13% Cambridge Associates FOF 1Q Lag/ 10% MSCI ACWI/ 4% Hedge Funds Custom Benchmark/ 9% (75/25 Barclays Aggregate and Barclays Tips 1-10yr)/ 6% Value Added FI Custom Benchmark/ 10% (80/20 NCREIF ODCE and Wilshire REIT)/ 6% CPI+3%

(2) The custom benchmark is comprised of 25% BBgBarc US High Yield/ 25% Credit Suisse Leveraged Loans/ 25% JP Morgan EMBI Global diversified/ 25% BBgBarc Multiverse TR

(3) The market value and performance is one quarter lagged.

(4) The market value and performance is one quarter lagged.

(5) The market value and performance is one quarter lagged.



Trailing Net Performance											
	Market Value (\$)	% of Portfolio	% of Sector	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Total Retirement Association</b>	<b>1,089,288,475</b>	<b>100.0</b>	<b>--</b>	<b>-0.1</b>	<b>-0.4</b>	<b>4.1</b>	<b>3.7</b>	<b>6.1</b>	<b>6.9</b>	<b>7.6</b>	<b>Nov-89</b>
<i>Custom Benchmark - Policy Benchmark (Net)</i>				<i>-1.0</i>	<i>1.2</i>	<i>4.8</i>	<i>5.3</i>	<i>6.9</i>	<i>7.4</i>	<i>--</i>	<i>Nov-89</i>
<b>Domestic Equity Assets</b>	<b>287,474,090</b>	<b>26.4</b>	<b>26.4</b>	<b>0.0</b>	<b>4.0</b>	<b>12.2</b>	<b>9.4</b>	<b>--</b>	<b>--</b>	<b>12.2</b>	<b>Jan-16</b>
<i>Russell 3000</i>				<i>-2.2</i>	<i>3.1</i>	<i>10.1</i>	<i>10.0</i>	<i>11.5</i>	<i>12.8</i>	<i>12.3</i>	<i>Jan-16</i>
Rhumblin Russell 1000 Value	47,214,741	4.3	16.4	-1.3	-12.7	-7.5	1.9	5.7	--	7.3	Apr-13
<i>Russell 1000 Value</i>				<i>-1.3</i>	<i>-12.7</i>	<i>-7.6</i>	<i>1.9</i>	<i>5.8</i>	<i>9.5</i>	<i>7.4</i>	<i>Apr-13</i>
Rhumblin Russell 1000 Growth	52,319,569	4.8	18.2	-3.4	20.1	29.2	18.8	17.2	16.2	16.6	Jul-09
<i>Russell 1000 Growth</i>				<i>-3.4</i>	<i>20.1</i>	<i>29.2</i>	<i>18.8</i>	<i>17.3</i>	<i>16.3</i>	<i>16.7</i>	<i>Jul-09</i>
Fisher Midcap Value	55,367,497	5.1	19.3	0.4	3.8	12.9	7.5	10.4	11.2	7.8	Apr-07
<i>Russell MidCap Value</i>				<i>0.9</i>	<i>-12.0</i>	<i>-6.9</i>	<i>0.9</i>	<i>5.3</i>	<i>9.4</i>	<i>5.8</i>	<i>Apr-07</i>
Boston Company Small Cap Growth	71,443,298	6.6	24.9	-0.2	32.4	46.7	22.8	19.8	16.5	16.9	Aug-09
<i>Russell 2000 Growth</i>				<i>0.8</i>	<i>4.7</i>	<i>13.4</i>	<i>7.9</i>	<i>10.4</i>	<i>12.0</i>	<i>13.1</i>	<i>Aug-09</i>
LMCG Small Cap Value	61,128,985	5.6	21.3	3.8	-17.0	-11.8	-3.2	3.8	--	5.6	Mar-11
<i>Russell 2000 Value</i>				<i>3.6</i>	<i>-18.7</i>	<i>-13.9</i>	<i>-4.1</i>	<i>3.7</i>	<i>7.1</i>	<i>5.5</i>	<i>Mar-11</i>
<b>International Developed Market Equity Assets</b>	<b>41,116,895</b>	<b>3.8</b>	<b>3.8</b>	<b>-3.4</b>	<b>-14.3</b>	<b>-9.9</b>	<b>-4.4</b>	<b>--</b>	<b>--</b>	<b>2.1</b>	<b>Jan-16</b>
<i>MSCI EAFE</i>				<i>-4.0</i>	<i>-10.8</i>	<i>-6.9</i>	<i>-1.2</i>	<i>2.8</i>	<i>3.8</i>	<i>3.6</i>	<i>Jan-16</i>
KBI Master Account	18,707,796	1.7	45.5	-4.1	-15.7	-11.5	-5.4	-0.1	1.8	2.4	Jul-05
<i>MSCI EAFE</i>				<i>-4.0</i>	<i>-10.8</i>	<i>-6.9</i>	<i>-1.2</i>	<i>2.8</i>	<i>3.8</i>	<i>3.9</i>	<i>Jul-05</i>
HGK TS International Equity	22,409,099	2.1	54.5	-2.7	-7.0	-1.4	0.3	5.2	--	5.6	Feb-11
<i>MSCI EAFE</i>				<i>-4.0</i>	<i>-10.8</i>	<i>-6.9</i>	<i>-1.2</i>	<i>2.8</i>	<i>3.8</i>	<i>3.1</i>	<i>Feb-11</i>

Summary | As of October 31, 2020

	Market Value (\$)	% of Portfolio	% of Sector	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>International Emerging Market Equity Assets</b>	<b>102,433,298</b>	<b>9.4</b>	<b>9.4</b>	<b>3.1</b>	<b>3.3</b>	<b>10.0</b>	<b>1.7</b>	<b>--</b>	<b>--</b>	<b>8.6</b>	<b>Jan-16</b>
<i>MSCI Emerging Markets</i>				2.1	0.9	8.3	1.9	7.9	2.4	9.6	Jan-16
ABS Emerging Markets	51,032,788	4.7	49.8	1.3	5.0	11.3	--	--	--	12.7	Dec-18
<i>MSCI Emerging Markets</i>				2.1	0.9	8.3	1.9	7.9	2.4	8.2	Dec-18
Driehaus Emerging Markets Growth	51,400,509	4.7	50.2	2.5	11.1	18.5	--	--	--	15.4	Mar-19
<i>MSCI Emerging Markets</i>				2.1	0.9	8.3	1.9	7.9	2.4	5.7	Mar-19
<b>Global Equity Assets</b>	<b>110,934,974</b>	<b>10.2</b>	<b>10.2</b>	<b>-2.7</b>	<b>-3.6</b>	<b>1.6</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>1.6</b>	<b>Feb-18</b>
<i>MSCI ACWI</i>				-2.4	-1.1	4.9	5.5	8.1	7.9	2.6	Feb-18
First Eagle Global Value Fund	20,133,275	1.8	18.1	-1.9	-5.0	-1.7	--	--	--	0.2	Feb-18
<i>MSCI ACWI Value NR USD</i>				-2.4	-16.6	-12.2	-2.4	2.9	4.7	-5.5	Feb-18
Kopernik Global All Cap Fund	26,154,633	2.4	23.6	-3.4	12.5	18.6	--	--	--	2.5	Feb-18
<i>MSCI ACWI Value NR USD</i>				-2.4	-16.6	-12.2	-2.4	2.9	4.7	-5.5	Feb-18
Lee Munder Global Multi-Cap Strategy	29,476,999	2.7	26.6	-3.0	-6.9	-0.5	--	--	--	1.0	Mar-18
<i>MSCI ACWI</i>				-2.4	-1.1	4.9	5.5	8.1	7.9	4.4	Mar-18
Wellington Durable Enterprises, L.P.	35,170,067	3.2	31.7	-2.4	-7.7	-2.8	--	--	--	6.1	Mar-18
<i>MSCI ACWI</i>				-2.4	-1.1	4.9	5.5	8.1	7.9	4.4	Mar-18

### Summary | As of October 31, 2020

	Market Value (\$)	% of Portfolio	% of Sector	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Core Fixed Income</b>	<b>110,197,224</b>	<b>10.1</b>	<b>10.1</b>	<b>-0.2</b>	<b>4.7</b>	<b>5.0</b>	<b>4.4</b>	<b>--</b>	<b>--</b>	<b>4.1</b>	<b>Jan-16</b>
<i>75% Bbg Barclays Aggregate/25% Bbg Barclays US TIPS 1-10 year</i>				-0.4	6.3	6.4	4.9	4.0	3.3	4.2	Jan-16
IR&M Core Bonds	63,973,211	5.9	58.1	-0.4	7.0	7.1	5.1	4.2	3.6	4.5	Nov-04
<i>BBgBarc US Aggregate TR</i>				-0.4	6.3	6.2	5.1	4.1	3.6	4.4	Nov-04
Lord Abbett Short Duration Credit Trust II	36,250,652	3.3	32.9	0.2	2.0	2.5	--	--	--	2.8	Aug-19
<i>BBgBarc US Credit 1-3 Yr TR</i>				0.1	3.3	3.7	3.2	2.7	2.2	4.0	Aug-19
Rhumblin TIPS Trust	9,973,362	0.9	9.1	-0.6	--	--	--	--	--	-1.0	Sep-20
<i>BBgBarc US TIPS TR</i>				-0.6	8.5	9.1	5.5	4.4	3.2	-1.0	Sep-20
<b>Value Added Fixed Income</b>	<b>107,146,792</b>	<b>9.8</b>	<b>9.8</b>	<b>0.5</b>	<b>0.1</b>	<b>2.2</b>	<b>3.3</b>	<b>--</b>	<b>--</b>	<b>5.9</b>	<b>Jan-16</b>
<i>Custom Benchmark</i>				0.2	1.5	3.0	4.0	--	--	6.4	Jan-16
Eaton Vance High Yield	22,509,581	2.1	21.0	0.4	0.3	2.4	3.7	5.4	6.1	6.6	Apr-06
<i>ICE BofA US High Yield TR</i>				0.5	0.1	2.5	3.9	6.1	6.1	6.9	Apr-06
First Eagle Bank Loan Select Fund	21,857,456	2.0	20.4	0.3	-0.7	2.0	2.6	4.1	4.7	4.9	Sep-10
<i>Credit Suisse Leveraged Loans</i>				0.2	-0.7	1.5	3.0	4.1	4.3	4.4	Sep-10
Manulife Strategic Fixed Income	31,981,194	2.9	29.8	0.3	3.8	4.5	--	--	--	4.8	Jul-19
<i>BBgBarc Multiverse TR</i>				0.1	5.4	5.3	4.2	4.0	2.4	5.0	Jul-19
Mesirow High Yield	10,480,000	1.0	9.8	0.8	1.5	3.8	--	--	--	3.8	Aug-19
<i>BBgBarc US Corporate High Yield TR</i>				0.5	1.1	3.5	4.2	6.3	6.3	3.6	Aug-19
Eaton Vance EMD Opportunities Fund	20,318,561	1.9	19.0	0.9	--	--	--	--	--	1.6	Aug-20
<i>JP Morgan EMBI Global Diversified</i>				0.0	-0.5	1.0	3.4	5.6	5.2	-1.4	Aug-20

Summary | As of October 31, 2020

	Market Value (\$)	% of Portfolio	% of Sector	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Hedge Funds</b>	<b>64,604,337</b>	<b>5.9</b>	<b>5.9</b>	<b>0.1</b>	<b>-9.7</b>	<b>-4.9</b>	<b>-0.9</b>	<b>1.8</b>	<b>3.3</b>	<b>3.5</b>	<b>Feb-10</b>
<i>Custom Benchmark</i>				<i>0.2</i>	<i>2.8</i>	<i>5.7</i>	<i>2.8</i>	<i>3.1</i>	<i>2.9</i>	<i>3.0</i>	<i>Feb-10</i>
ABS Offshore SPC - Global Segregated Portfolio	28,285,280	2.6	43.8	0.1	1.1	4.8	3.2	3.4	4.8	5.2	Aug-10
<i>HFRI Fund of Funds Composite Index</i>				<i>0.3</i>	<i>2.9</i>	<i>5.5</i>	<i>2.6</i>	<i>3.0</i>	<i>2.8</i>	<i>3.1</i>	<i>Aug-10</i>
Entrust Special Opportunities Fund III, Ltd.	16,687,378	1.5	25.8	0.0	-19.1	-13.0	-5.1	--	--	3.8	Oct-16
<i>HFRI Fund of Funds Composite Index (QTR)</i>				<i>0.0</i>	<i>2.5</i>	<i>5.7</i>	<i>2.9</i>	<i>3.1</i>	<i>2.9</i>	<i>3.7</i>	<i>Oct-16</i>
Old Farm Partners Master Fund, L.P.	5,310,005	0.5	8.2	1.1	4.9	6.9	--	--	--	2.9	Oct-18
<i>HFRI Fund of Funds Composite Index</i>				<i>0.3</i>	<i>2.9</i>	<i>5.5</i>	<i>2.6</i>	<i>3.0</i>	<i>2.8</i>	<i>2.8</i>	<i>Oct-18</i>
EnTrustPermal Special Opportunities Evergreen Fund, Ltd.	14,321,675	1.3	22.2	0.0	-16.5	-11.9	--	--	--	3.5	Jan-19
<i>HFRI Fund of Funds Composite Index (QTR)</i>				<i>0.0</i>	<i>2.5</i>	<i>5.7</i>	<i>2.9</i>	<i>3.1</i>	<i>2.9</i>	<i>5.9</i>	<i>Jan-19</i>

### Summary | As of October 31, 2020

	Market Value (\$)	% of Portfolio	% of Sector	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Real Estate</b>	<b>110,277,190</b>	<b>10.1</b>	<b>10.1</b>	<b>0.1</b>	<b>-0.5</b>	<b>1.7</b>	<b>5.1</b>	--	--	<b>4.8</b>	<b>Jan-16</b>
<i>80% NCREIF ODCE / 20% Wilshire REIT</i>				-0.5	-4.1	-3.6	3.7	--	--	4.7	Jan-16
<b>Core Real Estate</b>	<b>67,382,600</b>	<b>6.2</b>	<b>61.1</b>	<b>0.2</b>	<b>1.1</b>	<b>3.0</b>	<b>5.9</b>	--	--	<b>6.4</b>	<b>Jan-16</b>
<i>NCREIF-ODCE</i>				0.0	-0.1	1.4	5.2	6.6	10.3	6.2	Jan-16
TA Realty Core Property Fund, L.P. <i>NCREIF ODCE</i>	39,647,907	3.6	58.8	0.0	2.4	5.0	--	--	--	8.6	Apr-18
				0.0	-0.1	1.4	5.2	6.6	10.3	4.3	Apr-18
JPMorgan Strategic Property <i>NCREIF-ODCE</i>	27,734,693	2.5	41.2	0.5	-0.7	0.7	--	--	--	1.3	Apr-19
				0.0	-0.1	1.4	5.2	6.6	10.3	2.3	Apr-19
<b>Non-Core Real Estate</b>	<b>42,894,590</b>	<b>3.9</b>	<b>38.9</b>	<b>0.0</b>	<b>-3.0</b>	<b>-0.5</b>	<b>2.4</b>	--	--	<b>0.1</b>	<b>Jan-16</b>
<b>Private Equity</b>	<b>84,565,586</b>	<b>7.8</b>	<b>7.8</b>	<b>0.0</b>	<b>7.0</b>	<b>10.2</b>	<b>8.0</b>	--	--	<b>6.0</b>	<b>Jan-16</b>
<i>Cambridge Associates FoF Composite 1Q Lagged</i>				0.0	3.3	3.9	9.8	8.7	11.4	8.9	Jan-16
<b>Private Equity</b>	<b>77,734,879</b>	<b>7.1</b>	<b>91.9</b>	<b>0.0</b>	<b>9.0</b>	<b>12.4</b>	<b>8.2</b>	--	--	<b>5.4</b>	<b>Jan-16</b>
<b>Venture Capital</b>	<b>6,830,707</b>	<b>0.6</b>	<b>8.1</b>	<b>0.0</b>	<b>-10.1</b>	<b>-8.0</b>	<b>2.9</b>	--	--	<b>5.2</b>	<b>Jan-16</b>
<b>Real Assets</b>	<b>66,865,264</b>	<b>6.1</b>	<b>6.1</b>	<b>-0.2</b>	<b>-1.9</b>	<b>0.5</b>	<b>1.0</b>	--	--	<b>-0.8</b>	<b>Jan-16</b>
<i>CPI + 3%</i>				0.3	3.2	4.2	4.8	4.8	4.7	4.9	Jan-16
IFM Global Infrastructure <i>CPI+5% (1q Lagged)</i>	38,055,194	3.5	56.9	-0.3	0.3	5.6	--	--	--	8.4	Oct-18
				0.9	5.1	6.0	--	--	--	6.4	Oct-18
<b>Cash and Cash Equivalent</b>	<b>3,672,824</b>	<b>0.3</b>	<b>0.3</b>								
Cash	3,672,824	0.3	100.0								

Note: The data for Real Estate, Private Equity, and Real Assets are based on June 30, 2020 fair market value, adjusted for subsequent cash flows.

Note: The data for JPMorgan Strategic Property and IFM Global Infrastructure is as of October 31, 2020.

Annual Investment Expense Analysis				
As Of October 31, 2020				
Name	Fee Schedule	Market Value	Estimated Fee Value	Estimated Fee
<b>Domestic Equity Assets</b>		<b>\$287,474,090</b>		
Rhumblin Russell 1000 Value	0.05% of First 25.0 Mil, 0.04% of Next 25.0 Mil, 0.03% Thereafter	\$47,214,741	\$21,386	0.05%
Rhumblin Russell 1000 Growth	0.05% of First 25.0 Mil, 0.04% of Next 25.0 Mil, 0.03% Thereafter	\$52,319,569	\$23,196	0.04%
Fisher Midcap Value	0.80% of First 25.0 Mil, 0.75% of Next 25.0 Mil, 0.67% Thereafter	\$55,367,497	\$423,462	0.76%
Boston Company Small Cap Growth	0.45% of Assets	\$71,443,298	\$321,495	0.45%
LMCG Small Cap Value	0.90% of Assets	\$61,128,985	\$550,161	0.90%
<b>International Developed Market Equity Assets</b>		<b>\$41,116,895</b>		
KBI Master Account	0.65% of Assets	\$18,707,796	\$121,601	0.65%
HGK TS International Equity	1.00% of Assets	\$22,409,099	\$224,091	1.00%
<b>International Emerging Market Equity Assets</b>		<b>\$102,433,298</b>		
ABS Emerging Markets	Performance-based 0.35 and 0.10	\$51,032,788	\$179,242	0.35%
Driehaus Emerging Markets Growth	0.55% of Assets	\$51,400,509	\$282,703	0.55%
<b>Global Equity Assets</b>		<b>\$110,934,974</b>		
First Eagle Global Value Fund	0.75% of Assets	\$20,133,275	\$151,000	0.75%
Kopernik Global All Cap Fund	0.80% of First 50.0 Mil, 0.75% of Next 150.0 Mil, 0.70% of Next 250.0 Mil, 0.65% of Next 350.0 Mil	\$26,154,633	\$209,237	0.80%
Lee Munder Global Multi-Cap Strategy	0.45% of Assets	\$29,476,999	\$132,646	0.45%
Wellington Durable Enterprises, L.P.	0.60% of Assets	\$35,170,067	\$211,020	0.60%

Name	Fee Schedule	Market Value	Estimated Fee Value	Estimated Fee
<b>Core Fixed Income</b>		<b>\$110,197,224</b>		
IR&M Core Bonds	0.25% of First 50.0 Mil, 0.20% of Next 50.0 Mil, 0.15% Thereafter	\$63,973,211	\$152,946	0.24%
Lord Abbett Short Duration Credit Trust II	0.17% of Assets	\$36,250,652	\$61,626	0.17%
Rhumblin TIPS Trust	0.04% of First 5.0 Mil, 0.03% Thereafter	\$9,973,362	\$3,492	0.04%
<b>Value Added Fixed Income</b>		<b>\$107,146,792</b>		
Eaton Vance High Yield	0.42% of Assets	\$22,509,581	\$94,540	0.42%
First Eagle Bank Loan Select Fund	0.40% of Assets	\$21,857,456	\$87,430	0.40%
Manulife Strategic Fixed Income	0.35% of Assets	\$31,981,194	\$111,934	0.35%
Mesirow High Yield	0.40% of Assets	\$10,480,000	\$41,920	0.40%
Eaton Vance EMD Opportunities Fund	0.15% of Assets	\$20,318,561	\$30,478	0.15%

Note: The value is based on June 30, 2020 FMV.

Private Equity	Commitment	Total Contributions	Total Distributions	Adjusted Value
Ascend Ventures II, L.P.	2,500,000	2,324,355	925,962	53,458
Ascent Venture Partners IV, L.P.	2,500,000	2,502,219	388,970	38,969
Ascent Venture Partners V, L.P.	5,000,000	5,254,731	3,432,862	3,978,033
Audax Mezzanine Fund IV, L.P.	10,000,000	5,910,858	3,063,362	3,490,765
Charles River Partnership XI, L.P.	1,839,000	1,820,323	2,532,884	64,553
Charlesbank Technology Opportunities Fund, L.P.	12,000,000	1,170,140	0	1,363,597
DN Partners II, L.P.	5,000,000	2,375,841	0	1,851,631
Euro Choice V, L.P.	6,097,405	5,688,459	2,809,141	4,374,590
FS Equity Partners VIII, L.P.	12,000,000	2,628,462	0	3,257,613
Globespan Capital Partners V, L.P.	5,000,000	4,852,500	8,008,564	2,750,191
HarbourVest Partners Co-Investment Fund V, L.P.	12,000,000	5,400,000	0	6,091,414
Ironsides Direct Investment Fund V, L.P.	12,000,000	11,860,752	1,718,330	12,659,027
Kohlberg IX	10,000,000	0	0	0
Landmark Equity Partners XIV, L.P.	6,000,000	6,304,147	6,747,524	893,533
Leeds Equity Partners IV, L.P.	5,000,000	5,093,100	9,709,704	0
Leeds Equity Partners IV-A, L.P.	1,159,760	960,043	3,446,511	50,875
Leeds Equity Partners V, L.P.	2,500,000	3,570,815	3,998,728	1,549,213
Lexington Capital Partners VII, L.P.	10,000,000	10,556,021	13,542,190	1,866,891
LLR Equity Partners V, L.P.	12,000,000	8,880,000	1,084,578	8,569,280
Mesirow Financial Capital Partners IX, L.P.	4,000,000	3,840,731	2,021,056	86,946
Ridgemont Equity Partners III, L.P.	12,000,000	2,981,256	0	2,638,079
Rimco Production Company, Inc	2,000,000	2,000,000	7,651,066	0
Searchlight Capital III, L.P.	12,000,000	3,187,241	0	3,067,470
Siguler Guff Distressed Opportunities Fund III, L.P.	6,000,000	5,820,000	8,337,397	1,118,320
Summit Partners Growth Equity Fund IX, L.P.	10,000,000	10,557,000	3,267,549	12,155,331
Summit Venture V	10,000,000	0	0	0
TRG Growth Partnership II, L.P.	7,500,000	7,450,399	7,463,445	950,027
Trilantic Capital Partners VI (North America), L.P.	12,000,000	3,022,090	94,177	2,556,733
Waud Capital Partners V, L.P.	10,000,000	0	0	0
Wellspring Capital Partners VI, L.P.	12,000,000	4,883,327	0	4,517,794
<b>Total Plymouth County - PE</b>	<b>230,096,165</b>	<b>130,894,811</b>	<b>90,244,000</b>	<b>79,994,334</b>



Note: The value is based on June 30, 2020 FMV.

Real Assets	Commitment	Total Contributions	Total Distributions	Adjusted Value
Basalt Infrastructure Partners II	10,000,000	7,882,050	49,561	8,733,332
BlackRock Global Renewable Power Fund III	10,000,000	0	0	0
BTG Pactual Global Timberland Resources Fund, LLC	5,043,536	5,043,536	229,998	2,765,246
Global Infrastructure Partners III, L.P.	10,000,000	8,928,110	1,615,006	7,713,094
Global Infrastructure Partners IV, L.P.	10,000,000	224,405	0	41,029
IFM Global Infrastructure (U.S.), L.P.	35,000,000	35,000,000	568,926	38,055,194
ISQ Global Infrastructure III	10,000,000	0	0	0
JPMorgan Global Maritime Investment	10,000,000	10,034,375	938,504	4,690,129
Domain Timbervest Partners III, L.P.	5,000,000	5,000,000	1,789,271	4,920,509
<b>Total Plymouth County - RA</b>	<b>105,043,536</b>	<b>72,112,476</b>	<b>5,191,267</b>	<b>66,918,533</b>

Real Estate	Commitment	Total Contributions	Total Distributions	Adjusted Value
1921 Realty, Inc.	5,000,000	5,378,194	0	724,420
AEW Partners IX, L.P.	10,000,000	0	0	0
AEW Partners Real Estate Fund VIII, L.P.	25,000,000	18,844,836	9,958,715	11,198,645
Berkshire Value Fund V, L.P.	9,000,000	5,309,677	611,928	4,111,909
Carlyle Realty Partners VIII, L.P.	18,000,000	6,388,607	742,458	6,352,786
DSF Capital Partners IV, L.P.	5,000,000	5,000,000	6,005,200	98
DSF Multi-Family Real Estate Fund III, L.P.	15,000,000	14,239,659	1,672,106	16,583,540
JPMorgan Strategic Property	27,000,000	27,000,000	0	27,734,693
New Boston Institutional Fund VII, L.P.	5,000,000	3,012,998	3,985,095	25,073
PCCP, LLC	10,000,000	0	0	0
Real Estate International Partnership Fund I, L.P.	15,000,000	12,675,476	11,147,161	1,296,015
Rockpoint Real Estate Fund VI, L.P.	9,000,000	1,647,049	90,341	1,522,089
TA Realty Core Property Fund, L.P.	25,000,000	35,337,300	660,145	39,647,907
TerraCap Partners V	5,000,000	0	0	0
<b>Total Plymouth County - RE</b>	<b>178,000,000</b>	<b>134,833,796</b>	<b>34,873,148</b>	<b>109,197,175</b>

Note: The value for IFM Global Infrastructure and JPMorgan Strategic Property is as of October 31, 2020.

Cash Flow Summary					
Month Ending October 31, 2020					
	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Ending Market Value
1921 Realty, Inc	\$724,420	\$0	\$0	\$0	\$724,420
ABS Emerging Markets	\$30,625,523	\$20,000,000	\$0	\$20,000,000	\$51,032,788
ABS Offshore SPC - Global Segregated Portfolio	\$28,265,028	\$0	\$0	\$0	\$28,285,280
AEW Partners Real Estate VIII	\$11,198,645	\$0	\$0	\$0	\$11,198,645
Ascend Ventures II	\$60,381	\$3,133	\$0	\$3,133	\$63,514
Ascent Ventures IV	\$38,969	\$0	\$0	\$0	\$38,969
Ascent Ventures V	\$3,978,033	\$0	\$0	\$0	\$3,978,033
Audax Mezzanine Debt IV	\$3,490,765	\$0	\$0	\$0	\$3,490,765
Basalt Infrastructure Partners II	\$8,733,332	\$0	\$0	\$0	\$8,733,332
Berkshire Value Fund V	\$4,585,857	\$0	\$0	\$0	\$4,585,857
Boston Company Small Cap Growth	\$71,560,463	\$0	\$0	\$0	\$71,443,298
BTG Pactual Global Timberland Resources	\$2,765,246	\$0	\$0	\$0	\$2,765,246
Carlyle Realty Partners VIII	\$6,352,786	\$904,739	-\$298,574	\$606,165	\$6,958,951
Cash	\$6,318,241	\$0	-\$2,645,326	-\$2,645,326	\$3,672,824
Charlesbank Technology Opportunities Fund	\$1,363,597	\$1,410,329	-\$10,867	\$1,399,462	\$2,763,059
Copper Rock Emerging Markets Small Cap	\$10,378,910	\$0	-\$10,356,429	-\$10,356,429	--
DN Partners II, LP	\$1,851,631	\$0	\$0	\$0	\$1,851,631
Driehaus Emerging Markets Growth	\$31,214,650	\$20,000,000	\$0	\$20,000,000	\$51,400,509
DSF Multi-Family Real Estate Fund III	\$16,583,540	\$0	\$0	\$0	\$16,583,540
Eaton Vance EMD Opportunities Fund	\$20,141,844	\$0	\$0	\$0	\$20,318,561
Eaton Vance High Yield	\$22,410,054	\$0	\$0	\$0	\$22,509,581
Entrust Special Opportunities Fund III, Ltd.	\$16,687,378	\$0	\$0	\$0	\$16,687,378

	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Ending Market Value
EnTrustPermal Special Opportunities Evergreen Fund, Ltd.	\$14,321,675	\$0	\$0	\$0	\$14,321,675
Euro Choice V Programme	\$4,374,590	\$0	\$0	\$0	\$4,374,590
First Eagle Bank Loan Select Fund	\$21,801,938	\$0	\$0	\$0	\$21,857,456
First Eagle Global Value Fund	\$20,518,989	\$0	\$0	\$0	\$20,133,275
Fisher Midcap Value	\$55,084,767	\$0	\$0	\$0	\$55,367,497
FS Equity Partners VIII, L.P.	\$3,257,613	\$0	\$0	\$0	\$3,257,613
Global Infrastructure Partners III	\$7,713,094	\$98,472	-\$380,084	-\$281,612	\$7,431,482
Global Infrastructure Partners IV, L.P.	\$224,405	\$44,968	\$0	\$44,968	\$269,372
Globespan Capital V	\$2,750,191	\$0	\$0	\$0	\$2,750,191
HarbourVest Partners Co-Investment V	\$6,091,414	\$1,200,000	\$0	\$1,200,000	\$7,291,414
HGK TS International Equity	\$23,024,419	\$0	\$0	\$0	\$22,409,099
IFM Global Infrastructure	\$38,178,742	\$0	\$0	\$0	\$38,055,194
IR&M Core Bonds	\$64,241,703	\$0	\$0	\$0	\$63,973,211
Ironsides Direct Investment Fund V, L.P.	\$12,659,027	\$0	\$0	\$0	\$12,659,027
JP Morgan Global Maritime Investment	\$4,690,129	\$0	\$0	\$0	\$4,690,129
JPMorgan Strategic Property	\$27,630,916	\$0	-\$69,273	-\$69,273	\$27,734,693
KBI Master Account	\$19,506,568	\$0	\$0	\$0	\$18,707,796
Kopernik Global All Cap Fund	\$27,081,364	\$0	\$0	\$0	\$26,154,633
Landmark Equity Partners XIV	\$893,533	\$0	\$0	\$0	\$893,533
Lee Munder Global Multi-Cap Strategy	\$30,375,878	\$0	\$0	\$0	\$29,476,999
Leeds Equity Partners IV	\$8,665	\$0	\$0	\$0	\$8,665
Leeds Equity Partners IV-A	\$7,331	\$0	\$0	\$0	\$7,331
Leeds Equity Partners V	\$1,549,213	\$0	\$0	\$0	\$1,549,213
Lexington Capital Partners VII	\$1,866,891	\$0	-\$48,686	-\$48,686	\$1,818,205
LLR Equity Partners V, LP.	\$8,569,280	\$1,200,000	\$0	\$1,200,000	\$9,769,280

Summary | As of October 31, 2020

	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Ending Market Value
LMCG Emerging Markets	\$38,777,487	\$0	-\$40,203,421	-\$40,203,421	--
LMCG Small Cap Value	\$58,838,634	\$0	\$0	\$0	\$61,128,985
Lord Abbett Short Duration Credit Trust II	\$36,181,799	\$0	\$0	\$0	\$36,250,652
Manulife Strategic Fixed Income	\$31,919,366	\$0	-\$28,126	-\$28,126	\$31,981,194
Mesirow Financial Capital Partners IX, LP	\$86,946	\$0	\$0	\$0	\$86,946
Mesirow Financial International Real Estate Fund I	\$1,296,015	\$0	\$0	\$0	\$1,296,015
Mesirow High Yield	\$10,400,000	\$0	\$0	\$0	\$10,480,000
New Boston Institutional Fund, LP VII	\$25,073	\$0	\$0	\$0	\$25,073
Old Farm Partners Master Fund, L.P.	\$5,253,837	\$0	\$0	\$0	\$5,310,005
Rhumblin Russell 1000 Growth	\$54,154,478	\$0	\$0	\$0	\$52,319,569
Rhumblin Russell 1000 Value	\$47,846,676	\$0	\$0	\$0	\$47,214,741
Rhumblin TIPS Trust	\$10,037,177	\$0	\$0	\$0	\$9,973,362
Ridgemont Equity Partners III, L.P.	\$2,638,079	\$458,741	-\$118,305	\$340,436	\$2,978,515
RIMCO Royalty Partners, LP	\$1	\$0	\$0	\$0	\$1
Rockpoint Real Estate Fund VI, L.P.	\$1,522,089	\$0	\$0	\$0	\$1,522,089
Searchlight Capital III, L.P.	\$3,067,470	\$569,415	\$0	\$569,415	\$3,636,885
Siguler Guff Distressed Opportunities Fund III, LP	\$1,118,320	\$0	\$0	\$0	\$1,118,320
Summit Partners Growth Equity Fund IX	\$12,155,331	\$0	\$0	\$0	\$12,155,331
TA Realty Core Property Fund, L.P.	\$39,647,907	\$0	\$0	\$0	\$39,647,907
Timbervest Partners III, LP	\$4,920,509	\$0	\$0	\$0	\$4,920,509
TRG Growth Partnership II	\$950,027	\$0	\$0	\$0	\$950,027
Trilantic Capital Partners VI, L.P.	\$2,556,733	\$0	\$0	\$0	\$2,556,733
Wellington Durable Enterprises, L.P.	\$36,043,990	\$0	\$0	\$0	\$35,170,067
Wellspring Capital Partners VI	\$4,517,794	\$0	\$0	\$0	\$4,517,794
<b>Total</b>	<b>\$1,099,707,368</b>	<b>\$45,889,796</b>	<b>-\$54,159,091</b>	<b>-\$8,269,295</b>	<b>\$1,089,288,475</b>

**Cash Flow Summary**

From July 01, 2020 through October 31, 2020

	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Ending Market Value
1921 Realty, Inc	\$750,084	\$0	\$0	\$0	\$724,420
ABS Emerging Markets	\$27,519,303	\$20,000,000	\$0	\$20,000,000	\$51,032,788
ABS Offshore SPC - Global Segregated Portfolio	\$22,588,877	\$5,000,000	\$0	\$5,000,000	\$28,285,280
AEW Partners Real Estate VIII	\$13,127,573	\$0	-\$2,033,016	-\$2,033,016	\$11,198,645
Ascend Ventures II	\$53,458	\$10,056	\$0	\$10,056	\$63,514
Ascent Ventures IV	\$38,944	\$0	\$0	\$0	\$38,969
Ascent Ventures V	\$3,935,964	\$100,000	\$0	\$100,000	\$3,978,033
Audax Mezzanine Debt IV	\$3,402,349	\$0	-\$34,810	-\$34,810	\$3,490,765
Basalt Infrastructure Partners II	\$8,255,015	\$0	\$0	\$0	\$8,733,332
Berkshire Value Fund V	\$3,283,947	\$1,551,782	-\$137,980	\$1,413,802	\$4,585,857
Boston Company Small Cap Growth	\$65,129,837	\$0	\$0	\$0	\$71,443,298
BTG Pactual Global Timberland Resources	\$2,745,650	\$0	\$0	\$0	\$2,765,246
Carlyle Realty Partners VIII	\$5,795,711	\$1,883,947	-\$667,867	\$1,216,080	\$6,958,951
Cash	\$13,888,732	\$5,125,658	-\$15,340,948	-\$10,215,290	\$3,672,824
Charlesbank Technology Opportunities Fund	\$262,167	\$2,318,302	-\$10,867	\$2,307,435	\$2,763,059
Copper Rock Emerging Markets Small Cap	\$9,716,803	\$0	-\$10,375,870	-\$10,375,870	--
Copper Rock International Small Cap	\$11,100,730	\$0	-\$12,399,235	-\$12,399,235	--
DN Partners II, LP	\$1,851,631	\$0	\$0	\$0	\$1,851,631
Driehaus Emerging Markets Growth	\$27,848,639	\$20,000,000	\$0	\$20,000,000	\$51,400,509
DSF Multi-Family Real Estate Fund III	\$16,540,510	\$0	-\$220,960	-\$220,960	\$16,583,540
Eaton Vance EMD Opportunities Fund	--	\$20,000,000	\$0	\$20,000,000	\$20,318,561
Eaton Vance High Yield	\$21,467,030	\$0	\$0	\$0	\$22,509,581
Entrust Special Opportunities Fund III, Ltd.	\$17,728,478	\$0	-\$829,268	-\$829,268	\$16,687,378

Summary | As of October 31, 2020

	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Ending Market Value
EnTrustPermal Special Opportunities Evergreen Fund, Ltd.	\$15,227,454	\$0	-\$993,411	-\$993,411	\$14,321,675
Euro Choice V Programme	\$3,993,924	\$0	\$0	\$0	\$4,374,590
First Eagle Bank Loan Select Fund	\$20,891,272	\$0	\$0	\$0	\$21,857,456
First Eagle Global Value Fund	\$19,482,535	\$0	\$0	\$0	\$20,133,275
Fisher Midcap Value	\$44,656,721	\$5,000,303	\$0	\$5,000,303	\$55,367,497
FS Equity Partners VIII, L.P.	\$3,034,477	\$259,438	-\$3,243	\$256,195	\$3,257,613
Global Infrastructure Partners III	\$7,000,840	\$578,338	-\$499,600	\$78,738	\$7,431,482
Global Infrastructure Partners IV, L.P.	\$179,011	\$90,361	\$0	\$90,361	\$269,372
Globespan Capital V	\$2,734,409	\$0	\$0	\$0	\$2,750,191
HarbourVest Partners Co-Investment V	\$3,818,608	\$2,400,000	\$0	\$2,400,000	\$7,291,414
HGK TS International Equity	\$21,670,918	\$0	-\$46,141	-\$46,141	\$22,409,099
IFM Global Infrastructure	\$37,476,802	\$0	\$0	\$0	\$38,055,194
IR&M Core Bonds	\$53,280,126	\$10,000,594	\$0	\$10,000,594	\$63,973,211
Ironsides Direct Investment Fund V, L.P.	\$10,424,721	\$0	\$0	\$0	\$12,659,027
JP Morgan Global Maritime Investment	\$5,361,845	\$0	\$0	\$0	\$4,690,129
JPMorgan Strategic Property	\$27,709,395	\$0	-\$140,151	-\$140,151	\$27,734,693
KBI Master Account	\$19,086,939	\$0	\$0	\$0	\$18,707,796
Kopernik Global All Cap Fund	\$21,059,812	\$5,000,000	\$0	\$5,000,000	\$26,154,633
Landmark Equity Partners XIV	\$1,010,999	\$3,605	-\$15,038	-\$11,433	\$893,533
Lee Munder Global Multi-Cap Strategy	\$28,436,734	\$0	\$0	\$0	\$29,476,999
Leeds Equity Partners IV	\$9,590	\$0	\$0	\$0	\$8,665
Leeds Equity Partners IV-A	\$50,875	\$0	-\$38,758	-\$38,758	\$7,331
Leeds Equity Partners V	\$1,565,199	\$0	-\$17,105	-\$17,105	\$1,549,213
Lexington Capital Partners VII	\$2,058,177	-\$31,923	-\$129,353	-\$161,276	\$1,818,205
LLR Equity Partners V, LP.	\$8,237,631	\$1,200,000	\$0	\$1,200,000	\$9,769,280
LMCG Emerging Markets	\$35,489,916	\$0	-\$40,203,421	-\$40,203,421	--

Summary | As of October 31, 2020

	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Ending Market Value
LMCG Small Cap Value	\$57,518,661	\$0	\$0	\$0	\$61,128,985
Lord Abbett Short Duration Credit Trust II	\$35,630,982	\$0	\$0	\$0	\$36,250,652
Manulife Strategic Fixed Income	\$30,928,070	\$0	-\$54,667	-\$54,667	\$31,981,194
Mesirow Financial Capital Partners IX, LP	\$87,079	\$0	\$0	\$0	\$86,946
Mesirow Financial International Real Estate Fund I	\$1,450,007	\$0	\$0	\$0	\$1,296,015
Mesirow High Yield	\$9,700,000	\$0	\$0	\$0	\$10,480,000
New Boston Institutional Fund, LP VII	\$25,675	\$0	\$0	\$0	\$25,073
Old Farm Partners Master Fund, L.P.	\$5,071,481	\$0	\$0	\$0	\$5,310,005
Rhumblin Russell 1000 Growth	\$47,832,942	\$0	\$0	\$0	\$52,319,569
Rhumblin Russell 1000 Value	\$35,806,921	\$9,997,137	\$0	\$9,997,137	\$47,214,741
Rhumblin TIPS Trust	--	\$9,999,787	\$0	\$9,999,787	\$9,973,362
Ridgemont Equity Partners III, L.P.	\$2,535,883	\$458,741	-\$118,305	\$340,436	\$2,978,515
RIMCO Royalty Partners, LP	\$1	\$0	-\$9,180	-\$9,180	\$1
Rockpoint Real Estate Fund VI, L.P.	\$1,569,936	\$33,905	-\$90,341	-\$56,436	\$1,522,089
Searchlight Capital III, L.P.	\$1,026,590	\$1,813,999	\$0	\$1,813,999	\$3,636,885
Siguler Guff Distressed Opportunities Fund III, LP	\$865,511	-\$26,932	\$0	-\$26,932	\$1,118,320
Summit Partners Growth Equity Fund IX	\$11,454,716	\$0	\$0	\$0	\$12,155,331
TA Realty Core Property Fund, L.P.	\$39,827,648	\$0	\$0	\$0	\$39,647,907
Timbervest Partners III, LP	\$5,177,904	\$0	-\$150,000	-\$150,000	\$4,920,509
TRG Growth Partnership II	\$834,797	\$0	\$0	\$0	\$950,027
Trilantic Capital Partners VI, L.P.	\$2,098,297	\$112,389	\$0	\$112,389	\$2,556,733
Wellington Durable Enterprises, L.P.	\$33,795,017	\$0	\$0	\$0	\$35,170,067
Wellspring Capital Partners VI	\$3,458,619	\$777,083	\$0	\$777,083	\$4,517,794
<b>Total</b>	<b>\$997,677,101</b>	<b>\$123,656,570</b>	<b>-\$84,559,535</b>	<b>\$39,097,036</b>	<b>\$1,089,288,475</b>

## Current Issues



**International Growth Manager  
Finalist Review**

## Background

- In this document we review the following international equity managers:
  - Walter Scott & Partners
  - William Blair Investment Management
  - HGK Global Investors

**Walter Scott**  
(As of September 30, 2020)

Firm Overview	
Firm Location	Edinburgh, Scotland
Firm Inception	1983
Ownership Structure	100% Owned by Bank of New York Mellon Corporation (NYSE: BK)
Strategy Name	EAFE Strategy
Assets Under Management (Firm)	\$80.9 billion
Strategy Inception	January 1992
Assets Under Management (Strategy)	\$27.9 billion

### Organization

- Walter Scott was founded in 1983 and is based in Edinburgh, Scotland. Walter Scott was initially 100% employee-owned, but was sold to the Bank of New York Mellon (NYSE: BK) in October 2006. The firm is now a wholly-owned subsidiary of BNY Mellon.
- Walter Scott specializes in the management of concentrated, global equity portfolios. As of September 2020, the firm had approximately \$80.9 billion in assets under management. The EAFE Strategy was launched in January 1992 and is one of the firm’s two flagship products alongside Walter Scott’s Global Strategy. The EAFE Strategy has approximately \$27.9 billion in assets under management.

## Walter Scott (con't)

### Investment Team

- Walter Scott is unusual among peers in that they employ a consensus-driven approach using the views of all 22 members of the investment team. To encourage team-based research and decision making, each investment team member carries the title of portfolio manager. Charles Macquaker is the longest-tenured team member. Mr. Macquaker has 30 years of investment experience, all at Walter Scott, and, with the title of Investment Director, is the informal lead portfolio manager on the strategy. While all investment research is conducted and vetted by the team, a stock must gain unanimous approval before it can be included in client portfolios. The Investment Director determines each stock's position size and in which portfolios it will be included.
- Team members rotate areas of research coverage over time to foster a well-rounded investment perspective and to ensure that various members of the team are able to actively debate each potential idea.
- Several members of the Walter Scott team, including two portfolio managers, have retired over the past five years. However, the tenure of senior investors on the team and the overall depth of resources continue to be areas of strength.

## Walter Scott (con't)

### Investment Philosophy

- Walter Scott is a fundamental, growth-at-a-reasonable-price (“GARP”) manager. They seek to build concentrated portfolios of high conviction stocks using a long-term, buy-and-hold approach.
- The firm believes that wealth generation drives investor returns. Therefore, they seek to invest in companies that are capable of long-term sustainable wealth generation (i.e., growth) that can be purchased at attractive valuations. Walter Scott maintains an absolute, rather than benchmark-oriented, return target; the investment team aims to generate a real return of 7-10% per year.

### Investment Process

- The investment process is focused on finding companies capable of 20% annualized, sustainable wealth generation (defined as return on investment, return on equity, earnings per share growth, and other metrics). Initial quantitative screens run by the team are followed by in-depth fundamental analysis. The team seeks to understand the quality and sustainability of the business in their bottom-up research. They focus on key business criteria such as market position, industry dynamics, profitability, balance sheet strength, and management experience. Quantitative metrics such as long-term cash flows, return on investment, and financial strength, are also assessed. Walter Scott places more emphasis on the quality and sustainability of the underlying business than on valuation, but they do closely examine both peer-relative and absolute valuation levels.
- The end result of the process is a concentrated, benchmark-agnostic portfolio of 40 to 60 positions with weights generally ranging from 1% to 3% (with a formal cap of 5%). Walter Scott has a 5- to 10-year investment horizon, which results in very low annual portfolio turnover of 10% to 20%. The strategy is benchmarked to the MSCI EAFE Index. Walter Scott’s exposure to emerging markets stocks has ranged between 0% and 10% historically.

**William Blair**  
(As of September 30, 2020)

Firm Overview	
Firm Location	Chicago, IL
Firm Inception	1935
Ownership Structure	100% Employee-Owned
Strategy Name	International Leaders
Strategy Inception	February 2003
Assets Under Management (Firm)	\$61.7 billion
Assets Under Management (Strategy)	\$8.0 billion

### Organization

- William Blair was founded in 1935 by William McCormick Blair and is an independent, employee-owned investment banking and asset management firm.
- As of September 2020, William Blair managed \$61.7 billion across domestic and international equity, fixed income, balanced, and alternative strategies, with \$8.0 billion in the International Leaders.

## William Blair (con't)

### Investment Team

- Kenneth McAtamney and Simon Fennel serve as the co-portfolio managers and final decision makers on the strategy. Mr. McAtamney joined William Blair in 2005, and has 30 years of investment experience. He previously worked as an analyst, and subsequently as the firm's co-director of research, before becoming a global and international equity portfolio manager. He originally joined the International Leaders portfolio management team in 2012, alongside George Greig, who retired in 2013. Mr. Fennel first joined William Blair as an analyst in 2011. He became a portfolio manager alongside Mr. McAtamney on International Leaders in 2013. Mr. Fennel has 28 years of experience in the investment industry.
- The co-portfolio managers are supported by William Blair's Fundamental Research Team, which is shared across the firm's global and international equity strategies. The team consists of 15 global sector-focused research analysts and 7 traders. The co-portfolio managers and analysts work closely together to manage idea generation.

### Investment Philosophy

- William Blair believes that strong corporate performance is the foundation of superior long-term investment returns. They believe this strong performance arises when firms build intrinsic strengths in the management of human capital, financial resources, and stakeholder relationships, while delivering quality, innovation, service, and value to customers.
- William Blair also believes that the market fails to distinguish between average growth companies, which experience declines in growth over time, and quality growth companies, which can achieve sustained high growth above market expectations. These high quality business often differentiate themselves with experienced, motivated management teams, unique business models, distinctive products/services, and compelling financial characteristics.

## William Blair (con't)

### Investment Process

- William Blair's investment process begins with a series of screens to identify companies that best fit the team's quality and growth criteria. The team screens for high, stable return on equity, high earnings quality and financial strength, high, consistent earnings and revenue growth, and strong future growth expectations. These screens reduce the opportunity set of international stocks (12,000+ companies) to approximately 1,800 to 2,400 companies.
- The team's analysts are then tasked with assessing all of the companies on this Eligibility List continuously. William Blair places an emphasis on management meetings; analysts and portfolio managers spend an estimated 30-40% of their time visiting and interviewing management. From this large opportunity set of stocks, any member of the team can flag interesting ideas for additional research based on meetings with management, ongoing evaluation of particular stocks as fundamentals and prices change, or information sources. Stocks are assigned to sector-focused analysts and tracked on a weekly basis through ongoing fundamental research. Analysts focus on quality, growth, operating performance, valuation, and thematic criteria. Analysts are responsible for evaluating company fundamentals, paying particular attention to the quality and durability of earnings growth. In general, buy candidates exhibit the strongest current fundamentals, a well-defined path to maintain that growth, and reasonable valuations.
- Messrs. McAtamney and Fennel are jointly responsible for portfolio construction and stock selection decisions. They draw input from the analyst team; analysts must vet each stock before it can be purchased in portfolios. The team manages a relatively concentrated portfolio of 40-70 stocks, with turnover ranging from 50-70% per year. Individual positions are typically capped at a weight of 5%. The strategy is benchmarked to the MSCI ACWI ex-US Index



### HGK Global Investors (As of September 30, 2020)

HGK Global Investors	
Firm Location	Jersey, NJ
Firm Inception	1983
Ownership Structure	100% Employee Owned
Strategy Name	International Equity
Strategy Inception	October 2002
Assets Under Management (Firm)	\$4.6 billion
Assets Under Management (Strategy)	\$3.6 billion

#### Organization

- HGK Asset Management was founded in 1983 by Jeffrey Harris, Warren Greenhouse, and Joseph Kutzel. The firm is headquartered in Jersey City, NJ. The firm is 100% employee owned, with the Employee Stock Ownership Program (“ESOP”) owning 65.9% of the firm and employees owning the remainder.
- HGK International Equity is managed by Trinity Street Asset Management “TSAM”, in which HGK owns a minority equity stake. As of September 2020, TSAM managed approximately \$4.6 billion in assets across two strategies. The TSAM International Equity strategy has \$3.6 billion in assets. The HGK International Equity strategy has \$955.7 million in assets.

## HGK Global Investors (con't)

### Investment Team

- The TSAM investment team comprises three portfolio managers and three research analysts. The investment team makes all decisions by committee, though ultimate decision-making power is held by Richard.
- Mr. Bruce has the support of two co-PMs, Edward Bell and Nick Mayor. Messrs. Bell and Mayor joined the team in 2007 and 2017, respectively.

### Investment Philosophy

- The team aims to add value by identifying under recognized change. They believe that stocks are usually fairly valued by the market but valuation dislocations can occur in situations of rapid change. The team believes they can add value by focusing their fundamental bottom-up research on stocks which are involved in rapid change, to identify mispricing. Additionally, they believe change is constant and therefore a sustainable source of alpha.

### Investment Process

- The team starts by screening the universe by minimum investment criteria (i.e. liquidity, analyst coverage).
- From there, any member of the team can undertake research on a new idea. Compelling potential ideas are brought to the other members of the team for an initial discussion. If an idea is worth pursuing, the team will then develop an earnings forecast going forward 3 years, and then evaluate to what extent they are different from consensus analyst forecasts. The team forecasts cash flows and net income, and looks at balance sheet structure, particularly capital employed and the level of indebtedness. The team sets a minimum hurdle of 50% absolute returns within a 2-3 year period.
- The portfolio managers review each trade recommendation on all inclusions in the portfolio. The strategy is benchmark-agnostic and holds between 30-35 stocks. Annual turnover averages 35% per annum.

### Portfolio Characteristics<sup>1</sup>

(As of September 30, 2020)

	Walter Scott		William Blair		HGK		MSCI ACWI ex-U.S.		MSCI EAFE Index	
Trailing Price-Earnings Ratio	27.2x		38.9x		18.1x		17.3x		17.3x	
Price-Book Value Ratio	3.7x		6.2x		2.0x		1.6x		1.6x	
Dividend Yield	1.8%		0.8%		1.6%		2.6%		2.7%	
Weighted Average Market Cap	\$81.6 billion		\$95.5 billion		\$44.0 billion		\$71.6 billion		\$54.6 billion	
Median Market Cap	\$330 billion		\$31.7 billion		\$15.6 billion		\$3.3 billion		\$7.3 billion	
Number of Holdings	53		66		35		2,375		902	
Annual Expected Turnover Rate	10-20%		50-70%		20-40%		-		-	
Market Cap Weightings:										
>\$50 billion	43%		33%		13%		32%		32%	
\$15-50 billion	38%		47%		44%		32%		38%	
\$1.5-15 billion	19%		20%		43%		34%		30%	
Top 3 Country Weightings:										
	Japan	26%	UK	11%	Japan	19%	Japan	16%	Japan	26%
	Switzerland	14%	France	10%	Hong Kong	10%	China	12%	UK	13%
	UK	10%	Japan	10%	Germany	10%	UK	8%	France	11%
Top 3 Sector Weightings:										
	Industrials	24%	Industrials	22%	Industrials	34%	Financials	17%	Industrials	15%
	HealthCare	20%	Info. Tech.	21%	Cons. Disc.	29%	Cons. Disc.	14%	Financials	15%
	Cons. Disc.	13%	HealthCare	14%	Cons. Stap.	9%	Industrials	11%	HealthCare	14%
% of Portfolio in Top 10 Holdings:	31%		27%		38%		14%		13%	

<sup>1</sup> Source: eVestment Alliance Database, MSCI, FactSet, manager data. Data adjusted for outliers where appropriate. Weighted Average and Median Market Cap statistics utilize MSCI definition (adjusted for foreign ownership and free float).

**Risk Statistics (net of fees) <sup>1</sup>**  
 (Last Ten-Years, As of September 2020)

	Walter Scott	HGK	MSCI EAFE	William Blair	MSCI ACWI ex-US
<b>Performance</b>					
Common Period Performance (%)	7.8	7.2	4.6	9.6	4.0
% of Periods above Index (%)	52.5	59.2	--	68.3	--
Best 3 Months (%)	14.6	18.9%	14.9	21.0	16.1
Worst 3 Months (%)	-14.5	-24.2	-22.8	-18.3	-23.4
<b>Risk Measures</b>					
Standard Deviation (%)	13.3	17.5	15.4	16.3	15.5
Tracking Error (%)	5.2	4.7	--	4.8	--
Beta	0.79	1.06	1.00	0.96	1.00
Correlation to Benchmark	0.94	0.96	--	0.95	--
Downside Deviation (%)	7.5	8.1	7.3	8.4	7.7
Upside Capture (%)	86.1	112.8	--	106.1	--
Downside Capture (%)	72.5	99.3	--	80.6	--
<b>Risk-Adjusted Performance</b>					
Jensen's Alpha (%)	4.1	2.3	--	5.8	--
Sharpe Ratio	0.55	0.38	0.26	0.55	0.22
Information Ratio	0.62	0.55	--	1.18	--

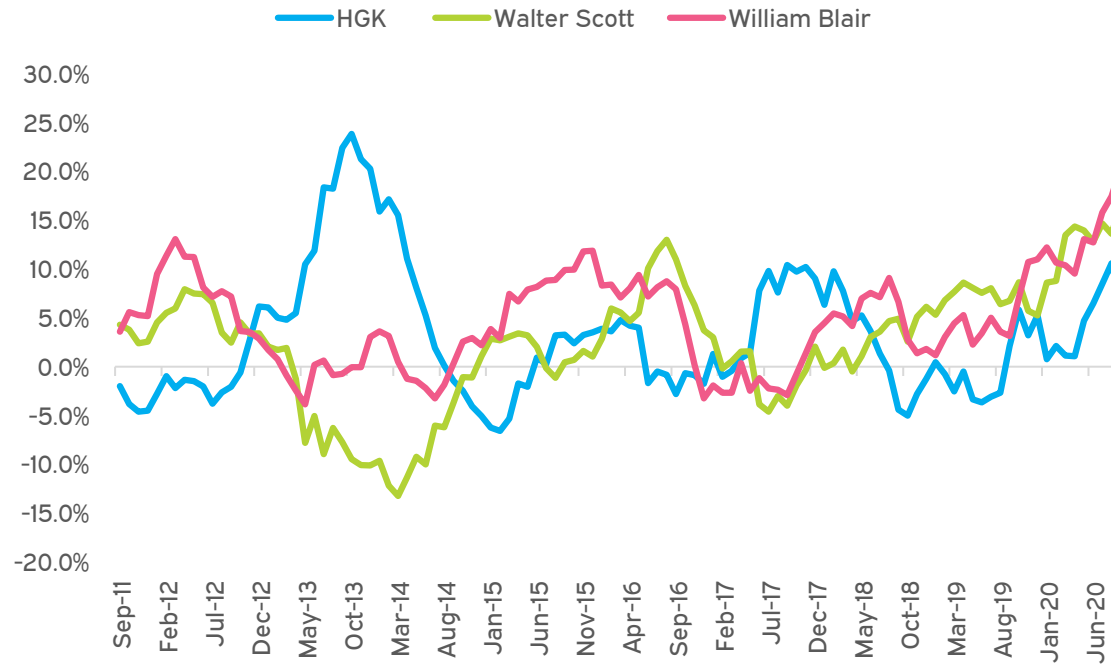
<sup>1</sup> Net of fees returns used throughout this document. See fees page for more information. Risk statistics for HGK and Walter Scott is relative to the MSCI EAFE Index. Risk statistics for William Blair is relative to MSCI ACWI ex-US.

**Historical Performance (net of fees)<sup>1</sup>**  
 (As of September 30, 2020)

	Walter Scott	HGK	MSCI EAFE	William Blair	MSCI ACWI ex-US
<b>Trailing Year Returns (%):</b>					
1 Year	17.2	7.1	0.5	23.4	3.0
3 Year	10.0	2.0	0.6	10.9	1.2
5 Year	12.5	7.4	5.3	13.3	6.2
7 Year	7.5	4.8	3.0	9.7	3.2
10 Year	7.8	7.2	4.6	9.6	4.0
<b>Calendar Year Returns (%):</b>					
2019	27.3	27.3	22.0	32.5	21.5
2018	-7.6	-15.0	-13.8	-12.4	-14.2
2017	27.1	34.1	25.0	30.7	27.2
2016	4.7	-0.7	1.0	1.3	4.5
2015	0.2	2.7	-0.8	6.2	-5.7
2014	-3.8	-10.0	-4.9	-1.7	-3.9
2013	12.7	43.1	22.8	18.3	15.3
2012	20.7	23.5	17.3	19.7	16.8
2011	-9.6	-16.6	-12.1	-8.5	-13.7
2010	13.1	9.5	7.8	23.7	11.2
2009	31.4	45.9	31.8	41.8	41.4
2008	-32.0	-41.7	-43.4	-54.1	-45.5

<sup>1</sup> Net of fees.

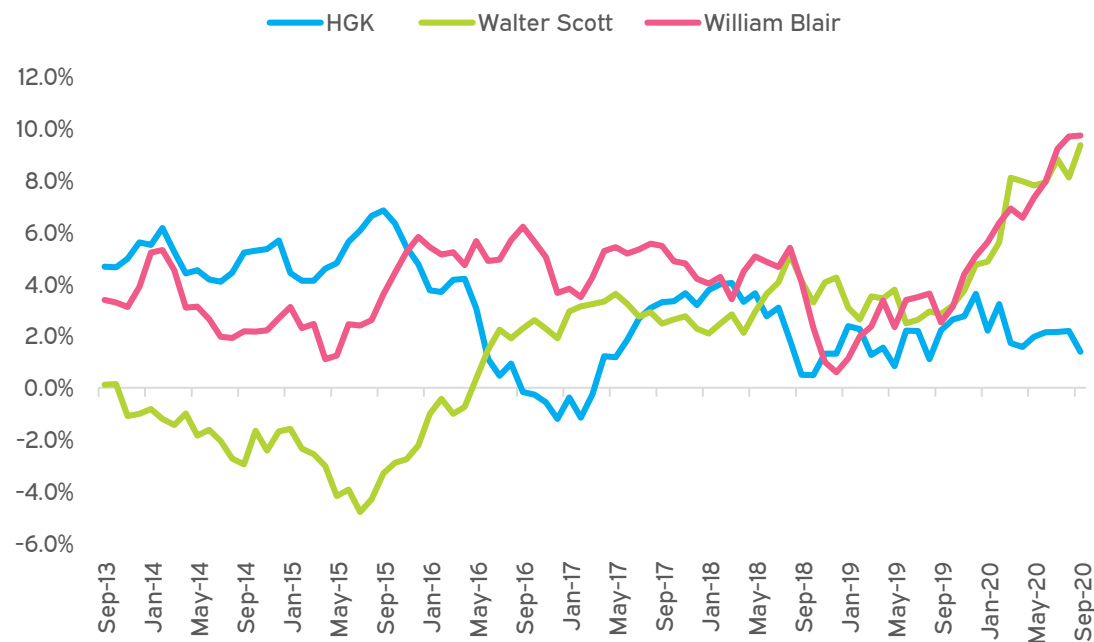
## Rolling 1-Year Excess Returns<sup>1</sup> (Last Ten-Years, As of September 30, 2020)



	Total Periods	Periods Outperformed	Percentage	Avg. Annual Excess	Median Annual Excess	Max	Min	Range
Walter Scott vs MSCI EAFE	109	78	72	2.4	3.0	16.7	-13.2	29.9
William Blair vs MSCI ACWI ex-US	109	87	80	4.8	4.3	20.4	-3.9	24.3
HGK vs MSCI EAFE	109	65	60	3.2	1.4	23.9	-6.6	30.4

<sup>1</sup> Net of fees.

## Rolling 3-Year Excess Returns<sup>1</sup> (Last Ten-Years, As of September 30, 2020)



	Total Periods	Periods Outperformed	Percentage	Avg. Annual Excess	Median Annual Excess	Max	Min	Range
Walter Scott vs MSCI EAFE	85	55	65	1.6	2.5	9.4	-4.8	14.1
William Blair vs MSCI ACWI ex-U.S.	85	85	100	4.2	4.2	9.7	0.6	9.1
HGK vs MSCI EAFE	85	78	92	3.0	3.2	6.8	-1.2	8.0

<sup>1</sup> Net of fees.

### Fees & Terms<sup>1</sup>

	Walter Scott	William Blair	HGK
Vehicle Name	International Equity	International Leaders	International Equity
Vehicle Type	Commingled Fund	Commingled Fund	Commingled Fund
Account Minimum	\$5 million	\$5 million	\$1 million
Liquidity	Daily	Daily	Monthly
Management Fee	0.75%	0.70%	0.80%
Other Expenses	0.10%	0.05%	0.10%
Estimated Effective All-In Fee	0.85%	0.75% on all assets	0.90%

<sup>1</sup> Subject to change as a result of negotiation, fee adjustment decisions, operating expense changes, and other factors.



## **Active – Passive Discussion**

## Background

- In 2019, the Board considered potential new passive mandates in International Equities, US Investment Grade Bonds, US TIPS, and REITS, in addition to the current US Large Cap Growth and Value mandates.
- The benefits of passive management are wide ranging, providing investors with:
  - low-cost exposure, reducing the overall costs of the plan.
  - diversified exposure, reducing active manager risk.
  - simplified manager roster, reducing manager search activity and monitoring.
  - daily liquidity, helping to maintain portfolio exposures during active manager transitions and manage total portfolio liquidity.
- The drawbacks of passive management are primarily based on the opportunity cost of lost potential alpha.
- Investors should consider utilizing active management within public markets if:
  - The investors and their advisers have the ability to identify active managers that can consistently add value, net of fees, AND
  - The asset class is one in which active managers have a good possibility of adding value, net of fees.
    - Those asset classes with wide dispersion in manager returns may indicate “inefficient markets” in which active management has a greater opportunity to add value

### Current Status

- The Association currently employs some passive management across the portfolio, with passive mandates in large cap US equities and TIPS.
  - Roughly 11% of the total current portfolio is invested passively.
  - According to a 2018 survey from Greenwich Associates, the median US public fund has approximately 22% invested passively.
- There is an opportunity to add passive exposure in international large cap equities, another relatively efficient asset class where it is challenging for managers to outperform the benchmark net of fees.
  - Since January 2016, the Association’s international developed equity portfolio has returned 2.9%, net of fees, versus 4.5% for the MSCI EAFE index as of September 30, 2020.
- At the November 2019 meeting, the Board decided to consider new passive mandates on a case-by-case basis alongside active managers.

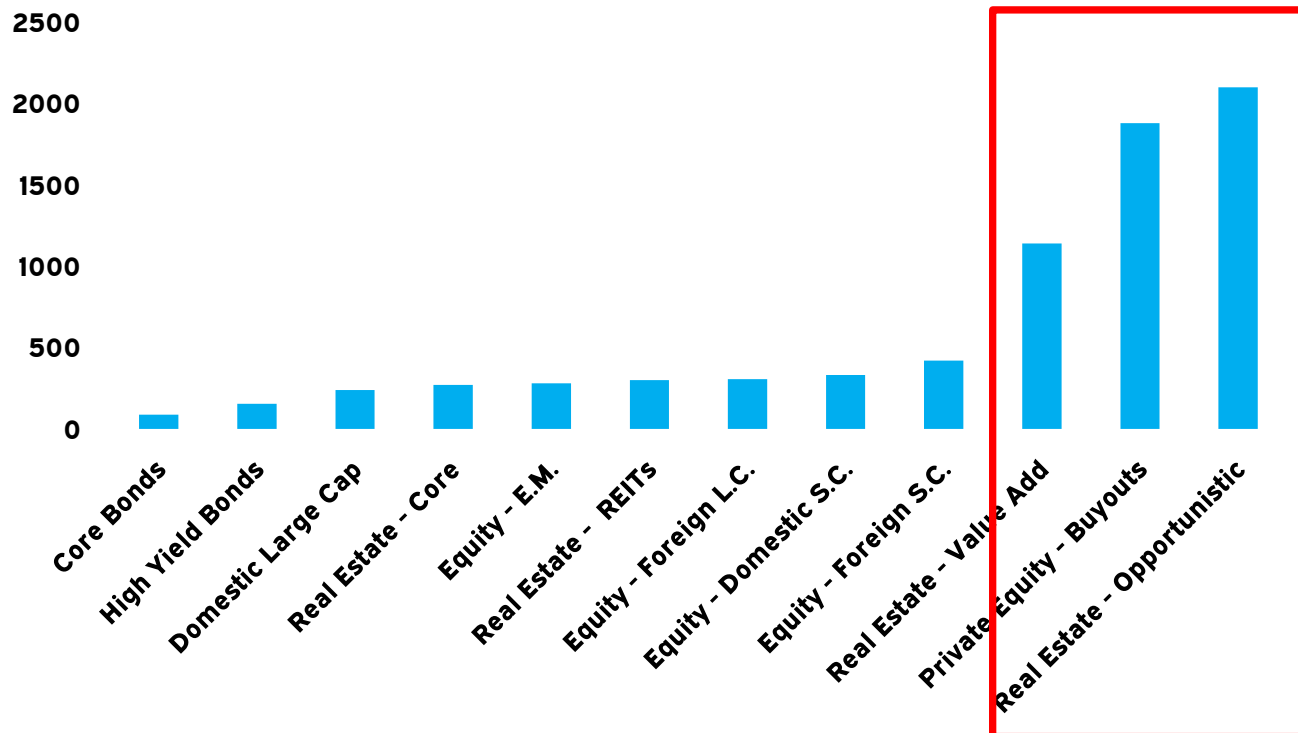
### Our Strategic Investment Philosophy

- We believe that in the long term, equity assets and private markets will generate superior returns.
  - We must invest more in these areas in the future to earn similar historical returns.
- We must mitigate this growth (equity) risk using thoughtfully constructed Risk Mitigating Strategies.
- Focus our active management time and fees in areas where the opportunities are the greatest.
  - Private Markets (Private Equity, Real Estate, and Infrastructure), Global, and Emerging Equity.
    - To a lesser extent, small cap equities and value-added fixed income.
  - Seek low cost efficient beta through index funds elsewhere.

## Active or Passive? Be Focused on Where to Use Active Management

- Superior managers can add value. The amount varies by the “efficiency” of the asset class:
  - Emphasize active management in less efficient and potential “high alpha” markets.
  - 89% of Meketa clients use passive investments. On average, 73% of domestic equities and 72% of investment grade bonds are passively invested.

**Interquartile Spread (bp)**



### Do Active Managers Add Value?

- Manager alpha is a zero sum game.
- Active management fees and trading costs can be a high hurdle.
- Someone is going to outperform.
- The odds for outperforming may depend on where you look.
- The amount of value that can be added definitely depends on where you look.
  - There is greater dispersion of manager returns for more volatile asset classes, such as small cap stocks and emerging market equities.
  - The gap between out- and under-performers is even larger for illiquid strategies such as hedge funds and private equity.
- Interquartile spreads provide a good indicator of how much value a “skilled” (or lucky) manager can add relative to an “unskilled” (or unlucky) manager.
  - The spread can also be interpreted as how much potential value lies in selecting superior active managers within each asset class.

Active Management Performance by Style  
 Median Outperformance<sup>1</sup>, Gross of Fees  
 (From Inception through May 2019)

Asset Class / Style	Median Outperformance (Gross, Annualized) (bp)	Inception
US Large Cap Core	-58	Jan. 1979
US Large Cap Growth	-25	Jan. 1979
US Large Cap Value	-27	Jan. 1979
US Small Cap Core	+34	Jan. 1979
US Small Cap Growth	+73	Jan. 1979
US Small Cap Value	+30	Jan. 1979
International Large Cap Core	-49	Jan. 2001
International Large Cap Growth	+67	Jan. 2001
International Large Cap Value	-34	Jan. 2001

- Within public equities, style made some difference on the outcome.
  - The growth strategies had the highest excess returns across all asset classes.
- In the international large cap space the median manager underperforms the benchmark, gross of fees.
  - While growth managers have performed better than value, after accounting for the average fee of 75 bps, the median growth manager has not outperformed the index.

<sup>1</sup> Measured against a style-specific benchmark.

Markets have become more “Efficient”  
Interquartile Spreads From Benchmark Inception to 2000 and From 2001 - 2019<sup>1</sup>

Asset Class	Avg IQ Spread (%) Pre-2001	Avg IQ Spread (%) 2001-2019	Difference (%) <sup>2</sup>
Core Bonds	2.67	2.02	-0.65
High Yield	4.06	3.51	-0.55
US Large Cap	8.81	6.27	-2.54
US Small Cap	12.37	8.47	-3.90
International Large Cap	10.82	5.86	-4.96
Emerging Markets	8.42	6.54	-1.88

- Narrowing interquartile spreads can be interpreted as a sign that markets are becoming more efficient, as the additive value from top ranked active managers declines relative to peers.
- As time passes, successful investment strategies become more widely known. As more managers adopt and execute these strategies, their informational advantages decreases, reducing their potential success.

<sup>1</sup> 2001 was chosen as cutoff given the likely impact of the internet and Reg FD. On August 15, 2000, the SEC adopted Regulation FD (Fair Disclosure) to address the selective disclosure of information by publicly traded companies and other issuers. Regulation FD provides that when an issuer discloses material nonpublic information to certain individuals or entities—generally, securities market professionals, such as stock analysts, or holders of the issuer's securities who may well trade on the basis of the information—the issuer must make public disclosure of that information.

<sup>2</sup> All measurements are statistically significant on a 95% confidence level.



**Manager Persistence: All Asset Classes Show a Similar Story<sup>1</sup>  
Average Rank of Top and Bottom Decile Funds After Five Years**

Asset Class	Avg Rank of Top Decile after 5 Years	Avg Rank of Bottom Decile after 5 Years
Core Bonds	63rd	33rd
High Yield	37th	31st
Large Cap	33rd	54th
Small Cap	45th	60th
International Large Cap	51st	31st
Emerging Markets	55th	51st

- If there is persistence among actively managed funds, then the average rank for top decile funds after five years should stay closer to its decile.
- However, for all public market asset classes, neither the top nor the bottom decile stayed in the respective decile after five years.
- Even if you select a top manager, the data shows they likely be average of the next five years.

<sup>1</sup> Distribution removes managers with less than five years of history.

# Appendix

## **Disclaimer, Glossary, and Notes**

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**Credit Risk:** Refers to the risk that the issuer of a fixed income security may default (i.e., the issuer will be unable to make timely principal and/or interest payments on the security.)

**Duration:** Measure of the sensitivity of the price of a bond to a change in its yield to maturity. Duration summarizes, in a single number, the characteristics that cause bond prices to change in response to a change in interest rates. For example, the price of a bond with a duration of three years will rise by approximately 3% for each 1% decrease in its yield to maturity. Conversely, the price will decrease 3% for each 1% increase in the bond's yield. Price changes for two different bonds can be compared using duration. A bond with a duration of six years will exhibit twice the percentage price change of a bond with a three-year duration. The actual calculation of a bond's duration is somewhat complicated, but the idea behind the calculation is straightforward. The first step is to measure the time interval until receipt for each cash flow (coupon and principal payments) from a bond. The second step is to compute a weighted average of these time intervals. Each time interval is measured by the present value of that cash flow. This weighted average is the duration of the bond measured in years.

**Information Ratio:** This statistic is a measure of the consistency of a portfolio's performance relative to a benchmark. It is calculated by subtracting the benchmark return from the portfolio return (excess return), and dividing the resulting excess return by the standard deviation (volatility) of this excess return. A positive information ratio indicates outperformance versus the benchmark, and the higher the information ratio, the more consistent the outperformance.

**Jensen's Alpha:** A measure of the average return of a portfolio or investment in excess of what is predicted by its beta or "market" risk.  $\text{Portfolio Return} - [\text{Risk Free Rate} + \text{Beta} * (\text{market return} - \text{Risk Free Rate})]$ .

**Market Capitalization:** For a firm, market capitalization is the total market value of outstanding common stock. For a portfolio, market capitalization is the sum of the capitalization of each company weighted by the ratio of holdings in that company to total portfolio holdings; thus it is a weighted-average capitalization. Meketa Investment Group considers the largest 65% of the broad domestic equity market as large capitalization, the next 25% of the market as medium capitalization, and the smallest 10% of stocks as small capitalization.

**Market Weighted:** Stocks in many indices are weighted based on the total market capitalization of the issue. Thus, the individual returns of higher market-capitalization issues will more heavily influence an index's return than the returns of the smaller market-capitalization issues in the index.

**Maturity:** The date on which a loan, bond, mortgage, or other debt/security becomes due and is to be paid off.

**Prepayment Risk:** The risk that prepayments will increase (homeowners will prepay all or part of their mortgage) when mortgage interest rates decline; hence, investors' monies will be returned to them in a lower interest rate environment. Also, the risk that prepayments will slow down when mortgage interest rates rise; hence, investors will not have as much money as previously anticipated in a higher interest rate environment. A prepayment is any payment in excess of the scheduled mortgage payment.

**Price-Book Value (P/B) Ratio:** The current market price of a stock divided by its book value per share. Meketa Investment Group calculates P/B as the current price divided by Compustat's quarterly common equity. Common equity includes common stock, capital surplus, retained earnings, and treasury stock adjusted for both common and nonredeemable preferred stock. Similar to high P/E stocks, stocks with high P/B's tend to be riskier investments.

**Price-Earnings (P/E) Ratio:** A stock's market price divided by its current or estimated future earnings. Lower P/E ratios often characterize stocks in low growth or mature industries, stocks in groups that have fallen out of favor, or stocks of established blue chip companies with long records of stable earnings and regular dividends. Sometimes a company that has good fundamentals may be viewed unfavorably by the market if it is an industry that is temporarily out of favor. Or a business may have experienced financial problems causing investors to be skeptical about its future. Either of these situations would result in lower relative P/E ratios. Some stocks exhibit above-average sales and earnings growth or expectations for above average growth. Consequently, investors are willing to pay more for these companies' earnings, which results in elevated P/E ratios. In other words, investors will pay more for shares of companies whose profits, in their opinion, are expected to increase faster than average. Because future events are in no way assured, high P/E stocks tend to be riskier and more volatile investments. Meketa Investment Group calculates P/E as the current price divided by the I/B/E/S consensus of twelve-month forecast earnings per share.

**Quality Rating:** The rank assigned a security by such rating services as Fitch, Moody's, and Standard & Poor's. The rating may be determined by such factors as (1) the likelihood of fulfillment of dividend, income, and principal payment of obligations; (2) the nature and provisions of the issue; and (3) the security's relative position in the event of liquidation of the company. Bonds assigned the top four grades (AAA, AA, A, BBB) are considered investment grade because they are eligible bank investments as determined by the controller of the currency.

**Sharpe Ratio:** A commonly used measure of risk-adjusted return. It is calculated by subtracting the risk-free return (usually three-month Treasury bill) from the portfolio return and dividing the resulting excess return by the portfolio's total risk level (standard deviation). The result is a measure of return per unit of total risk taken. The higher the Sharpe ratio, the better the fund's historical risk adjusted performance.

**SI:** Since Inception

**STIF Account:** Short-term investment fund at a custodian bank that invests in cash-equivalent instruments. It is generally used to safely invest the excess cash held by portfolio managers.

**Standard Deviation:** A measure of the total risk of an asset or a portfolio. Standard deviation measures the dispersion of a set of numbers around a central point (e.g., the average return). If the standard deviation is small, the distribution is concentrated within a narrow range of values. For a normal distribution, about two thirds of the observations will fall within one standard deviation of the mean, and 95% of the observations will fall within two standard deviations of the mean.

**Style:** The description of the type of approach and strategy utilized by an investment manager to manage funds. For example, the style for equities is determined by portfolio characteristics such as price-to-book value, price-to-earnings ratio, and dividend yield. Equity styles include growth, value, and core.

**Tracking Error:** A divergence between the price behavior of a position or a portfolio and the price behavior of a benchmark, as defined by the difference in standard deviation.

**Yield to Maturity:** The yield, or return, provided by a bond to its maturity date; determined by a mathematical process, usually requiring the use of a “basis book.” For example, a 5% bond pays \$5 a year interest on each \$100 par value. To figure its current yield, divide \$5 by \$95—the market price of the bond—and you get 5.26%. Assume that the same bond is due to mature in five years. On the maturity date, the issuer is pledged to pay \$100 for the bond that can be bought now for \$95. In other words, the bond is selling at a discount of 5% below par value. To figure yield to maturity, a simple and approximate method is to divide 5% by the five years to maturity, which equals 1% pro rata yearly. Add that 1% to the 5.26% current yield, and the yield to maturity is roughly 6.26%.

$$\frac{5\% \text{ (discount)}}{5 \text{ (yrs. to maturity)}} = 1\% \text{ pro rata, plus } 5.26\% \text{ (current yield)} = 6.26\% \text{ (yield to maturity)}$$

**Yield to Worst:** The lowest potential yield that can be received on a bond without the issuer actually defaulting. The yield to worst is calculated by making worst-case scenario assumptions on the issue by calculating the returns that would be received if provisions, including prepayment, call, or sinking fund, are used by the issuer.

**NCREIF Property Index (NPI):** Measures unleveraged investment performance of a very large pool of individual commercial real estate properties acquired in the private market by tax-exempt institutional investors for investment purposes only. The NPI index is capitalization-weighted for a quarterly time series composite total rate of return.

**NCREIF Fund Index - Open End Diversified Core Equity (NFI-ODCE):** Measures the investment performance of 28 open-end commingled funds pursuing a core investment strategy that reflects funds' leverage and cash positions. The NFI-ODCE index is equal-weighted and is reported gross and net of fees for a quarterly time series composite total rate of return.

Sources: [Investment Terminology](#), International Foundation of Employee Benefit Plans, 1999.  
[The Handbook of Fixed Income Securities](#), Fabozzi, Frank J., 1991

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Throughout this report, numbers may not sum due to rounding.

Returns for periods greater than one year are annualized throughout this report.

Values shown are in millions of dollars, unless noted otherwise.