MEETING MATERIALS

HOWARD COUNTY RETIREMENT PLANS

February 27, 2020

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JANUARY 2020 FLASH REPORT

NEPC, LLC

CALENDAR YEAR INDEX PERFORMANCE

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Jan	YTD
S&P 500	15.1%	2.1%	16.0%	32.4%	13.7%	1.4%	12.0%	21.8%	-4.4%	31.5%	0.0%	0.0%
Russell 1000	16.1%	1.5%	16.4%	33.1%	13.2%	0.9%	12.1%	21.7%	-4.8%	31.4%	0.1%	0.1%
Russell 2000	26.9%	-4.2%	16.3%	38.8%	4.9%	-4.4%	21.3%	14.6%	-11.0%	25.5%	-3.2%	-3.2%
Russell 2500	26.7%	-2.5%	17.9%	36.8%	7.1%	-2.9%	17.6%	16.8%	-10.0%	27.8%	-2.0%	-2.0%
MSCI EAFE	7.8%	-12.1%	17.3%	22.8%	-4.9%	-0.8%	1.0%	25.0%	-13.8%	22.0%	-2.1%	-2.1%
MSCI EM	18.9%	-18.4%	18.2%	-2.6%	-2.2%	-14.9%	11.2%	37.3%	-14.6%	18.4%	-4.7%	-4.7%
MSCI ACWI	12.7%	-7.3%	16.1%	22.8%	4.2%	-2.4%	7.9%	24.0%	-9.4%	26.6%	-1.1%	-1.1%
Private Equity	19.8%	9.5%	12.6%	22.3%	14.6%	10.4%	10.3%	21.0%	13.1%	11.0%	-	11.0%
BC TIPS	6.3%	13.6%	7.0%	-8.6%	3.6%	-1.4%	4.7%	3.0%	-1.3%	8.4%	2.1%	2.1%
BC Municipal	2.4%	10.7%	6.8%	-2.6%	9.1%	3.3%	0.2%	5.4%	1.3%	7.5%	1.8%	1.8%
BC Muni High Yield	7.8%	9.2%	18.1%	-5.5%	13.8%	1.8%	3.0%	9.7%	4.8%	10.7%	2.5%	2.5%
BC US Corporate HY	15.1%	5.0%	15.8%	7.4%	2.5%	-4.5%	17.1%	7.5%	-2.1%	14.3%	0.0%	0.0%
BC US Agg Bond	6.5%	7.8%	4.2%	-2.0%	6.0%	0.5%	2.6%	3.5%	0.0%	8.7%	1.9%	1.9%
BC Global Agg	5.5%	5.6%	4.3%	-2.6%	0.6%	-3.2%	2.1%	7.4%	-1.2%	6.8%	1.3%	1.3%
BC Long Treasuries	9.4%	29.9%	3.6%	-12.7%	25.1%	-1.2%	1.3%	8.5%	-1.8%	14.8%	6.8%	6.8%
BC US Long Credit	10.7%	17.1%	12.7%	-6.6%	16.4%	-4.6%	10.2%	12.2%	-6.8%	23.4%	4.1%	4.1%
BC US STRIPS 20+ Yr	10.9%	58.5%	3.0%	-21.0%	46.4%	-3.7%	1.4%	13.7%	-4.1%	20.9%	9.5%	9.5%
JPM GBI-EM Global Div	15.7%	-1.8%	16.8%	-9.0%	-5.7%	-14.9%	9.9%	15.2%	-6.2%	13.5%	-1.3%	-1.3%
JPM EMBI Glob Div	12.2%	7.3%	17.4%	-5.3%	7.4%	1.2%	10.2%	10.3%	-4.3%	15.0%	1.5%	1.5%
CS Hedge Fund	10.9%	-2.5%	7.7%	9.7%	4.1%	-0.7%	1.2%	7.1%	-3.2%	9.3%	-	9.3%
BBG Commodity	16.8%	-13.3%	-1.1%	-9.5%	-17.0%	-24.7%	11.8%	1.7%	-11.2%	7.7%	-7.4%	-7.4%
Alerian MLP	35.9%	13.9%	4.8%	27.6%	4.8%	-32.6%	18.3%	-6.5%	-12.4%	6.6%	-5.6%	-5.6%
FTSE NAREIT Equity REITs	28.0%	8.3%	18.1%	2.5%	30.1%	3.2%	8.5%	5.2%	-4.6%	26.0%	1.2%	1.2%

Source: FactSet, Barclays, Thomson One

*Private Equity return represents calendar year pooled IRR and is subject to a one quarter lag

TRAILING ANNUAL INDEX PERFORMANCE

Equity						
	Jan-20	YTD	1 YR	3 YR	5 YR	10 YR
MSCI ACWI	-1.1%	-1.1%	16.0%	11.0%	8.5%	9.1%
S&P 500	0.0%	0.0%	21.7%	14.5%	12.4%	14.0%
Russell 1000	0.1%	0.1%	21.4%	14.3%	12.1%	14.0%
Russell 2000	-3.2%	-3.2%	9.2%	7.3%	8.2%	11.9%
Russell 2500	-2.0%	-2.0%	12.2%	9.1%	8.9%	12.7%
MSCI EAFE	-2.1%	-2.1%	12.1%	7.8%	5.1%	5.8%
MSCI EM	-4.7%	-4.7%	3.8%	7.9%	4.5%	3.8%

Credit						
	Jan-20	YTD	1 YR	3 YR	5 YR	10 YR
BC Global Agg	1.3%	1.3%	6.6%	4.3%	2.6%	2.6%
BC US Agg	1.9%	1.9%	9.6%	4.6%	3.0%	3.8%
BC Credit	2.3%	2.3%	14.0%	6.5%	4.3%	5.4%
BC US HY	0.0%	0.0%	9.4%	5.9%	6.0%	7.4%
BC Muni	1.8%	1.8%	8.6%	5.1%	3.5%	4.5%
BC Muni HY	2.5%	2.5%	12.7%	8.7%	6.1%	7.3%
BC TIPS	2.1%	2.1%	9.2%	3.7%	2.4%	3.4%
BC 20+ STRIPS	9.5%	9.5%	31.5%	12.8%	4.4%	11.1%
BC Long Treasuries	6.8%	6.8%	21.9%	9.2%	3.8%	7.4%
BC Long Credit	4.1%	4.1%	24.1%	10.2%	6.1%	8.3%
BC Govt/Credit 1-3 Yr	0.6%	0.6%	4.2%	2.3%	1.7%	1.5%
JPM EMBI Glob Div	1.5%	1.5%	11.9%	6.7%	6.4%	7.0%
JPM GBI-EM Glob Div	-1.3%	-1.3%	6.2%	5.8%	2.4%	2.5%

Real Assets						
	Jan-20	YTD	1 YR	3 YR	5 YR	10 YR
BBG Commodity	-7.4%	-7.4%	-5.4%	-3.5%	-4.7%	-4.7%
Alerian MLP	-5.6%	-5.6%	-10.7%	-7.8%	-7.5%	3.5%
FTSE NAREIT Equity REITs	1.2%	1.2%	14.1%	8.5%	6.1%	12.7%

Source: S&P, MSCI, Russell, Barclays, JPM, Alerian, FTSE, FactSet

Howard County Retirement Plans

TOTAL FUND PERFORMANCE SUMMARY (GROSS)

				Ending January 31, 2020						
	Market Value ($)	% of Portfolio	Policy %	1 Mo (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Fund Composite	**1,148,027,130**	**100.0**	**100.0**	**-0.4**	**11.8**	**9.4**	**7.7**	**8.4**	**7.4**	**Apr-97**
Policy Index				*-0.2*	*11.2*	*8.5*	*6.9*	*8.0*	*7.4*	*Apr-97*
Allocation Index				*-0.2*	*--*	*--*	*--*	*--*	*--*	*Apr-97*
Total US Equity Composite	**283,662,026**	**24.7**	**20.0**	**-0.5**	**18.2**	**14.1**	**12.3**	**14.4**	**8.7**	**Jul-97**
Russell 3000				*-0.1*	*20.5*	*13.8*	*11.8*	*13.8*	*8.1*	*Jul-97*
US Equity Allocation Index				*-0.4*	*19.3*	*13.1*	*11.5*	*13.9*	*--*	*Jul-97*
Total International Equity	**202,310,202**	**17.6**	**20.0**	**-4.4**	**11.0**	**8.4**	**5.6**	**5.5**	**4.7**	**Jul-97**
MSCI ACWI ex USA				*-2.7*	*9.9*	*7.6*	*5.0*	*5.2*	*4.7*	*Jul-97*
Total Fixed Income Composite	**335,598,840**	**29.2**	**30.0**	**1.6**	**9.4**	**5.3**	**4.2**	**5.0**	**5.5**	**Jul-97**
Fixed Income Policy Index				*1.9*	*9.6*	*4.6*	*3.0*	*3.8*	*5.3*	*Jul-97*
Total Real Assets Composite	**41,916,629**	**3.7**	**7.5**	**0.0**	**-0.2**	**8.5**	**8.7**	**4.8**	**7.1**	**Jul-03**
NCREIF Property Index 1 Qtr. Lag				*0.0*	*6.2*	*6.8*	*8.6*	*9.8*	*8.7*	*Jul-03*
Cash Composite	**9,394,256**	**0.8**		**0.1**	**1.5**	**1.4**	**0.8**	**0.4**	**1.4**	**Dec-03**
91 Day T-Bills				*0.1*	*2.0*	*1.7*	*1.1*	*0.6*	*1.3*	*Dec-03*
Hedge Fund Composite	**124,272,516**	**10.8**	**12.5**	**0.4**	**6.3**	**5.2**	**4.1**	**--**	**4.7**	**Jan-11**
HFRI FOF: Conservative Index				*0.6*	*5.0*	*3.2*	*2.5*	*2.8*	*2.6*	*Jan-11*
Private Equity Composite	**150,872,661**	**13.1**	**10.0**	**0.0**	**15.3**	**17.6**	**15.6**	**13.4**	**13.1**	**Jul-08**
Cambridge Associates Global All PE (Qtr Lag)				*0.0*	*7.9*	*13.3*	*11.1*	*13.0*	*9.2*	*Jul-08*

Fiscal year end 6/30.

All history prior to 3/1/2019 was provided by AndCo.

Howard County Retirement Plans

TOTAL FUND PERFORMANCE DETAIL (GROSS)

	Market Value ($)	% of Portfolio	Policy %	1 Mo (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
					Ending January 31, 2020					
Total Fund Composite	**1,148,027,130**	**100.0**	**100.0**	**-0.4**	**11.8**	**9.4**	**7.7**	**8.4**	**7.4**	**Apr-97**
Policy Index				*-0.2*	*11.2*	*8.5*	*6.9*	*8.0*	*7.4*	*Apr-97*
Allocation Index				*-0.2*	*--*	*--*	*--*	*--*	*--*	*Apr-97*
Total US Equity Composite	**283,662,026**	**24.7**	**20.0**	**-0.5**	**18.2**	**14.1**	**12.3**	**14.4**	**8.7**	**Jul-97**
Russell 3000				*-0.1*	*20.5*	*13.8*	*11.8*	*13.8*	*8.1*	*Jul-97*
US Equity Allocation Index				*-0.4*	*19.3*	*13.1*	*11.5*	*13.9*	*--*	*Jul-97*
Large Cap Composite	**219,980,743**	**19.2**	**15.0**	**-0.5**	**18.9**	**14.0**	**11.8**	**14.1**	**8.8**	**Apr-01**
Russell 1000				*0.1*	*21.4*	*14.3*	*12.1*	*14.0*	*7.9*	*Apr-01*
LSV Asset Management SMA	65,583,075	5.7		-5.1	9.5	8.0	8.8	12.7	9.7	May-00
Russell 1000 Value				*-2.2*	*14.9*	*8.6*	*8.7*	*11.9*	*7.0*	*May-00*
Westfield Capital Management SMA	84,271,512	7.3		2.9	27.2	20.5	15.0	--	16.6	Jul-10
Russell 1000 Growth				*2.2*	*27.9*	*20.0*	*15.5*	*16.0*	*17.2*	*Jul-10*
BlackRock Equity Index Non-Lendable Fund	70,126,156	6.1		0.0	--	--	--	--	3.0	Dec-19
S&P 500				*0.0*	*21.7*	*14.5*	*12.4*	*14.0*	*3.0*	*Dec-19*
Small/Mid Cap Composite	**63,681,282**	**5.5**	**5.0**	**-0.6**	**15.9**	**14.0**	**13.8**	**15.0**	**12.2**	**Apr-93**
Russell 2500				*-2.0*	*12.2*	*9.1*	*8.9*	*12.7*	*10.3*	*Apr-93*
William Blair SMA	21,431,495	1.9		1.0	21.2	18.8	14.8	16.7	12.3	Jun-06
Russell 2500 Growth				*0.1*	*18.7*	*14.3*	*11.2*	*14.5*	*9.8*	*Jun-06*
ICM Small Company - ICSCX	23,353,041	2.0		-4.7	8.5	6.2	10.2	12.2	11.7	Apr-93
Russell 2000 Value				*-5.4*	*4.4*	*3.1*	*6.7*	*10.3*	*9.6*	*Apr-93*
Brown Capital Small Company Strategy SMA	18,896,747	1.6		3.0	20.2	20.7	17.9	--	18.5	Aug-11
Russell 2000 Growth				*-1.1*	*13.9*	*11.5*	*9.6*	*13.4*	*11.4*	*Aug-11*

TOTAL FUND PERFORMANCE DETAIL (GROSS)

	Market Value ($)	% of Portfolio	Policy %	1 Mo (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
				Ending January 31, 2020						
Total International Equity	**202,310,202**	**17.6**	**20.0**	**-4.4**	**11.0**	**8.4**	**5.6**	**5.5**	**4.7**	**Jul-97**
MSCI ACWI ex USA				*-2.7*	*9.9*	*7.6*	*5.0*	*5.2*	*4.7*	*Jul-97*
International Developed Markets Composite	**134,517,127**	**11.7**	**13.0**	**-3.6**	**14.7**	**8.6**	**5.4**	**6.5**	**3.4**	**Mar-08**
MSCI EAFE				*-2.1*	*12.1*	*7.8*	*5.1*	*5.8*	*2.6*	*Mar-08*
Mondrian International Equity Fund, L.P.	62,982,885	5.5		-3.5	9.1	7.3	4.5	5.9	2.1	Dec-07
MSCI EAFE				*-2.1*	*12.1*	*7.8*	*5.1*	*5.8*	*1.6*	*Dec-07*
Baillie Gifford EAFE Pure K - BGPKX	71,534,242	6.2		-3.7	20.2	--	--	--	5.1	May-18
MSCI EAFE				*-2.1*	*12.1*	*7.8*	*5.1*	*5.8*	*1.3*	*May-18*
International Emerging Markets Composite	**67,793,075**	**5.9**	**7.0**	**-5.8**	**4.3**	**7.9**	**5.8**	**3.6**	**5.7**	**Feb-06**
MSCI Emerging Markets				*-4.7*	*3.8*	*7.9*	*4.5*	*3.8*	*4.6*	*Feb-06*
DFA Emerging Markets Value Portfolio Institutional - DFEVX	26,152,210	2.3		-8.0	-5.5	4.0	3.5	2.5	5.1	Feb-06
MSCI Emerging Markets				*-4.7*	*3.8*	*7.9*	*4.5*	*3.8*	*4.6*	*Feb-06*
GQG Partners Emerging Markets Equity Fund	41,640,865	3.6		-4.3	11.6	--	--	--	14.9	Dec-18
MSCI Emerging Markets				*-4.7*	*3.8*	*7.9*	*4.5*	*3.8*	*8.4*	*Dec-18*
Total Fixed Income Composite	**335,598,840**	**29.2**	**30.0**	**1.6**	**9.4**	**5.3**	**4.2**	**5.0**	**5.5**	**Jul-97**
BBgBarc US Aggregate TR				*1.9*	*9.6*	*4.6*	*3.0*	*3.8*	*5.2*	*Jul-97*
Core Fixed Income Composite	**288,456,550**	**25.1**	**25.0**	**2.0**	**--**	**--**	**--**	**--**	**9.5**	**Mar-19**
BBgBarc US Aggregate TR				*1.9*	*9.6*	*4.6*	*3.0*	*3.8*	*9.7*	*Mar-19*
Dodge & Cox SMA	142,517,917	12.4		1.7	9.9	5.3	4.1	--	4.8	May-10
BBgBarc US Aggregate TR				*1.9*	*9.6*	*4.6*	*3.0*	*3.8*	*3.7*	*May-10*
PIMCO Total Return	122,438,795	10.7		2.4	9.7	5.0	3.4	--	4.3	May-10
BBgBarc US Aggregate TR				*1.9*	*9.6*	*4.6*	*3.0*	*3.8*	*3.7*	*May-10*
State Street Global Advisors TIPS	23,499,837	2.0		2.1	9.2	3.7	2.4	3.4	3.5	Nov-09
BBgBarc US TIPS TR				*2.1*	*9.2*	*3.7*	*2.4*	*3.4*	*3.5*	*Nov-09*
Emerging Markets Debt Composite	**47,142,290**	**4.1**	**5.0**	**-0.8**	**--**	**--**	**--**	**--**	**8.2**	**Mar-19**
JP Morgan GBI EM Global Diversified TR USD				*-1.3*	*6.2*	*5.8*	*2.4*	*2.5*	*7.4*	*Mar-19*
Colchester Local Markets Debt Fund	47,142,290	4.1		-0.8	7.2	7.3	--	--	9.0	Oct-15
JP Morgan GBI EM Global Diversified TR USD				*-1.3*	*6.2*	*5.8*	*2.4*	*2.5*	*6.8*	*Oct-15*

Howard County Retirement Plans

TOTAL FUND PERFORMANCE DETAIL (GROSS)

	Market Value ($)	% of Portfolio	Policy %	1 Mo (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
					Ending January 31, 2020					
Total Real Assets Composite	**41,916,629**	**3.7**	**7.5**	**0.0**	**-0.2**	**8.5**	**8.7**	**4.8**	**7.1**	**Jul-03**
NCREIF Property Index 1 Qtr. Lag				*0.0*	*6.2*	*6.8*	*8.6*	*9.8*	*8.7*	*Jul-03*
Real Estate Composite	**28,366,755**	**2.5**		**0.0**	**--**	**--**	**--**	**--**	**2.0**	**Mar-19**
NCREIF Property Index 1 Qtr. Lag				*0.0*	*6.2*	*6.8*	*8.6*	*9.8*	*6.2*	*Mar-19*
Realty Associates Fund VIII L.P.	4,267	0.0		0.0	-47.5	-13.7	-4.3	-2.5	-2.7	Jul-07
Partners Group Global RE 2011	4,291,180	0.4		0.0	-17.8	-2.2	1.1	--	2.6	Mar-12
Partners Group Global RE 2014	19,063,702	1.7		0.0	8.3	12.1	9.9	--	9.5	Dec-14
Partners Group Global RE 2017	5,007,605	0.4		0.0	6.8	--	--	--	5.8	Dec-18
NCREIF Property Index 1 Qtr. Lag				*0.0*	*6.2*	*6.8*	*8.6*	*9.8*	*6.8*	*Dec-18*
Real Assets Composite	**13,549,874**	**1.2**		**0.0**	**--**	**--**	**--**	**--**	**-7.6**	**Mar-19**
Cambridge Associates Global Natural Resources (1 Qtr Lag)				*0.0*	*-10.7*	*3.3*	*-3.0*	*4.4*	*-10.7*	*Mar-19*
Commonfund Natural Resources X	4,934,566	0.4		0.0	2.1	16.0	--	--	16.5	Apr-16
Commonfund Natural Resources XI	1,193,962	0.1		0.0	-41.3	--	--	--	-33.0	Oct-18
Aether Real Assets IV	6,159,871	0.5		0.0	-3.2	5.3	--	--	3.0	Jun-16
Aether Real Assets V	1,261,475	0.1		0.0	-70.2	--	--	--	-34.2	Aug-18
Cambridge Associates Global Natural Resources (1 Qtr Lag)				*0.0*	*-10.7*	*3.3*	*-3.0*	*4.4*	*-3.7*	*Aug-18*
Cash Composite	**9,394,256**	**0.8**	**0.0**	**0.1**	**1.5**	**1.4**	**0.8**	**0.4**	**1.4**	**Dec-03**
91 Day T-Bills				*0.1*	*2.0*	*1.7*	*1.1*	*0.6*	*1.3*	*Dec-03*
Hedge Fund Composite	**124,272,516**	**10.8**	**12.5**	**0.4**	**6.3**	**5.2**	**4.1**	**--**	**4.7**	**Jan-11**
HFRI FOF: Conservative Index				*0.6*	*5.0*	*3.2*	*2.5*	*2.8*	*2.6*	*Jan-11*
Magnitude International Class A Eligible	61,161,948	5.3		0.4	5.7	5.0	3.5	--	4.6	Jan-11
HFRI FOF: Conservative Index				*0.6*	*5.0*	*3.2*	*2.5*	*2.8*	*2.6*	*Jan-11*
Blackstone Partners Offshore Fund LTD	63,110,568	5.5		0.4	6.4	5.3	4.7	--	4.9	Mar-11
HFRI FOF: Conservative Index				*0.6*	*5.0*	*3.2*	*2.5*	*2.8*	*2.5*	*Mar-11*
Private Equity Composite	**150,872,661**	**13.1**	**10.0**	**0.0**	**15.3**	**17.6**	**15.6**	**13.4**	**13.1**	**Jul-08**
Cambridge Associates Global All PE (Qtr Lag)				*0.0*	*7.9*	*13.3*	*11.1*	*13.0*	*9.2*	*Jul-08*

Magnitude International Class A Eligible is preliminary.

TOTAL FUND PERFORMANCE DETAIL FOOTNOTES

Fiscal year ends 6/30.

Policy index consists of: 15% S&P 500 / 5% Russell 2500 / 13% MSCI EAFE / 7% MSCI Emerging Markets / 25% BBgBarc US Aggregate TR / 5% JP Morgan GBI EM Global Diversified TR USD / 7.5% NCREIF Property Index 1 Qtr. Lag / 12.5% HFRI FOF: Conservative Index / 10% Private Equity Composite.

Allocation index consists of: Weighted index of underlying managers to their respective benchmark.

Fixed Income Policy index consists of: 100% BBgBarc US Aggregate TR.

Real Estate, Real Assets and Private Equity investments are valued as of 06/30/2019 and adjusted for capital calls and distributions through 10/30/2019.

All history prior to 3/1/2019 was provided by AndCo.

Q4 2019 MARKET ENVIRONMENT

NEPC, LLC

PERFORMANCE OVERVIEW

Q4 Market Summary

Macro			Equity			Credit			Real Assets		
US Dollar	VIX	US 10-Yr	S&P 500	MSCI EAFE	MSCI EM	US Agg.	High Yield	Dollar EMD	Oil	Gold	REITS
-3.0%	-2.5	24 bps	9.1%	8.2%	11.8%	0.2%	2.6%	1.8%	13.0%	3.1%	0.6%

Global risk assets rallied during the quarter as prospects of a trade deal increased and global central banks continued easing monetary policy to offset economic growth concerns

Dollar weakness provided a tailwind for international and emerging market asset returns

Increasing yields caused the spread between the 10-year and 3-month Treasuries to move into positive territory, widening to 37 basis points – marking the largest spread since January 2019

Market segment (index representation) as follows: US Dollar (DXY Index), VIX (CBOE Volatility Index), US 10-Year (US 10-Year Treasury Yield), S&P 500 (US Equity), MSCI EAFE Index (International Developed Equity), MSCI Emerging Markets (Emerging Markets Equity), US Agg (Barclays US Aggregate Bond Index), High Yield (Barclays US High Yield Index), Dollar EMD (JPM EMBI Global Diversified Index), Crude Oil (WTI Crude Oil Spot), Gold (Gold Price Spot), and REITs (NAREIT Composite Index). Source: FactSet

MACRO PERFORMANCE OVERVIEW

Q4 Macro Market Summary

Global central banks continued easing with the Fed cutting rates and the ECB reigniting monthly bond purchases

Emerging market currencies appreciated relative to the dollar as trade concerns eased

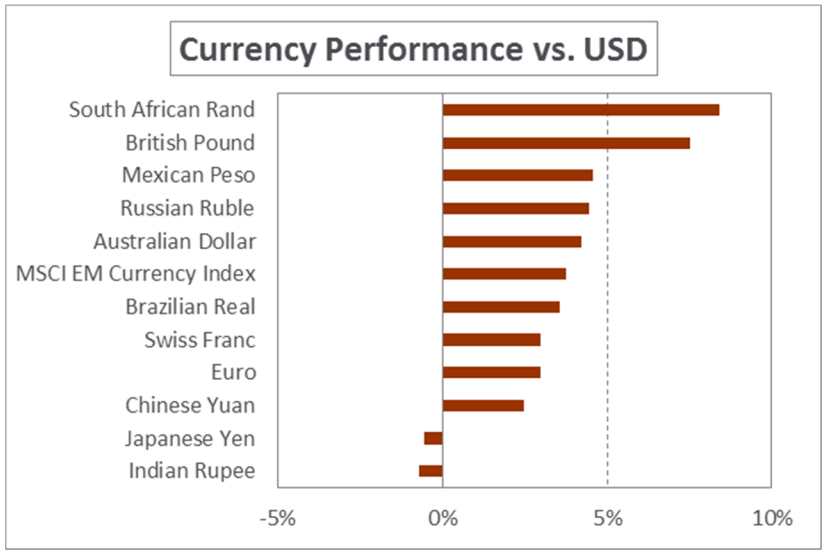
Global government bond yields increased reflecting optimism around trade and expected growth

	Yield 9/30/19	Yield 12/31/19	|Δ|
US 10-Year	1.68%	1.92%	+0.24%
US 30-Year	2.12%	2.39%	+0.27%
US Real 10-Year	0.15%	0.15%	-
German 10-Year	-0.58%	-0.19%	+0.40%
Japan 10-Year	-0.23%	-0.02%	+0.21%
China 10-Year	3.17%	3.20%	+0.03%
EM Local Debt	5.21%	5.22%	+0.01%

Source: FactSet

Central Banks	Current Rate	CPI YOY	Notes from the Quarter
Federal Reserve	1.50% - 1.75%	2.0%	The Fed cut interest rates by 25 basis points in October and signaled a pause from further rate cuts
European Central Bank	0.00%	1.0%	The ECB maintained its current benchmark interest rates and restarted monthly bond purchases of €20 billion in November
Bank of Japan	-0.10%	0.5%	The BoJ will continue its ultra-easy QE program with inflation remaining well below target

Source: FactSet



Source: FactSet

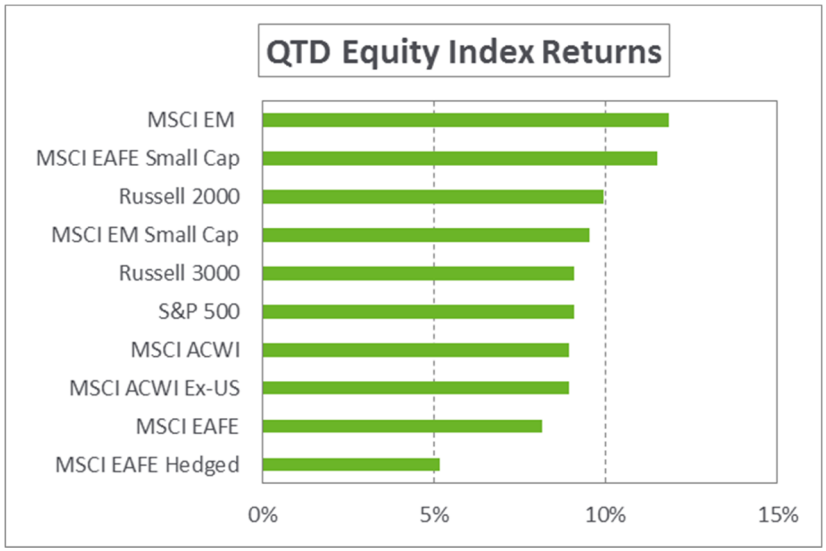
EQUITY PERFORMANCE OVERVIEW

Q4 Equity Market Summary

Global equities posted stellar returns in Q4, adding to already sizable year-to-date gains

Dollar weakness provided a boon to international and emerging market returns

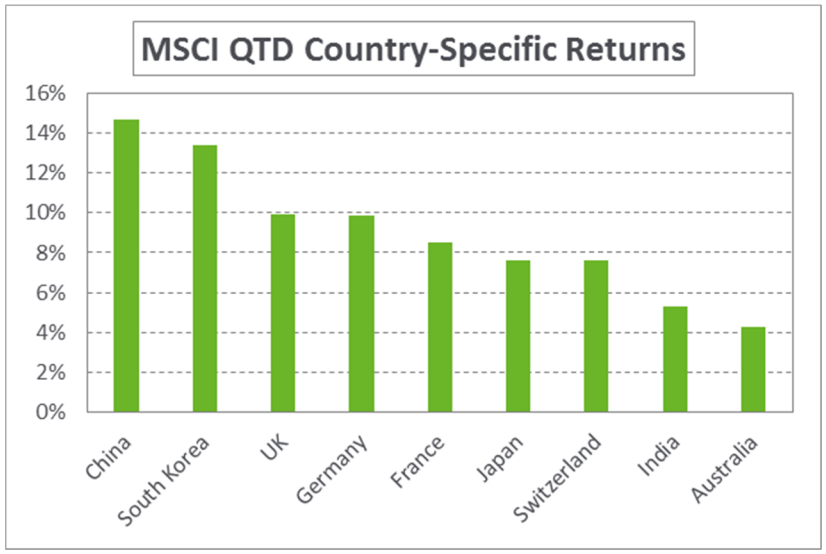
Chinese equities outperformed broad emerging market equities – following news of a potential trade deal between the US and China



Source: FactSet

Russell 3000 QTD Sector Returns	
Technology	+14.3%
Health Care	+14.9%
Consumer Discretionary	+6.3%
Consumer Staples	+4.7%
Energy	+5.7%
Materials & Processing	+7.0%
Producer Durables	+6.4%
Financial Services	+7.6%
Utilities	+1.5%

Source: FactSet



Source: FactSet

CREDIT PERFORMANCE OVERVIEW

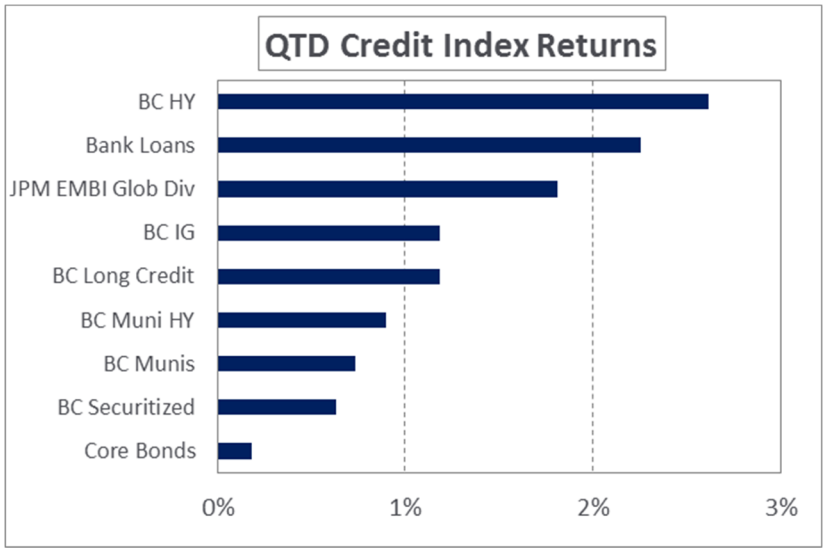
Q4 Credit Market Summary

Return-seeking credit broadly outperformed safe-haven assets with spread tightening reflecting risk on sentiment

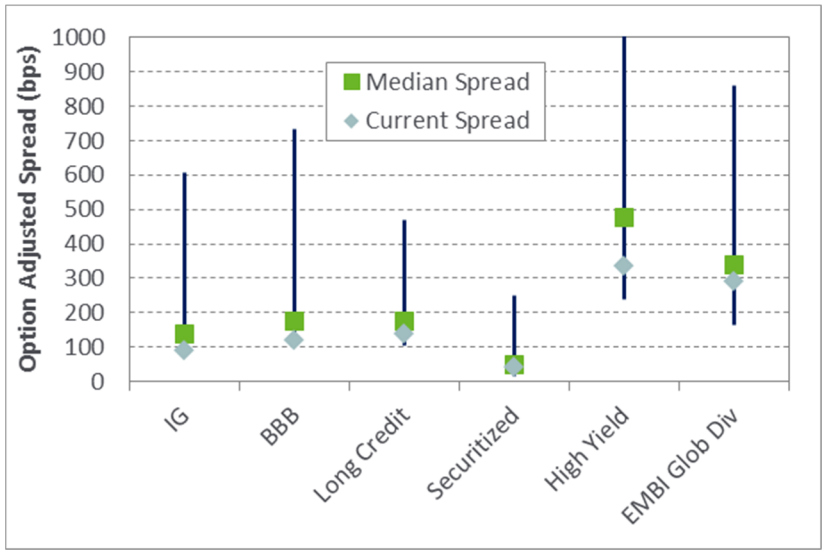
In most areas of credit, spreads moved lower and remain well below long-term median levels

Credit Spread (Basis Points)	9/30/2019	12/31/2019	|Δ|
BC IG Credit	115	93	-22
BC Long Credit	167	139	-28
BC Securitized	47	42	-5
BC High Yield	373	336	-37
Muni HY	250	226	-24
JPM EMBI	337	291	-46
Bank Loans - Libor	398	372	-25

Source: FactSet



Source: FactSet



Source: FactSet; Ranges calculated since 11/30/2000

REAL ASSETS PERFORMANCE OVERVIEW

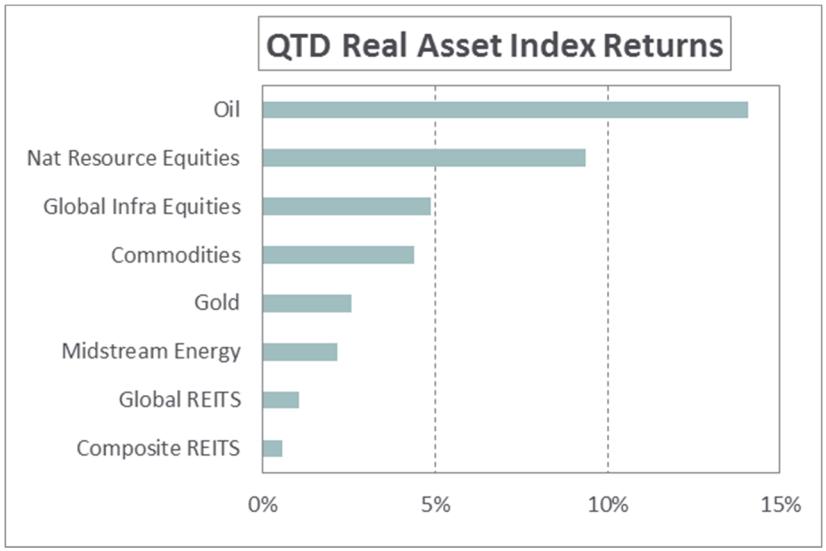
Q4 Real Assets Market Summary

Spot WTI crude oil increased 13.0% as a result of OPEC production cuts and easing US-China trade concerns

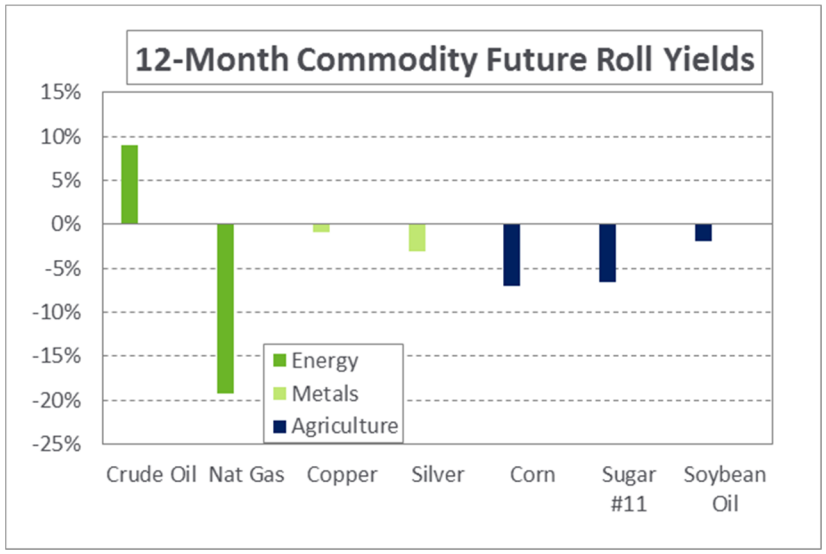
The expectation of modestly higher inflation caused gold and other inflation-sensitive assets to rally

Real Asset Yields	9/30/19	12/31/19
Midstream Energy	6.4%	6.4%
Core Real Estate	4.5%	4.4%
Composite REITs	4.0%	4.1%
Global REITs	4.1%	4.2%
Global Infrastructure Equities	4.2%	4.0%
Natural Resource Equities	4.3%	3.9%
US 10-Year Breakeven Inflation	1.49%	1.77%
Commodity Index Roll Yield	-3.0%	-1.7%
10-Year TIPS Real Yield	0.2%	0.2%

Source: FactSet



Source: FactSet



Source: FactSet

CALENDAR YEAR INDEX PERFORMANCE

	2010	2011	2012	2013	2014	2015	2016	2017	2018	Dec	YTD
S&P 500	15.1%	2.1%	16.0%	32.4%	13.7%	1.4%	12.0%	21.8%	-4.4%	3.0%	31.5%
Russell 1000	16.1%	1.5%	16.4%	33.1%	13.2%	0.9%	12.1%	21.7%	-4.8%	2.9%	31.4%
Russell 2000	26.9%	-4.2%	16.3%	38.8%	4.9%	-4.4%	21.3%	14.6%	-11.0%	2.9%	25.5%
Russell 2500	26.7%	-2.5%	17.9%	36.8%	7.1%	-2.9%	17.6%	16.8%	-10.0%	2.1%	27.8%
MSCI EAFE	7.8%	-12.1%	17.3%	22.8%	-4.9%	-0.8%	1.0%	25.0%	-13.8%	3.2%	22.0%
MSCI EM	18.9%	-18.4%	18.2%	-2.6%	-2.2%	-14.9%	11.2%	37.3%	-14.6%	7.5%	18.4%
MSCI ACWI	12.7%	-7.3%	16.1%	22.8%	4.2%	-2.4%	7.9%	24.0%	-9.4%	3.5%	26.6%
Private Equity	19.8%	9.5%	12.6%	22.3%	14.6%	10.4%	10.3%	21.0%	13.1%	-	4.9%
BC TIPS	6.3%	13.6%	7.0%	-8.6%	3.6%	-1.4%	4.7%	3.0%	-1.3%	0.4%	8.4%
BC Municipal	2.4%	10.7%	6.8%	-2.6%	9.1%	3.3%	0.2%	5.4%	1.3%	0.3%	7.5%
BC Muni High Yield	7.8%	9.2%	18.1%	-5.5%	13.8%	1.8%	3.0%	9.7%	4.8%	0.3%	10.7%
BC US Corporate HY	15.1%	5.0%	15.8%	7.4%	2.5%	-4.5%	17.1%	7.5%	-2.1%	2.0%	14.3%
BC US Agg Bond	6.5%	7.8%	4.2%	-2.0%	6.0%	0.5%	2.6%	3.5%	0.0%	-0.1%	8.7%
BC Global Agg	5.5%	5.6%	4.3%	-2.6%	0.6%	-3.2%	2.1%	7.4%	-1.2%	0.6%	6.8%
BC Long Treasuries	9.4%	29.9%	3.6%	-12.7%	25.1%	-1.2%	1.3%	8.5%	-1.8%	-2.8%	14.8%
BC US Long Credit	10.7%	17.1%	12.7%	-6.6%	16.4%	-4.6%	10.2%	12.2%	-6.8%	0.1%	23.4%
BC US STRIPS 20+ Yr	10.9%	58.5%	3.0%	-21.0%	46.4%	-3.7%	1.4%	13.7%	-4.1%	-4.2%	20.9%
JPM GBI-EM Global Div	15.7%	-1.8%	16.8%	-9.0%	-5.7%	-14.9%	9.9%	15.2%	-6.2%	4.1%	13.5%
JPM EMBI Glob Div	12.2%	7.3%	17.4%	-5.3%	7.4%	1.2%	10.2%	10.3%	-4.3%	2.0%	15.0%
CS Hedge Fund	10.9%	-2.5%	7.7%	9.7%	4.1%	-0.7%	1.2%	7.1%	-3.2%	1.6%	9.3%
BBG Commodity	16.8%	-13.3%	-1.1%	-9.5%	-17.0%	-24.7%	11.8%	1.7%	-11.2%	5.0%	7.7%
Alerian MLP	35.9%	13.9%	4.8%	27.6%	4.8%	-32.6%	18.3%	-6.5%	-12.4%	8.5%	6.6%
FTSE NAREIT Equity REITs	28.0%	8.3%	18.1%	2.5%	30.1%	3.2%	8.5%	5.2%	-4.6%	-0.6%	26.0%

Source: FactSet, Barclays, Thomson One

*Private Equity return represents calendar year pooled IRR and is subject to a one quarter lag

RETURNS FOR KEY INDICES RANKED IN ORDER OF PERFORMANCE (12/31/2019)

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	QTD	1 Year	3 Year	5 Year	10 Year
Russell 2000 Growth 29.09%	BC Aggregate 7.84%	MSCI Emerging Markets 18.22%	Russell 2000 Growth 43.30%	S&P 500 13.69%	Russell 1000 Growth 5.67%	Russell 2000 Value 31.74%	MSCI Emerging Markets 37.28%	BC Aggregate 0.01%	Russell 1000 Growth 36.39%	MSCI Emerging Markets 11.84%	Russell 1000 Growth 36.39%	Russell 1000 Growth 20.49%	Russell 1000 Growth 14.63%	Russell 1000 Growth 15.22%
Russell 2000 26.85%	Russell 1000 Growth 2.64%	Russell 2000 Value 18.05%	Russell 2000 38.82%	Russell 1000 Value 13.45%	S&P 500 1.38%	Russell 2000 21.31%	Russell 1000 Growth 30.21%	Russell 1000 Growth (1.51%)	S&P 500 31.49%	Russell 2000 Growth 11.39%	S&P 500 31.49%	S&P 500 15.27%	S&P 500 11.70%	S&P 500 13.56%
Russell 2000 Value 24.50%	S&P 500 2.11%	Russell 1000 Value 17.51%	Russell 2000 Value 34.52%	Russell 1000 13.24%	Russell 1000 0.92%	Russell 1000 Value 17.34%	MSCI EAFE 25.03%	S&P 500 (4.38%)	Russell 1000 31.43%	Russell 1000 Growth 10.62%	Russell 1000 31.43%	Russell 1000 15.05%	Russell 1000 11.48%	Russell 1000 13.54%
MSCI Emerging Markets 18.88%	Russell 1000 1.50%	MSCI EAFE 17.32%	Russell 1000 Growth 33.48%	Russell 1000 Growth 13.05%	BC Aggregate 0.55%	Russell 1000 12.05%	Russell 2000 Growth 22.17%	Russell 1000 (4.78%)	Russell 2000 Growth 28.48%	Russell 2000 9.94%	Russell 2000 Growth 28.48%	Russell 2000 Growth 12.49%	Russell 2000 Growth 9.34%	Russell 2000 Growth 13.01%
Russell 1000 Growth 16.71%	Russell 1000 Value 0.39%	Russell 1000 16.42%	Russell 1000 33.11%	BC Aggregate 5.97%	MSCI EAFE (0.81%)	S&P 500 11.96%	S&P 500 21.83%	Russell 1000 Value (8.27%)	Russell 1000 Value 26.54%	S&P 500 9.07%	Russell 1000 Value 26.54%	MSCI Emerging Markets 11.57%	Russell 1000 Value 8.29%	Russell 2000 11.83%
Russell 1000 16.10%	Russell 2000 Growth (2.91%)	Russell 2000 16.35%	Russell 1000 Value 32.53%	Russell 2000 Growth 5.60%	Russell 2000 Growth (1.38%)	Russell 2000 Growth 11.32%	Russell 1000 21.69%	Russell 2000 Growth (9.31%)	Russell 2000 25.52%	Russell 1000 9.04%	Russell 2000 25.52%	Russell 1000 Value 9.68%	Russell 2000 8.23%	Russell 1000 Value 11.80%
Russell 1000 Value 15.51%	Russell 2000 (4.18%)	S&P 500 16.00%	S&P 500 32.39%	Russell 2000 4.90%	Russell 1000 Value (3.83%)	MSCI Emerging Markets 11.19%	Russell 2000 14.65%	Russell 2000 (11.01%)	Russell 2000 Value 22.39%	Russell 2000 Value 8.49%	Russell 2000 Value 22.39%	MSCI EAFE 9.56%	Russell 2000 Value 6.99%	Russell 2000 Value 10.56%
S&P 500 15.06%	Russell 2000 Value (5.50%)	Russell 1000 Growth 15.26%	MSCI EAFE 22.78%	Russell 2000 Value 4.22%	Russell 2000 (4.41%)	Russell 1000 Growth 7.08%	Russell 1000 Value 13.66%	Russell 2000 Value (12.86%)	MSCI EAFE 22.01%	MSCI EAFE 8.17%	MSCI EAFE 22.01%	Russell 2000 8.59%	MSCI EAFE 5.67%	MSCI EAFE 5.50%
MSCI EAFE 7.75%	MSCI EAFE (12.14%)	Russell 2000 Growth 14.59%	BC Aggregate (2.02%)	MSCI Emerging Markets (2.19%)	Russell 2000 Value (7.47%)	BC Aggregate 2.65%	Russell 2000 Value 7.84%	MSCI EAFE (13.79%)	MSCI Emerging Markets 18.44%	Russell 1000 Value 7.41%	MSCI Emerging Markets 18.44%	Russell 2000 Value 4.77%	MSCI Emerging Markets 5.61%	BC Aggregate 3.75%
BC Aggregate 6.54%	MSCI Emerging Markets (18.42%)	BC Aggregate 4.21%	MSCI Emerging Markets (2.60%)	MSCI EAFE (4.90%)	MSCI Emerging Markets (14.92%)	MSCI EAFE 1.00%	BC Aggregate 3.54%	MSCI Emerging Markets (14.58%)	BC Aggregate 8.72%	BC Aggregate 0.18%	BC Aggregate 8.72%	BC Aggregate 4.03%	BC Aggregate 3.05%	MSCI Emerging Markets 3.68%

Q4 2019 TOTAL FUND PERFORMANCE

NEPC, LLC

EXECUTIVE SUMMARY AS OF 12/31/2019

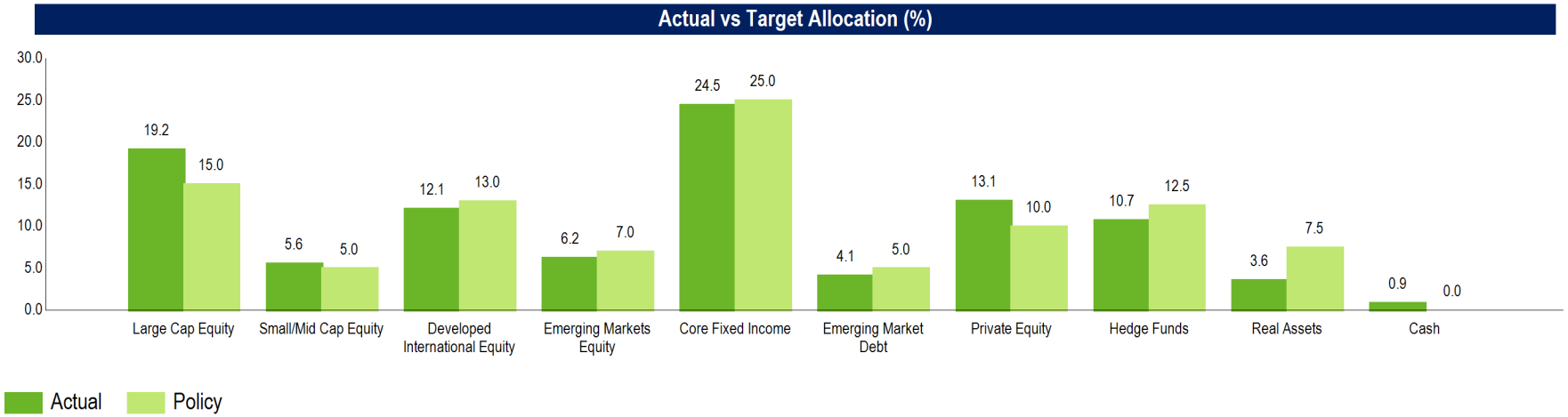
- **Asset Allocation**
  - The assets of the Plan totaled $1.2 billion as of December 31, 2019 and had an investment gain of $56.2 million during the quarter.

- **Performance**
  - The Plan gained 5.1% (gross) in Q4 as the market capped off a robust calendar year
    - The quarterly return ranked ahead of the median in the 44th percentile of the Public DB peer group
    - Active management added 70 basis points in the fourth quarter and 100 basis points fiscal year-to-date
  - For the trailing one year, the fund was up 16.9%, which placed it above the IF Public DB > $1B Gross Median return of 16.7%
  - In aggregate, the US Equity Composite was up 9.3% for the quarter, which outperformed both the Russell 3000 benchmark return of 9.1% and the eV All US Equity Gross Median return of 8.3%
    - Large Cap Equity contributed 10.4% for the quarter, ranking in the 15th percentile and outperforming the eV US Large Cap Equity Gross Median by 200 basis points
    - The Small/Mid Cap Equity composite gained 5.6% for the quarter, underperforming both the Russell 2500 benchmark and eV US Small-Mid Cap Equity Gross Median return by 290 and 240 basis points, respectively
  - The International Equity Composite was up 10.2%, which outperformed the MSCI ACWI ex USA return of 8.9% and the eV ACWI ex-US All Cap Equity Gross universe median return of 10.0%
    - International Developed Equity was ahead of the median by 230 bps, returning 11.5%
    - International Emerging Equity underperformed the median by 370 bps, returning 7.8%
  - The Fixed Income Composite gained 1.3% in the fourth quarter, outperforming the Barclays Aggregate by 110 basis points, and the All US Fixed Income Gross Median return of 0.6%

Howard County Retirement Plans

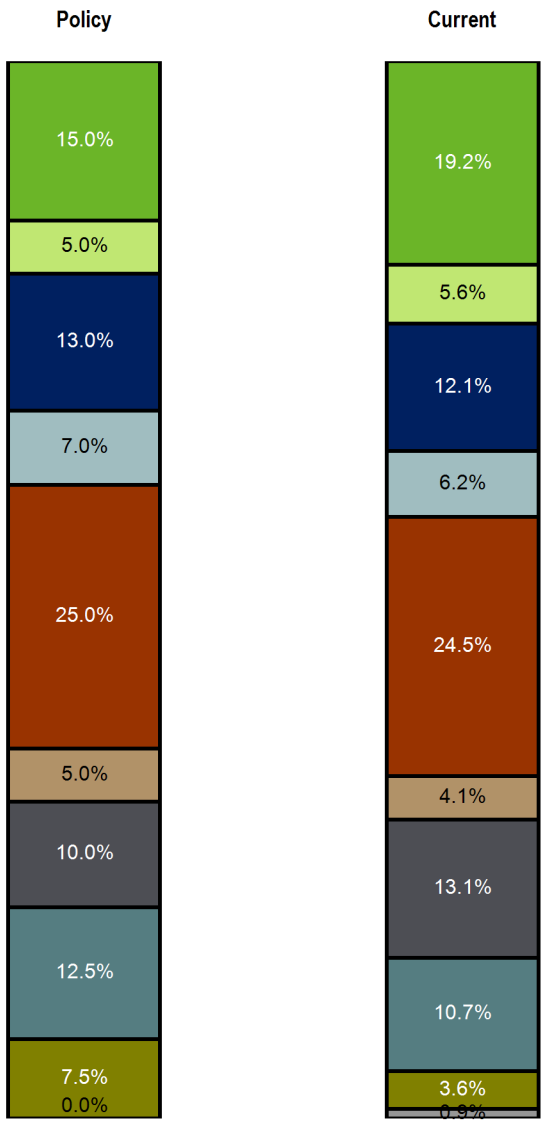
TOTAL FUND PERFORMANCE SUMMARY (GROSS)

															Ending December 31, 2019
	Market Value	3 Mo	Rank	Fiscal YTD	Rank	1 Yr	Rank	3 Yrs	Rank	5 Yrs	Rank	10 Yrs	Rank	Inception	Inception Date
Total Fund Composite	**$1,153,657,679**	**5.1%**	**44**	**5.7%**	**43**	**16.9%**	**47**	**10.1%**	**16**	**7.8%**	**16**	**8.3%**	**48**	**7.4%**	**Apr-97**
Policy Index		*4.6%*	*68*	*5.5%*	*57*	*16.0%*	*62*	*9.1%*	*49*	*7.0%*	*47*	*7.8%*	*65*	*7.4%*	*Apr-97*
Allocation Index		*4.4%*	*71*	*4.7%*	*88*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*Apr-97*
InvMetrics Public DB > $1B Gross Median		*5.0%*		*5.6%*		*16.7%*		*9.0%*		*7.0%*		*8.2%*		*7.2%*	*Apr-97*



Fiscal year end 6/30.

ASSET ALLOCATION VS. POLICY TARGETS



Asset Allocation vs. Target	Current	Policy	Current	Difference*
Large Cap Equity	$221,216,580	15.0%	19.2%	4.2%
Small/Mid Cap Equity	$64,095,402	5.0%	5.6%	0.6%
Developed International Equity	$139,626,616	13.0%	12.1%	-0.9%
Emerging Markets Equity	$71,998,048	7.0%	6.2%	-0.8%
Core Fixed Income	$282,813,819	25.0%	24.5%	-0.5%
Emerging Market Debt	$47,539,108	5.0%	4.1%	-0.9%
Private Equity	$150,656,798	10.0%	13.1%	3.1%
Hedge Funds	$123,852,467	12.5%	10.7%	-1.8%
Real Assets	$41,491,756	7.5%	3.6%	-3.9%
Cash	$10,367,085	0.0%	0.9%	0.9%
Total	**$1,153,657,679**	**100.0%**	**100.0%**	

*Difference between Policy and Current Allocation

Howard County Retirement Plans

TOTAL FUND PERFORMANCE SUMMARY (GROSS)

						Ending December 31, 2019					
	Market Value ($)	% of Portfolio	Policy %	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Fund Composite	**1,153,657,679**	**100.0**	**100.0**	**5.1**	**5.7**	**16.9**	**10.1**	**7.8**	**8.3**	**7.4**	**Apr-97**
Policy Index				*4.6*	*5.5*	*16.0*	*9.1*	*7.0*	*7.8*	*7.4*	*Apr-97*
Allocation Index				*4.4*	*4.7*	*--*	*--*	*--*	*--*	*--*	*Apr-97*
Total US Equity Composite	**285,311,982**	**24.7**	**20.0**	**9.3**	**9.6**	**30.4**	**15.0**	**11.7**	**14.0**	**8.8**	**Jul-97**
Russell 3000				*9.1*	*10.4*	*31.0*	*14.6*	*11.2*	*13.4*	*8.1*	*Jul-97*
US Equity Allocation Index				*9.2*	*9.9*	*30.6*	*13.9*	*11.0*	*13.5*	*--*	*Jul-97*
Total International Equity	**211,624,665**	**18.3**	**20.0**	**10.2**	**7.1**	**23.5**	**11.4**	**6.7**	**5.4**	**5.0**	**Jul-97**
MSCI ACWI ex USA				*8.9*	*7.0*	*21.5*	*9.9*	*5.5*	*5.0*	*4.8*	*Jul-97*
Total Fixed Income Composite	**330,352,927**	**28.6**	**30.0**	**1.3**	**2.8**	**9.7**	**5.0**	**4.3**	**5.0**	**5.5**	**Jul-97**
Fixed Income Policy Index				*0.2*	*2.5*	*8.7*	*4.0*	*3.0*	*3.7*	*5.2*	*Jul-97*
Total Real Assets Composite	**41,491,756**	**3.6**	**7.5**	**0.3**	**1.5**	**-0.2**	**8.5**	**8.9**	**4.8**	**7.2**	**Jul-03**
NCREIF Property Index 1 Qtr. Lag				*1.4*	*2.9*	*6.2*	*6.8*	*8.6*	*9.8*	*8.8*	*Jul-03*
Cash Composite	**10,367,085**	**0.9**		**0.2**	**0.6**	**1.8**	**1.3**	**0.8**	**0.4**	**1.4**	**Dec-03**
91 Day T-Bills				*0.4*	*0.9*	*2.1*	*1.6*	*1.1*	*0.6*	*1.3*	*Dec-03*
Hedge Fund Composite	**123,852,467**	**10.7**	**12.5**	**1.7**	**1.9**	**7.4**	**5.1**	**4.2**	**--**	**4.7**	**Jan-11**
HFRI FOF: Conservative Index				*1.7*	*1.6*	*6.3*	*3.2*	*2.3*	*2.8*	*2.5*	*Jan-11*
Private Equity Composite	**150,656,798**	**13.1**	**10.0**	**3.5**	**8.0**	**15.3**	**17.7**	**15.8**	**13.4**	**13.2**	**Jul-08**
Cambridge Associates Global All PE (Qtr Lag)				*0.5*	*4.3*	*7.9*	*13.3*	*11.1*	*13.0*	*9.3*	*Jul-08*

Fiscal year end 6/30.

All history prior to 3/1/2019 was provided by AndCo.

Howard County Retirement Plans

TOTAL FUND PERFORMANCE DETAIL (GROSS)

	Market Value ($)	% of Portfolio	Policy %	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Total Fund Composite	**1,153,657,679**	**100.0**	**100.0**	**5.1**	**44**	**5.7**	**43**	**16.9**	**47**	**10.1**	**16**	**7.8**	**16**	**8.3**	**48**	**7.4**	**Apr-97**
Policy Index				*4.6*	*68*	*5.5*	*57*	*16.0*	*62*	*9.1*	*49*	*7.0*	*47*	*7.8*	*65*	*7.4*	*Apr-97*
InvMetrics Public DB > $1B Gross Median				*5.0*		*5.6*		*16.7*		*9.0*		*7.0*		*8.2*		*7.2*	*Apr-97*
Total US Equity Composite	**285,311,982**	**24.7**	**20.0**	**9.3**	**30**	**9.6**	**38**	**30.4**	**40**	**15.0**	**34**	**11.7**	**30**	**14.0**	**30**	**8.8**	**Jul-97**
Russell 3000				*9.1*	*34*	*10.4*	*27*	*31.0*	*36*	*14.6*	*38*	*11.2*	*36*	*13.4*	*45*	*8.1*	*Jul-97*
eV All US Equity Gross Median				*8.3*		*8.8*		*28.7*		*12.6*		*10.2*		*13.2*		*9.7*	*Jul-97*
Large Cap Composite	**221,216,580**	**19.2**	**15.0**	**10.4**	**15**	**10.8**	**31**	**30.6**	**45**	**15.1**	**43**	**11.1**	**45**	**13.7**	**38**	**8.8**	**Apr-01**
Russell 1000				*9.0*	*39*	*10.6*	*36*	*31.4*	*39*	*15.0*	*44*	*11.5*	*40*	*13.5*	*41*	*8.0*	*Apr-01*
eV US Large Cap Equity Gross Median				*8.4*		*10.0*		*29.8*		*14.2*		*10.8*		*13.2*		*8.5*	*Apr-01*
LSV Asset Management SMA	69,189,465	6.0		9.8	16	10.9	23	26.1	61	10.0	64	8.9	53	13.0	21	10.0	May-00
Russell 1000 Value				*7.4*	*59*	*8.9*	*67*	*26.5*	*54*	*9.7*	*71*	*8.3*	*67*	*11.8*	*63*	*7.2*	*May-00*
eV US Large Cap Value Equity Gross Median				*7.7*		*9.6*		*26.9*		*10.9*		*9.0*		*12.1*		*8.5*	*May-00*
Westfield Capital Management SMA	81,873,065	7.1		12.6	5	11.7	20	37.1	26	21.0	35	13.7	49	--	--	16.4	Jul-10
Russell 1000 Growth				*10.6*	*27*	*12.3*	*14*	*36.4*	*32*	*20.5*	*45*	*14.6*	*33*	*15.2*	*33*	*17.1*	*Jul-10*
eV US Large Cap Growth Equity Gross Median				*9.8*		*10.3*		*34.2*		*19.7*		*13.6*		*14.7*		*16.5*	*Jul-10*
BlackRock Equity Index Non-Lendable Fund	70,154,050	6.1		--	--	--	--	--	--	--	--	--	--	--	--	3.0	Dec-19
S&P 500				*9.1*	*39*	*10.9*	*28*	*31.5*	*39*	*15.3*	*41*	*11.7*	*38*	*13.6*	*40*	*3.0*	*Dec-19*
eV US Large Cap Equity Gross Median				*8.4*		*10.0*		*29.8*		*14.2*		*10.8*		*13.2*		*2.7*	*Dec-19*
Small/Mid Cap Composite	**64,095,402**	**5.6**	**5.0**	**5.6**	**91**	**5.3**	**71**	**30.0**	**43**	**14.8**	**28**	**13.2**	**11**	**14.7**	**21**	**12.3**	**Apr-93**
Russell 2500				*8.5*	*39*	*7.1*	*52*	*27.8*	*58*	*10.3*	*58*	*8.9*	*59*	*12.6*	*61*	*10.4*	*Apr-93*
eV US Small-Mid Cap Equity Gross Median				*8.0*		*7.2*		*29.0*		*11.2*		*9.4*		*13.1*		*12.2*	*Apr-93*
William Blair SMA	21,229,779	1.8		4.5	98	5.6	48	31.9	49	19.4	28	14.3	10	16.1	15	12.3	Jun-06
Russell 2500 Growth				*10.6*	*26*	*7.1*	*32*	*32.7*	*43*	*15.2*	*66*	*10.8*	*62*	*14.0*	*58*	*9.9*	*Jun-06*
eV US Small-Mid Cap Growth Equity Gross Median				*8.7*		*5.5*		*31.7*		*17.0*		*11.7*		*14.6*		*11.0*	*Jun-06*
ICM Small Company - ICSCX	24,518,581	2.1		6.9	71	8.0	44	27.3	24	8.0	22	10.3	10	12.5	35	11.9	Apr-93
Russell 2000 Value				*8.5*	*35*	*7.9*	*46*	*22.4*	*69*	*4.8*	*65*	*7.0*	*58*	*10.6*	*82*	*9.9*	*Apr-93*
eV US Small Cap Value Equity Gross Median				*7.9*		*7.6*		*24.4*		*5.5*		*7.6*		*12.0*		*12.6*	*Apr-93*
Brown Capital Small Company Strategy SMA	18,347,041	1.6		5.0	95	1.7	78	31.6	40	20.2	23	16.2	9	--	--	18.2	Aug-11
Russell 2000 Growth				*11.4*	*30*	*6.7*	*32*	*28.5*	*51*	*12.5*	*80*	*9.3*	*82*	*13.0*	*84*	*11.6*	*Aug-11*
eV US Small Cap Growth Equity Gross Median				*9.6*		*5.0*		*28.5*		*15.9*		*11.6*		*14.6*		*13.1*	*Aug-11*

TOTAL FUND PERFORMANCE DETAIL (GROSS)

	Market Value ($)	% of Portfolio	Policy %	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Total International Equity	**211,624,665**	**18.3**	**20.0**	**10.2**	**46**	**7.1**	**74**	**23.5**	**66**	**11.4**	**55**	**6.7**	**63**	**5.4**	**89**	**5.0**	**Jul-97**
MSCI ACWI ex USA				*8.9*	*77*	*7.0*	*75*	*21.5*	*76*	*9.9*	*78*	*5.5*	*85*	*5.0*	*90*	*4.8*	*Jul-97*
eV ACWI ex-US All Cap Equity Gross Median				*10.0*		*8.3*		*25.8*		*11.6*		*7.2*		*7.7*		*7.1*	*Jul-97*
International Developed Markets Composite	**139,626,616**	**12.1**	**13.0**	**11.5**	**21**	**9.6**	**29**	**26.6**	**24**	**10.9**	**38**	**6.5**	**56**	**6.3**	**70**	**3.8**	**Mar-08**
MSCI EAFE				*8.2*	*73*	*7.0*	*69*	*22.0*	*63*	*9.6*	*63*	*5.7*	*77*	*5.5*	*90*	*2.8*	*Mar-08*
eV All EAFE Equity Gross Median				*9.2*		*8.0*		*23.2*		*10.0*		*6.8*		*7.3*		*4.5*	*Mar-08*
Mondrian International Equity Fund, L.P.	65,314,896	5.7		10.6	29	8.5	45	20.1	77	9.2	66	5.7	77	5.7	84	2.4	Dec-07
MSCI EAFE				*8.2*	*73*	*7.0*	*69*	*22.0*	*63*	*9.6*	*63*	*5.7*	*77*	*5.5*	*90*	*1.8*	*Dec-07*
eV All EAFE Equity Gross Median				*9.2*		*8.0*		*23.2*		*10.0*		*6.8*		*7.3*		*3.6*	*Dec-07*
Baillie Gifford EAFE Pure K - BGPKX	74,311,720	6.4		12.3	14	10.6	17	33.1	5	--	--	--	--	--	--	7.8	May-18
MSCI EAFE				*8.2*	*73*	*7.0*	*69*	*22.0*	*63*	*9.6*	*63*	*5.7*	*77*	*5.5*	*90*	*2.6*	*May-18*
eV All EAFE Equity Gross Median				*9.2*		*8.0*		*23.2*		*10.0*		*6.8*		*7.3*		*2.4*	*May-18*
International Emerging Markets Composite	**71,998,048**	**6.2**	**7.0**	**7.8**	**90**	**2.4**	**92**	**17.7**	**68**	**12.3**	**45**	**6.9**	**44**	**3.6**	**92**	**6.2**	**Feb-06**
MSCI Emerging Markets				*11.8*	*40*	*7.1*	*52*	*18.4*	*63*	*11.6*	*54*	*5.6*	*68*	*3.7*	*91*	*5.0*	*Feb-06*
eV Emg Mkts Equity Gross Median				*11.5*		*7.1*		*20.1*		*11.9*		*6.5*		*5.4*		*6.5*	*Feb-06*
DFA Emerging Markets Value Portfolio Institutional - DFEVX	28,442,263	2.5		9.8	75	2.3	93	10.2	94	9.1	85	5.1	78	2.8	99	5.7	Feb-06
MSCI Emerging Markets				*11.8*	*40*	*7.1*	*52*	*18.4*	*63*	*11.6*	*54*	*5.6*	*68*	*3.7*	*91*	*5.0*	*Feb-06*
eV Emg Mkts Equity Gross Median				*11.5*		*7.1*		*20.1*		*11.9*		*6.5*		*5.4*		*6.5*	*Feb-06*
GQG Partners Emerging Markets Equity Fund	43,555,785	3.8		6.6	94	2.5	92	23.2	33	--	--	--	--	--	--	21.0	Dec-18
MSCI Emerging Markets				*11.8*	*40*	*7.1*	*52*	*18.4*	*63*	*11.6*	*54*	*5.6*	*68*	*3.7*	*91*	*14.0*	*Dec-18*
eV Emg Mkts Equity Gross Median				*11.5*		*7.1*		*20.1*		*11.9*		*6.5*		*5.4*		*15.5*	*Dec-18*

TOTAL FUND PERFORMANCE DETAIL (GROSS)

	Market Value ($)	% of Portfolio	Policy %	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Total Fixed Income Composite	**330,352,927**	**28.6**	**30.0**	**1.3**	**24**	**2.8**	**37**	**9.7**	**36**	**5.0**	**34**	**4.3**	**36**	**5.0**	**37**	**5.5**	**Jul-97**
BBgBarc US Aggregate TR				*0.2*	*87*	*2.5*	*49*	*8.7*	*48*	*4.0*	*58*	*3.0*	*61*	*3.7*	*60*	*5.1*	*Jul-97*
eV All US Fixed Inc Gross Median				*0.6*		*2.4*		*8.5*		*4.3*		*3.4*		*4.2*		*5.2*	*Jul-97*
Core Fixed Income Composite	**282,813,819**	**24.5**	**25.0**	**0.5**	**15**	**2.5**	**61**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**7.3**	**Mar-19**
BBgBarc US Aggregate TR				*0.2*	*59*	*2.5*	*69*	*8.7*	*77*	*4.0*	*84*	*3.0*	*88*	*3.7*	*91*	*7.6*	*Mar-19*
eV US Core Fixed Inc Gross Median				*0.2*		*2.6*		*9.3*		*4.4*		*3.4*		*4.3*		*7.9*	*Mar-19*
Dodge & Cox SMA	140,154,852	12.1		0.8	35	2.9	34	9.7	36	4.8	38	4.1	37	--	--	4.7	May-10
BBgBarc US Aggregate TR				*0.2*	*87*	*2.5*	*49*	*8.7*	*48*	*4.0*	*58*	*3.0*	*61*	*3.7*	*60*	*3.6*	*May-10*
eV All US Fixed Inc Gross Median				*0.6*		*2.4*		*8.5*		*4.3*		*3.4*		*4.2*		*4.0*	*May-10*
PIMCO Total Return	119,645,187	10.4		0.1	89	2.2	57	8.5	50	4.4	50	3.4	53	--	--	4.0	May-10
BBgBarc US Aggregate TR				*0.2*	*87*	*2.5*	*49*	*8.7*	*48*	*4.0*	*58*	*3.0*	*61*	*3.7*	*60*	*3.6*	*May-10*
eV All US Fixed Inc Gross Median				*0.6*		*2.4*		*8.5*		*4.3*		*3.4*		*4.2*		*4.0*	*May-10*
State Street Global Advisors TIPS	23,013,779	2.0		0.8	71	2.1	56	8.4	67	3.3	68	2.6	75	3.3	70	3.3	Nov-09
BBgBarc US TIPS TR				*0.8*	*67*	*2.1*	*54*	*8.4*	*60*	*3.3*	*68*	*2.6*	*71*	*3.4*	*69*	*3.4*	*Nov-09*
eV US TIPS / Inflation Fixed Inc Gross Median				*0.8*		*2.2*		*8.5*		*3.4*		*2.7*		*3.5*		*3.5*	*Nov-09*
Emerging Markets Debt Composite	**47,539,108**	**4.1**	**5.0**	**6.1**	**3**	**4.6**	**22**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**9.1**	**Mar-19**
JP Morgan GBI EM Global Diversified TR USD				*5.2*	*20*	*4.4*	*30*	*13.5*	*70*	*7.0*	*44*	*2.8*	*86*	*2.7*	*87*	*8.8*	*Mar-19*
eV All Emg Mkts Fixed Inc Gross Median				*3.3*		*3.8*		*14.3*		*6.9*		*5.7*		*6.4*		*9.0*	*Mar-19*
Colchester Local Markets Debt Fund	47,539,108	4.1		6.1	3	4.6	22	13.8	65	8.5	7	--	--	--	--	9.3	Oct-15
JP Morgan GBI EM Global Diversified TR USD				*5.2*	*20*	*4.4*	*30*	*13.5*	*70*	*7.0*	*44*	*2.8*	*86*	*2.7*	*87*	*7.3*	*Oct-15*
eV All Emg Mkts Fixed Inc Gross Median				*3.3*		*3.8*		*14.3*		*6.9*		*5.7*		*6.4*		*7.6*	*Oct-15*
Total Real Assets Composite	**41,491,756**	**3.6**	**7.5**	**0.3**	**48**	**1.5**	**99**	**-0.2**	**99**	**8.5**	**73**	**8.9**	**28**	**4.8**	**99**	**7.2**	**Jul-03**
NCREIF Property Index 1 Qtr. Lag				*1.4*	*20*	*2.9*	*99*	*6.2*	*99*	*6.8*	*89*	*8.6*	*35*	*9.8*	*99*	*8.8*	*Jul-03*
eV US REIT Gross Median				*0.2*		*8.3*		*28.6*		*9.1*		*8.1*		*12.6*		*11.1*	*Jul-03*
Real Estate Composite	**28,607,261**	**2.5**		**2.0**	**--**	**3.8**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**2.0**	**Mar-19**
NCREIF Property Index 1 Qtr. Lag				*1.4*	*--*	*2.9*	*--*	*6.2*	*--*	*6.8*	*--*	*8.6*	*--*	*9.8*	*--*	*6.2*	*Mar-19*
Realty Associates Fund VIII L.P.	5,827	0.0		-9.2	--	-38.0	--	-47.5	--	-13.7	--	-4.3	--	-2.5	--	-2.7	Jul-07
Partners Group Global RE 2011	4,530,126	0.4		-1.3	--	-4.4	--	-17.8	--	-2.2	--	1.7	--	--	--	2.7	Mar-12
Partners Group Global RE 2014	19,063,702	1.7		2.7	--	6.3	--	8.3	--	12.1	--	9.9	--	--	--	9.7	Dec-14
Partners Group Global RE 2017	5,007,605	0.4		2.6	--	3.5	--	6.8	--	--	--	--	--	--	--	6.3	Dec-18
NCREIF Property Index 1 Qtr. Lag				*1.4*	*--*	*2.9*	*--*	*6.2*	*--*	*6.8*	*--*	*8.6*	*--*	*9.8*	*--*	*7.4*	*Dec-18*

Howard County Retirement Plans

TOTAL FUND PERFORMANCE DETAIL (GROSS)

	Market Value ($)	% of Portfolio	Policy %	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Real Assets Composite	**12,884,495**	**1.1**		**-3.3**	**--**	**-3.4**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**-7.6**	**Mar-19**
Cambridge Associates Global Natural Resources (1 Qtr Lag)				*-3.6*	--	*-5.9*	--	*-10.7*	--	*3.3*	--	*-3.0*	--	*4.4*	--	*-10.7*	*Mar-19*
Commonfund Natural Resources X	4,934,566	0.4		-2.2	--	-3.1	--	2.1	--	16.0	--	--	--	--	--	16.9	Apr-16
Commonfund Natural Resources XI	1,193,962	0.1		0.6	--	-23.9	--	-41.3	--	--	--	--	--	--	--	-34.7	Oct-18
Aether Real Assets IV	5,857,921	0.5		-5.2	--	-3.2	--	-3.2	--	5.3	--	--	--	--	--	3.1	Jun-16
Aether Real Assets V	898,046	0.1		-0.7	--	-2.9	--	-70.2	--	--	--	--	--	--	--	-35.8	Aug-18
Cambridge Associates Global Natural Resources (1 Qtr Lag)				*-3.6*	--	*-5.9*	--	*-10.7*	--	*3.3*	--	*-3.0*	--	*4.4*	--	*-3.9*	*Aug-18*
Cash Composite	**10,367,085**	**0.9**	**0.0**	**0.2**	**--**	**0.6**	**--**	**1.8**	**--**	**1.3**	**--**	**0.8**	**--**	**0.4**	**--**	**1.4**	**Dec-03**
91 Day T-Bills				*0.4*	--	*0.9*	--	*2.1*	--	*1.6*	--	*1.1*	--	*0.6*	--	*1.3*	*Dec-03*
Hedge Fund Composite	**123,852,467**	**10.7**	**12.5**	**1.7**	**--**	**1.9**	**--**	**7.4**	**--**	**5.1**	**--**	**4.2**	**--**	**--**	**--**	**4.7**	**Jan-11**
HFRI FOF: Conservative Index				*1.7*	--	*1.6*	--	*6.4*	--	*3.2*	--	*2.3*	--	*2.8*	--	*2.5*	*Jan-11*
Magnitude International Class A Eligible	60,942,554	5.3		1.3	--	1.0	--	6.4	--	4.6	--	3.8	--	--	--	4.6	Jan-11
HFRI FOF: Conservative Index				*1.7*	--	*1.6*	--	*6.4*	--	*3.2*	--	*2.3*	--	*2.8*	--	*2.5*	*Jan-11*
Blackstone Partners Offshore Fund LTD	62,909,913	5.5		2.1	--	2.7	--	8.1	--	5.5	--	4.6	--	--	--	4.9	Mar-11
HFRI FOF: Conservative Index				*1.7*	--	*1.6*	--	*6.4*	--	*3.2*	--	*2.3*	--	*2.8*	--	*2.4*	*Mar-11*
Private Equity Composite	**150,656,798**	**13.1**	**10.0**	**3.5**	**--**	**8.0**	**--**	**15.3**	**--**	**17.7**	**--**	**15.8**	**--**	**13.4**	**--**	**13.2**	**Jul-08**
Cambridge Associates Global All PE (Qtr Lag)				*0.5*	--	*4.3*	--	*7.9*	--	*13.3*	--	*11.1*	--	*13.0*	--	*9.3*	*Jul-08*

Fiscal year ends 6/30.

All history prior to 3/1/2019 was provided by AndCo.

Allocation index consists of: Weighted index of underlying managers to their respective benchmark.

Policy index consists of: 15% S&P 500 / 5% Russell 2500 / 13% MSCI EAFE / 7% MSCI Emerging Markets / 25% BBgBarc US Aggregate TR / 5% JP Morgan GBI EM Global Diversified TR USD / 7.5% NCREIF Property Index 1 Qtr. Lag / 12.5% HFRI FOF: Conservative Index / 10% Private Equity Composite.

ASSET ALLOCATION VS. POLICY TARGETS

Allocation vs. Targets and Policy
As Of September 30, 2019

	Current Balance	Current Allocation	Target	Difference
Large Cap Equity	$207,005,462	18.9%	15.0%	3.9%
Small/Mid Cap Equity	$60,877,664	5.5%	5.0%	0.5%
Developed International Equity	$125,503,083	11.4%	13.0%	-1.6%
Emerging Markets Equity	$66,882,452	6.1%	7.0%	-0.9%
Core Fixed Income	$276,681,360	25.2%	25.0%	0.2%
Emerging Market Debt	$44,895,010	4.1%	5.0%	-0.9%
Private Equity	$147,473,027	13.4%	10.0%	3.4%
Hedge Funds	$121,958,633	11.1%	12.5%	-1.4%
Real Assets	$38,081,959	3.5%	7.5%	-4.0%
Cash	$7,844,113	0.7%	0.0%	0.7%
Total	**$1,097,202,763**	**100.0%**	**100.0%**	

Allocation vs. Targets and Policy
As Of December 31, 2019

	Current Balance	Current Allocation	Target	Difference
Large Cap Equity	$221,216,580	19.2%	15.0%	4.2%
Small/Mid Cap Equity	$64,095,402	5.6%	5.0%	0.6%
Developed International Equity	$139,626,616	12.1%	13.0%	-0.9%
Emerging Markets Equity	$71,998,048	6.2%	7.0%	-0.8%
Core Fixed Income	$282,813,819	24.5%	25.0%	-0.5%
Emerging Market Debt	$47,539,108	4.1%	5.0%	-0.9%
Private Equity	$150,656,798	13.1%	10.0%	3.1%
Hedge Funds	$123,852,467	10.7%	12.5%	-1.8%
Real Assets	$41,491,756	3.6%	7.5%	-3.9%
Cash	$10,367,085	0.9%	0.0%	0.9%
Total	**$1,153,657,679**	**100.0%**	**100.0%**	

ANALYTICS DEFINITIONS

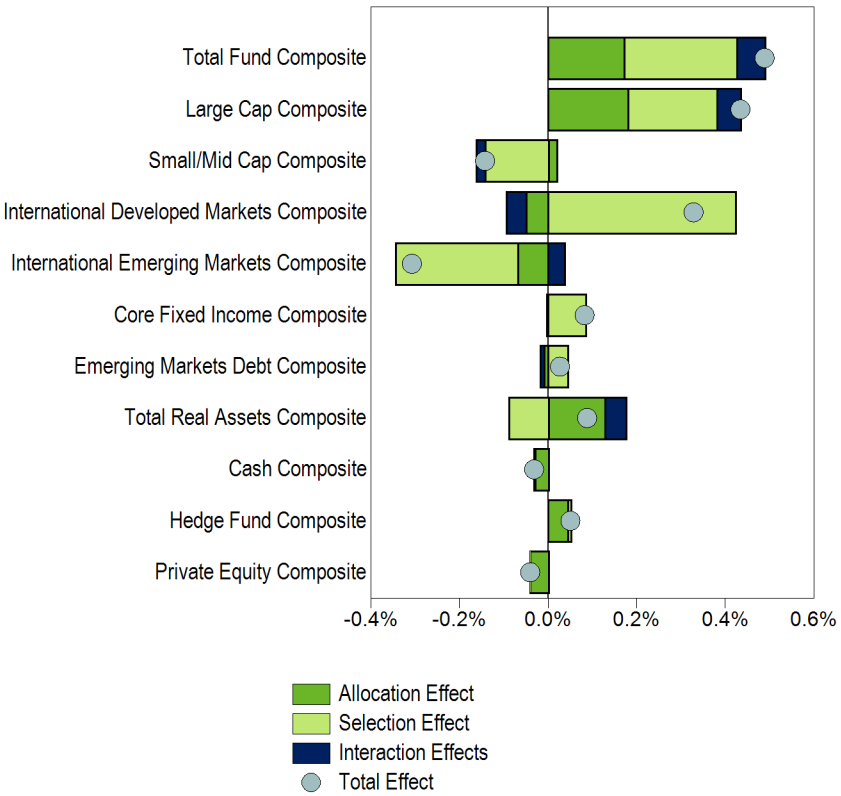
Asset Allocation Effect - Measures the ability to effectively allocate their portfolio's assets to various asset classes. The allocation effect determines whether the overweighting or underweighting of asset classes relative to a benchmark contributes positively or negatively to the overall portfolio return. Positive allocation occurs when the portfolio is overweighted in an asset class that outperforms the benchmark. Negative allocation occurs when the portfolio is overweighted in an asset class that underperforms the benchmark and underweighted in an asset class that outperforms the benchmark.

Selection Effect - Measures the ability to select managers within a given asset class relative to a benchmark. The over or underperformance of the portfolio is weighted by the benchmark weight, therefore, selection is not affected by plan's allocation to the asset class. The weight of the manager in the portfolio determines the size of the effect -- the larger the manager, the larger the effect is, positive or negative.

Interaction Effect - The interaction effect measures the combined impact of manager selection and manager allocation decisions within an asset class. For example, if client had superior manager selection and overweighted that particular asset class, the interaction effect is positive. If cleint had superior manager selection, but underweighted that asset class, the interaction effect is negative. In this case, client did not take advantage of the superior manager selection by allocating more assets to that asset class.

TOTAL FUND ATTRIBUTION ANALYSIS (GROSS)

Attribution Effects
3 Months Ending December 31, 2019



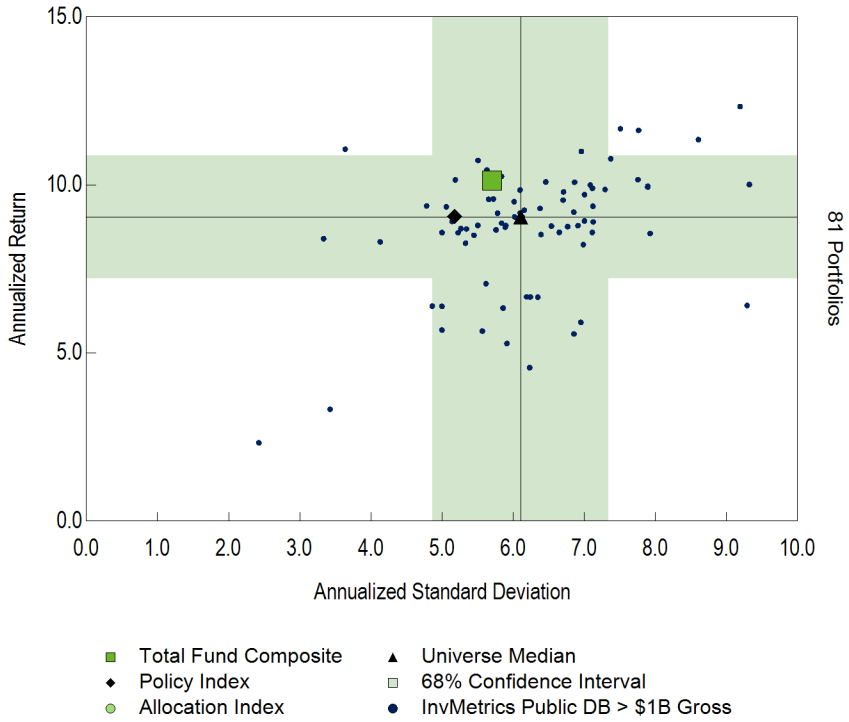
Attribution Summary
3 Months Ending December 31, 2019

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Large Cap Composite	10.4%	9.1%	1.4%	0.2%	0.2%	0.1%	0.4%
Small/Mid Cap Composite	5.6%	8.5%	-3.0%	-0.1%	0.0%	0.0%	-0.1%
International Developed Markets Composite	11.5%	8.2%	3.3%	0.4%	0.0%	0.0%	0.3%
International Emerging Markets Composite	7.8%	11.8%	-4.0%	-0.3%	-0.1%	0.0%	-0.3%
Core Fixed Income Composite	0.5%	0.2%	0.3%	0.1%	0.0%	0.0%	0.1%
Emerging Markets Debt Composite	6.1%	5.2%	0.9%	0.0%	0.0%	0.0%	0.0%
Total Real Assets Composite	0.3%	1.4%	-1.1%	-0.1%	0.1%	0.0%	0.1%
Cash Composite	0.2%	0.4%	-0.2%	0.0%	0.0%	0.0%	0.0%
Hedge Fund Composite	1.7%	1.7%	0.0%	0.0%	0.0%	0.0%	0.1%
Private Equity Composite	3.5%	3.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	**5.1%**	**4.6%**	**0.5%**	**0.3%**	**0.2%**	**0.1%**	**0.5%**

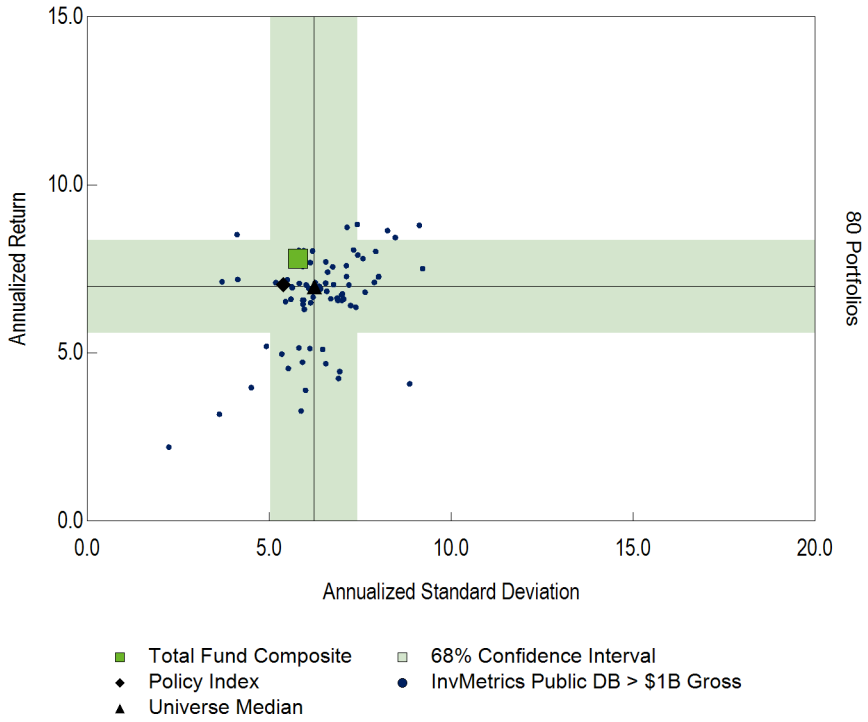
Howard County Retirement Plans

TOTAL FUND RISK/RETURN (GROSS)

3 Years Ending December 31, 2019



5 Years Ending December 31, 2019



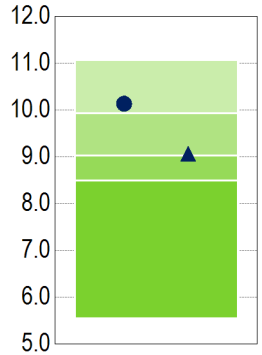
3 Years Ending December 31, 2019	Anlzd Ret	Anlzd Std Dev	Sharpe Ratio	Sortino Ratio
Total Fund Composite	10.13%	5.71%	1.49	2.13
Policy Index	9.06%	5.18%	1.43	2.21

5 Years Ending December 31, 2019	Anlzd Ret	Anlzd Std Dev	Sharpe Ratio	Sortino Ratio
Total Fund Composite	7.81%	5.78%	1.17	1.85
Policy Index	7.03%	5.38%	1.11	1.88

TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE

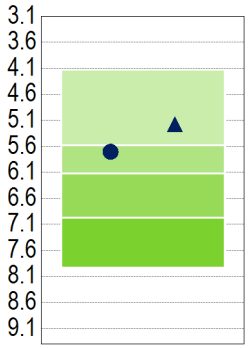
Total Fund Composite vs. InvMetrics Public DB > $1B Gross
3 Years

Anlzd Return



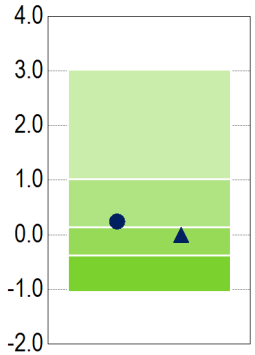
● Total Fund Composite	
Value	10.13
Rank	16
▲ Policy Index	
Value	9.06
Rank	49
Universe	
5th %tile	11.06
25th %tile	9.94
Median	9.04
75th %tile	8.50
95th %tile	5.57

Anlzd Standard Deviation



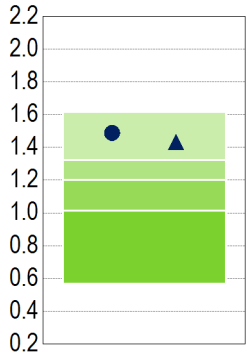
● Total Fund Composite	
Value	5.71
Rank	31
▲ Policy Index	
Value	5.18
Rank	15
Universe	
5th %tile	4.13
25th %tile	5.57
Median	6.11
75th %tile	6.96
95th %tile	7.93

Anlzd Alpha



● Total Fund Composite	
Value	0.24
Rank	44
▲ Policy Index	
Value	0.00
Rank	57
Universe	
5th %tile	3.03
25th %tile	1.03
Median	0.15
75th %tile	-0.37
95th %tile	-1.04

Sharpe Ratio

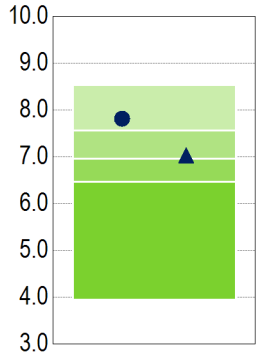


● Total Fund Composite	
Value	1.49
Rank	12
▲ Policy Index	
Value	1.43
Rank	15
Universe	
5th %tile	1.62
25th %tile	1.33
Median	1.21
75th %tile	1.02
95th %tile	0.57

TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE

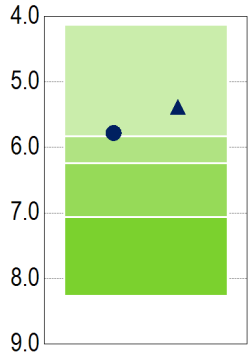
Total Fund Composite vs. InvMetrics Public DB > $1B Gross
5 Years

Anlzd Return



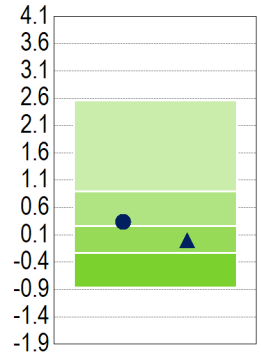
● Total Fund Composite	
Value	7.81
Rank	16
▲ Policy Index	
Value	7.03
Rank	47
Universe	
5th %tile	8.53
25th %tile	7.58
Median	6.98
75th %tile	6.48
95th %tile	3.97

Anlzd Standard Deviation



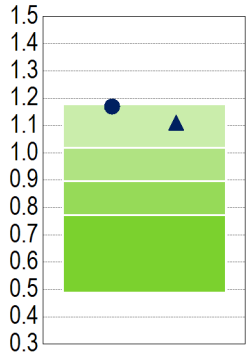
● Total Fund Composite	
Value	5.78
Rank	23
▲ Policy Index	
Value	5.38
Rank	11
Universe	
5th %tile	4.13
25th %tile	5.82
Median	6.23
75th %tile	7.06
95th %tile	8.26

Anlzd Alpha



● Total Fund Composite	
Value	0.34
Rank	46
▲ Policy Index	
Value	0.00
Rank	65
Universe	
5th %tile	2.56
25th %tile	0.91
Median	0.27
75th %tile	-0.22
95th %tile	-0.86

Sharpe Ratio

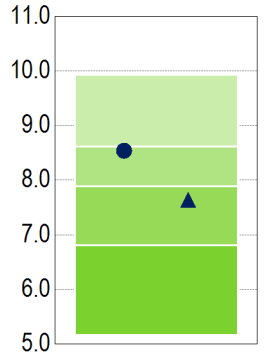


● Total Fund Composite	
Value	1.17
Rank	8
▲ Policy Index	
Value	1.11
Rank	16
Universe	
5th %tile	1.18
25th %tile	1.02
Median	0.90
75th %tile	0.77
95th %tile	0.49

TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE

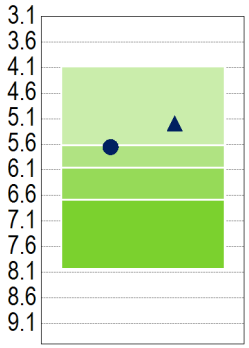
Total Fund Composite vs. InvMetrics Public DB > $1B Gross
7 Years

Anlzd Return



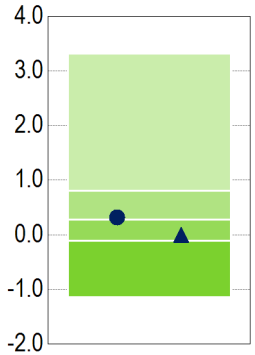
● Total Fund Composite	
Value	8.54
Rank	32
▲ Policy Index	
Value	7.64
Rank	56
Universe	
5th %tile	9.93
25th %tile	8.63
Median	7.90
75th %tile	6.81
95th %tile	5.17

Anlzd Standard Deviation



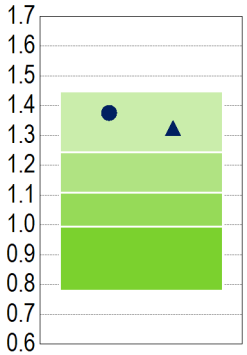
● Total Fund Composite	
Value	5.65
Rank	29
▲ Policy Index	
Value	5.19
Rank	12
Universe	
5th %tile	4.08
25th %tile	5.61
Median	6.05
75th %tile	6.67
95th %tile	8.02

Anlzd Alpha



● Total Fund Composite	
Value	0.32
Rank	47
▲ Policy Index	
Value	0.00
Rank	71
Universe	
5th %tile	3.32
25th %tile	0.82
Median	0.28
75th %tile	-0.10
95th %tile	-1.14

Sharpe Ratio

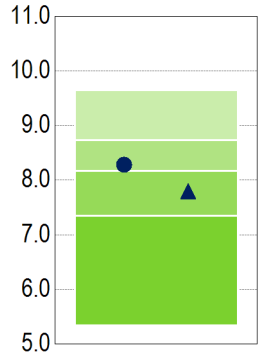


● Total Fund Composite	
Value	1.38
Rank	14
▲ Policy Index	
Value	1.33
Rank	16
Universe	
5th %tile	1.45
25th %tile	1.25
Median	1.11
75th %tile	1.00
95th %tile	0.78

TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE

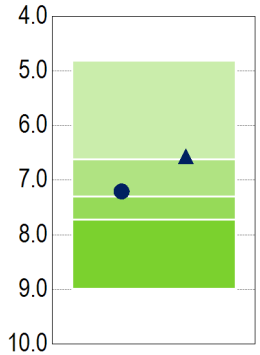
Total Fund Composite vs. InvMetrics Public DB > $1B Gross
10 Years

Anlzd Return



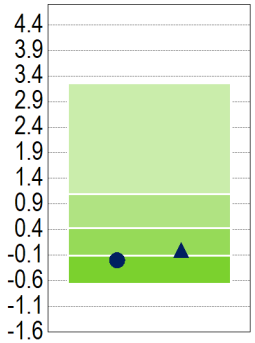
● Total Fund Composite	
Value	8.28
Rank	48
▲ Policy Index	
Value	7.80
Rank	65
Universe	
5th %tile	9.64
25th %tile	8.74
Median	8.18
75th %tile	7.36
95th %tile	5.35

Anlzd Standard Deviation



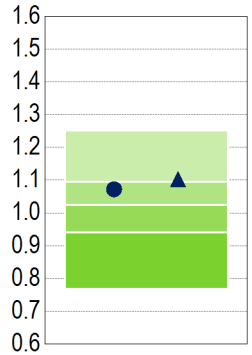
● Total Fund Composite	
Value	7.21
Rank	43
▲ Policy Index	
Value	6.57
Rank	23
Universe	
5th %tile	4.81
25th %tile	6.61
Median	7.28
75th %tile	7.71
95th %tile	8.98

Anlzd Alpha



● Total Fund Composite	
Value	-0.20
Rank	80
▲ Policy Index	
Value	0.00
Rank	73
Universe	
5th %tile	3.25
25th %tile	1.10
Median	0.44
75th %tile	-0.10
95th %tile	-0.65

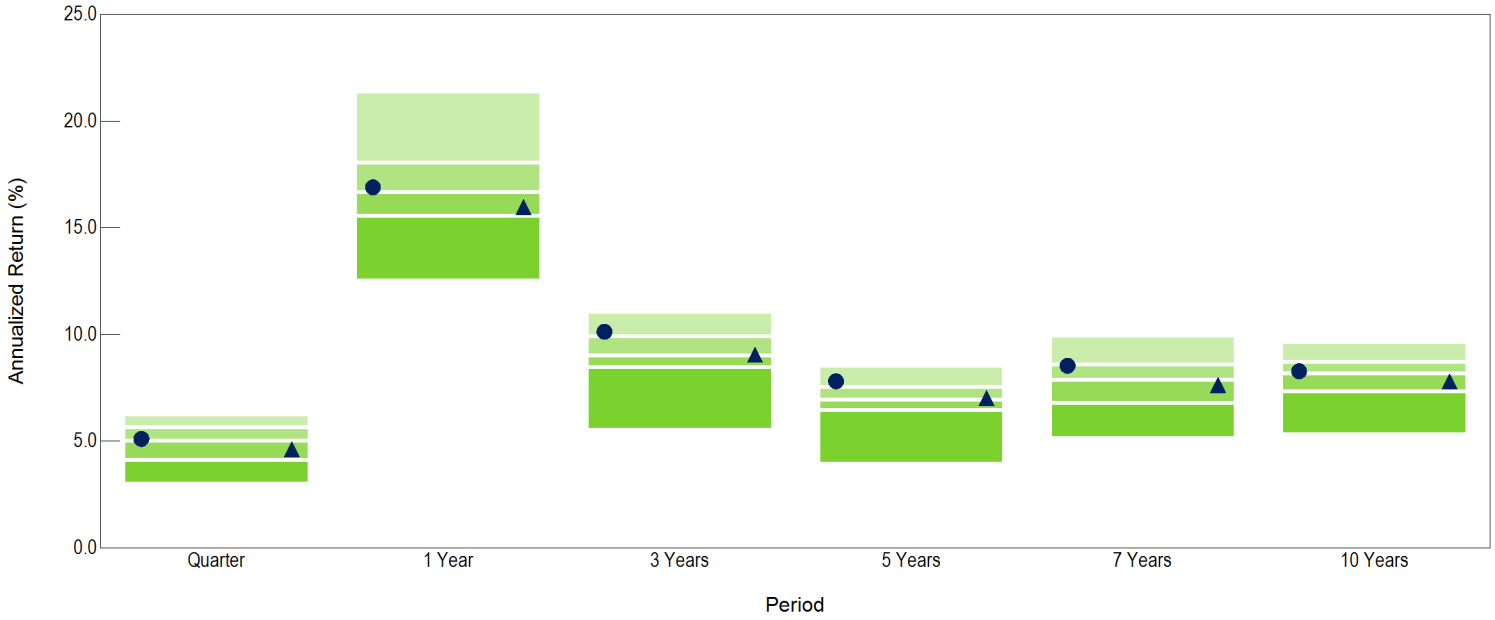
Sharpe Ratio



● Total Fund Composite	
Value	1.07
Rank	33
▲ Policy Index	
Value	1.10
Rank	25
Universe	
5th %tile	1.25
25th %tile	1.10
Median	1.03
75th %tile	0.94
95th %tile	0.77

TOTAL RETURN SUMMARY VS. PEER UNIVERSE (GROSS)

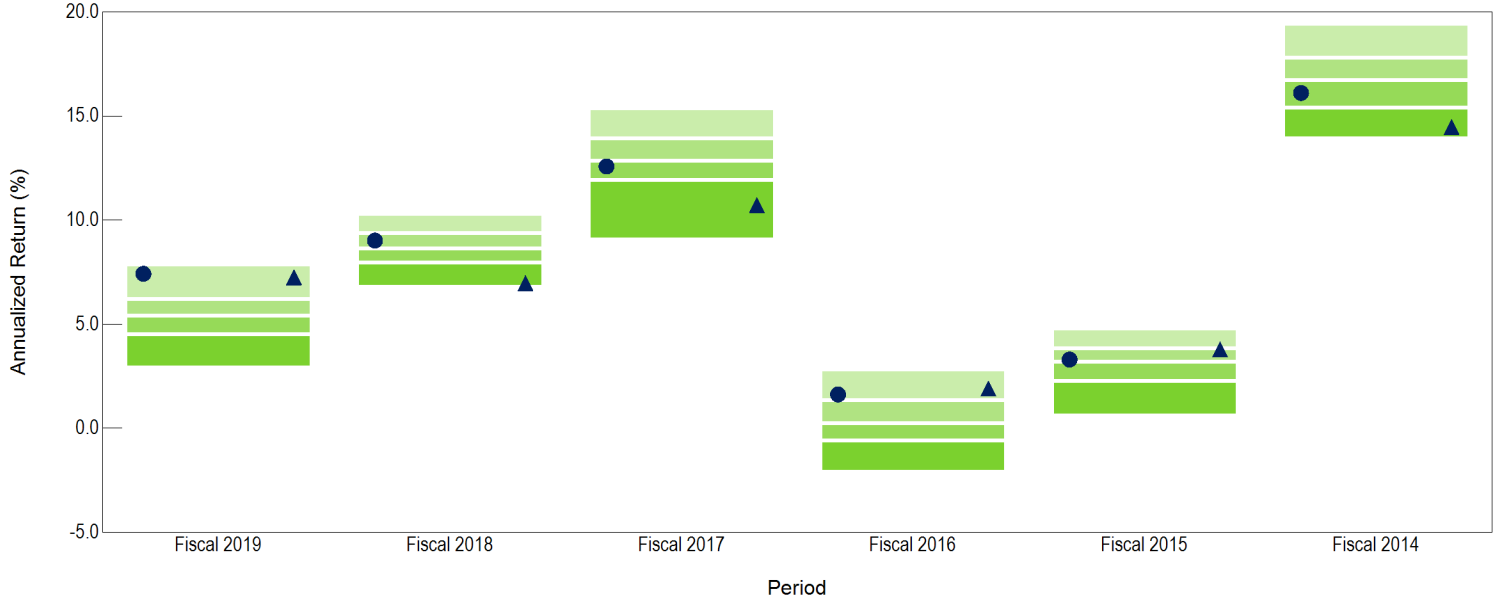
Total Fund Composite vs. InvMetrics Public DB > $1B Gross



	Return (Rank)											
5th Percentile	6.2		21.4		11.1		8.5		9.9		9.6	
25th Percentile	5.7		18.1		9.9		7.6		8.6		8.7	
Median	5.0		16.7		9.0		7.0		7.9		8.2	
75th Percentile	4.1		15.6		8.5		6.5		6.8		7.4	
95th Percentile	3.0		12.5		5.6		4.0		5.2		5.4	
# of Portfolios	81		81		81		80		77		72	
● Total Fund Composite	5.1	(44)	16.9	(47)	10.1	(16)	7.8	(16)	8.5	(32)	8.3	(48)
▲ Policy Index	4.6	(68)	16.0	(62)	9.1	(49)	7.0	(47)	7.6	(56)	7.8	(65)

FISCAL RETURN SUMMARY VS. PEER UNIVERSE (GROSS)

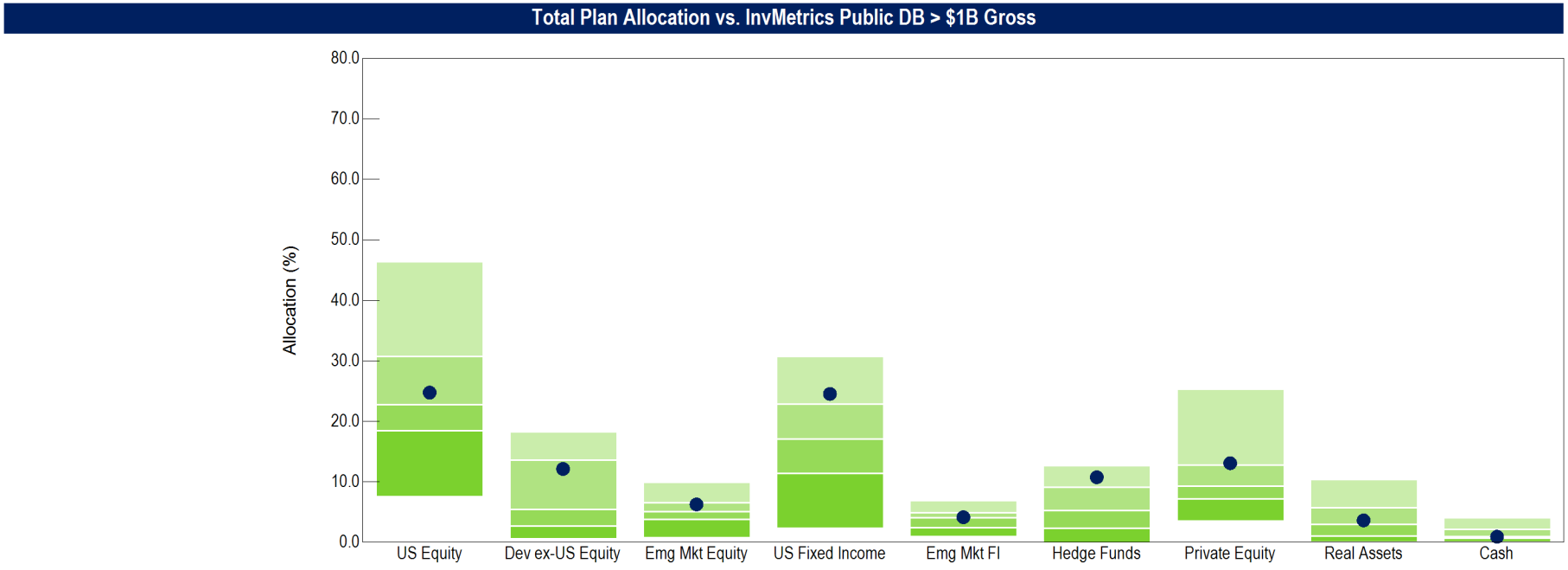
Total Fund Composite vs. InvMetrics Public DB > $1B Gross



	Return (Rank)											
5th Percentile	7.9		10.3		15.3		2.8		4.8		19.4	
25th Percentile	6.2		9.4		14.0		1.4		3.9		17.8	
Median	5.4		8.7		12.9		0.3		3.2		16.7	
75th Percentile	4.5		8.0		11.9		-0.6		2.3		15.4	
95th Percentile	2.9		6.8		9.1		-2.1		0.6		13.9	
# of Portfolios	88		62		108		91		92		65	
● Total Fund Composite	7.4	(9)	9.0	(35)	12.6	(61)	1.6	(22)	3.3	(48)	16.1	(62)
▲ Policy Index	7.2	(14)	7.0	(91)	10.7	(91)	1.9	(15)	3.8	(30)	14.5	(86)

Fiscal year ends 6/30.

TOTAL FUND ALLOCATIONS VS. PEER UNIVERSE



	Allocation (Rank)																	
5th Percentile	46.4		18.2		9.9		30.7		6.9		12.7		25.3		10.4		4.1	
25th Percentile	30.8		13.6		6.6		22.9		5.0		9.2		12.9		5.7		2.2	
Median	22.8		5.5		5.1		17.1		4.1		5.3		9.3		3.0		1.1	
75th Percentile	18.5		2.7		3.8		11.4		2.5		2.4		7.2		1.1		0.7	
95th Percentile	7.6		0.7		0.9		2.4		1.0		0.0		3.6		0.1		0.1	
# of Portfolios	57		28		41		58		26		37		50		31		65	
● Total Fund Composite	24.7	(46)	12.1	(31)	6.2	(29)	24.5	(21)	4.1	(51)	10.7	(8)	13.1	(24)	3.6	(40)	0.9	(58)

Howard County Retirement Plans

ANALYSIS BY FUND

Investments		Commitments		Contributions & Distributions			Valuations			Performance		
Investment Name	Vintage Year	Commitment	Unfunded Commitment	Paid In Capital	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI	TVPI	IRR
Private Debt												
Siguler Guff Distressed Opportunities Fund III, L.P.	2007	$10,000,000	$300,000	$9,700,000	$0	$13,959,644	$1,664,619	$15,624,263	$5,924,263	1.44	1.61	10.46%
Total Private Debt		**$10,000,000**	**$300,000**	**$9,700,000**	**$0**	**$13,959,644**	**$1,664,619**	**$15,624,263**	**$5,924,263**	**1.44**	**1.61**	**10.46%**
Private Equity												
57 Stars Global Opportunity Fund 4 (US), L.P.	2015	$7,000,000	$1,534,537	$5,465,463	-$15,283	$0	$6,535,295	$6,535,295	$1,085,115	0.00	1.20	8.92%
Aberdeen U.S. Private Equity V, L.P.	2013	$15,000,000	$300,000	$14,700,000	$7,648	$9,254,403	$14,918,875	$24,173,278	$9,465,630	0.63	1.64	18.53%
Aberdeen U.S. Private Equity VI, L.P.	2014	$15,000,000	$1,500,000	$13,500,000	$0	$3,911,543	$15,360,072	$19,271,615	$5,771,615	0.29	1.43	19.97%
Aberdeen U.S. Private Equity VII, L.P.	2017	$5,000,000	$2,600,000	$2,400,000	$0	$463,232	$2,787,802	$3,251,034	$851,034	0.19	1.35	32.75%
Crown Asia-Pacific Private Equity II PLC	2011	$14,000,000	$1,246,000	$12,754,000	$0	$6,286,000	$15,177,417	$21,463,417	$8,709,417	0.49	1.68	12.43%
Crown Asia-Pacific Private Equity III PLC	2014	$5,000,000	$1,165,000	$3,835,000	$0	$575,000	$5,950,743	$6,525,743	$2,690,743	0.15	1.70	24.81%
Crown Global Secondaries III PLC, L.P.	2012	$10,000,000	$2,850,000	$7,150,000	$0	$5,970,000	$4,269,193	$10,239,193	$3,089,193	0.83	1.43	12.97%
Greenspring Global Partners IV, L.P.	2008	$4,000,000	$160,000	$3,840,000	$36,255	$5,210,032	$4,658,719	$9,868,751	$5,992,496	1.34	2.55	17.52%
Greenspring Global Partners IX-B, L.P.	2019	$7,250,000	$5,510,000	$1,740,000	$0	$0	$1,777,881	$1,777,881	$37,881	0.00	1.02	3.20%
Greenspring Global Partners V-B, L.P.	2011	$7,000,000	$630,000	$6,370,000	-$16,154	$6,447,000	$9,533,258	$15,980,258	$9,626,412	1.01	2.52	21.64%
Greenspring Global Partners VI, L.P.	2014	$7,500,000	$900,000	$6,600,000	$1,152	$2,025,000	$12,468,266	$14,493,266	$7,892,114	0.31	2.20	24.15%
Greenspring Global Partners VIII-B, L.P.	2017	$5,000,000	$2,000,000	$3,000,000	$0	$0	$3,392,934	$3,392,934	$392,934	0.00	1.13	13.27%
Greenspring Secondaries Fund I, L.P.	2014	$2,500,000	$100,000	$2,400,000	-$903	$1,280,414	$5,185,072	$6,465,486	$4,066,389	0.53	2.69	30.70%
HarbourVest 2013 Direct Fund, L.P.	2013	$15,000,000	$484,349	$14,515,651	$108,146	$15,285,204	$13,207,314	$28,492,518	$13,868,721	1.05	1.95	21.18%
HarbourVest Partners Co-Investment Fund IV AIV, L.P.	2018	$574,142	$312,689	$261,453	$0	$0	$170,012	$170,012	-$91,441	0.00	0.65	-26.78%
HarbourVest Partners Co-Investment Fund IV, L.P.	2017	$9,425,858	$1,598,095	$7,827,763	$0	$1,650,450	$8,828,133	$10,478,583	$2,650,820	0.21	1.34	15.86%
NB Crossroads Fund XXI, L.P.	2015	$15,000,000	$6,150,000	$8,850,000	$0	$0	$12,295,129	$12,295,129	$3,445,129	0.00	1.39	15.55%
NB Crossroads Fund XXII, L.P.	2019	$5,000,000	$3,450,000	$1,550,000	$0	$0	$1,638,991	$1,638,991	$88,991	0.00	1.06	6.16%
Pantheon Global Secondary Fund IV, L.P.	2010	$3,000,000	$1,008,000	$1,992,000	$0	$2,567,990	$578,815	$3,146,805	$1,154,805	1.29	1.58	13.54%
Schroder Adveq Europe Direct II S.C.S.	2018	$998,434	$578,896	$419,538	$0	$0	$380,563	$380,563	-$38,975	0.00	0.91	-11.16%
Schroder Adveq Europe V, L.P.	2012	$9,060,939	$869,980	$8,190,959	$0	$4,881,390	$6,293,488	$11,174,878	$2,983,919	0.60	1.36	9.62%
Schroder Adveq Europe VI, L.P.	2015	$6,723,411	$2,289,420	$4,433,991	$0	$720,359	$4,678,115	$5,398,474	$964,483	0.16	1.22	11.09%
Schroder Adveq Europe VII S.C.S.	2018	$3,844,491	$2,976,246	$868,245	$0	$0	$906,381	$906,381	$38,136	0.00	1.04	5.40%
Total Private Equity		**$172,877,275**	**$40,213,212**	**$132,664,063**	**$120,861**	**$66,528,017**	**$150,992,468**	**$217,520,485**	**$84,735,561**	**0.50**	**1.64**	**17.45%**
Total		**$182,877,275**	**$40,513,212**	**$142,364,063**	**$120,861**	**$80,487,660**	**$152,657,087**	**$233,144,747**	**$90,659,823**	**0.56**	**1.64**	**16.16%**

Note for European Funds:
-Paid In Capital and Distributions are based on the exchange rate of the date of the cash flows.
-The commitment amount is calculated by taking the unfunded commitment amount in EUR, applying the exchange rate and then adding it to the USD commitment amount.

Howard County Retirement Plans

ANALYSIS BY FUND

Investments		Commitments		Contributions & Distributions			Valuations			Performance		
Investment Name	Vintage Year	Commitment	Unfunded Commitment	Paid In Capital	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI	TVPI	IRR
Real Estate												
Partners Group Global Real Estate 2011, L.P.	2011	$14,623,596	$1,542,309	$13,081,287	$65,873	$12,041,126	$4,657,250	$16,698,376	$3,551,217	0.92	1.27	5.55%
Partners Group Global Real Estate 2014 (USD) A, L.P. Inc.	2014	$25,000,000	$10,077,286	$14,922,714	$35,548	$5,255,596	$17,186,833	$22,442,429	$7,484,167	0.35	1.50	12.35%
Partners Group Real Estate Secondary 2017 (USD) A, L.P.	2018	$10,000,000	$6,292,738	$3,707,262	$50,032	$2,500	$4,107,824	$4,110,324	$353,030	0.00	1.09	12.48%
TA Associates Realty Fund IX, L.P.	2008	$10,000,000	$0	$10,000,000	$0	$16,015,604	$0	$16,015,604	$6,015,604	1.60	1.60	10.42%
TA Associates Realty Fund VI, L.P.	2002	$10,000,000	$0	$10,000,000	$0	$15,172,037	$0	$15,172,037	$5,172,037	1.52	1.52	8.55%
TA Associates Realty Fund VII, L.P.	2005	$5,000,000	$0	$5,000,000	$0	$5,119,609	$0	$5,119,609	$119,609	1.02	1.02	0.34%
TA Associates Realty Fund VIII, L.P.	2006	$10,000,000	$0	$10,000,000	$0	$9,922,758	$5,827	$9,928,585	-$71,415	0.99	0.99	-0.08%
Total Real Estate		**$84,623,596**	**$17,912,333**	**$66,711,263**	**$151,453**	**$63,529,230**	**$25,957,734**	**$89,486,965**	**$22,624,249**	**0.95**	**1.34**	**5.88%**
Total		**$84,623,596**	**$17,912,333**	**$66,711,263**	**$151,453**	**$63,529,230**	**$25,957,734**	**$89,486,965**	**$22,624,249**	**0.95**	**1.34**	**5.88%**

Howard County Retirement Plans

ANALYSIS BY FUND

Investments		Commitments		Contributions & Distributions			Valuations			Performance		
Investment Name	Vintage Year	Commitment	Unfunded Commitment	Paid In Capital	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI	TVPI	IRR
Real Assets												
Aether Real Assets IV, L.P.	2015	$7,500,000	$2,516,788	$4,983,212	-$906	$0	$5,618,333	$5,618,333	$636,027	0.00	1.13	7.20%
Aether Real Assets V, L.P.	2018	$7,500,000	$6,501,936	$998,064	-$16,146	$0	$890,823	$890,823	-$91,095	0.00	0.91	-9.68%
Commonfund Capital Natural Resources Partners XI, L.P.	2018	$7,500,000	$6,600,000	$900,000	$0	$0	$800,212	$800,212	-$99,788	0.00	0.89	-58.88%
Commonfund Capital Natural Resources Partners X, L.P.	2015	$7,500,000	$2,763,750	$4,736,250	$0	$1,268,767	$4,934,566	$6,203,333	$1,467,083	0.27	1.31	20.22%
Total Real Assets		**$30,000,000**	**$18,382,474**	**$11,617,526**	**-$17,052**	**$1,268,767**	**$12,243,934**	**$13,512,701**	**$1,912,227**	**0.11**	**1.16**	**11.22%**
Total		**$30,000,000**	**$18,382,474**	**$11,617,526**	**-$17,052**	**$1,268,767**	**$12,243,934**	**$13,512,701**	**$1,912,227**	**0.11**	**1.16**	**11.22%**

Howard County Retirement Plans

TOTAL EQUITY COMPOSITE

3 Year Risk Return

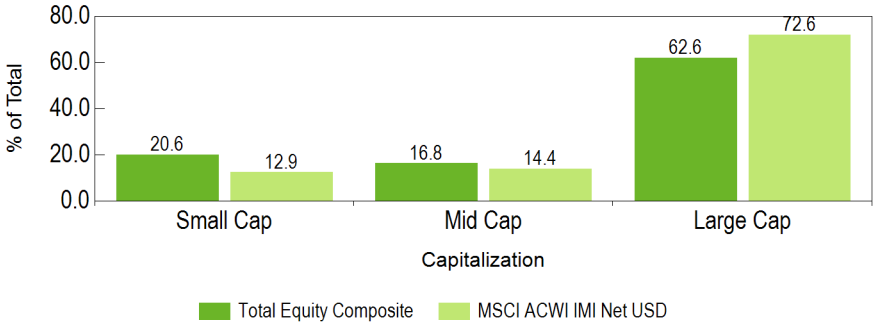
3 Year Style Analysis

TOTAL EQUITY COMPOSITE

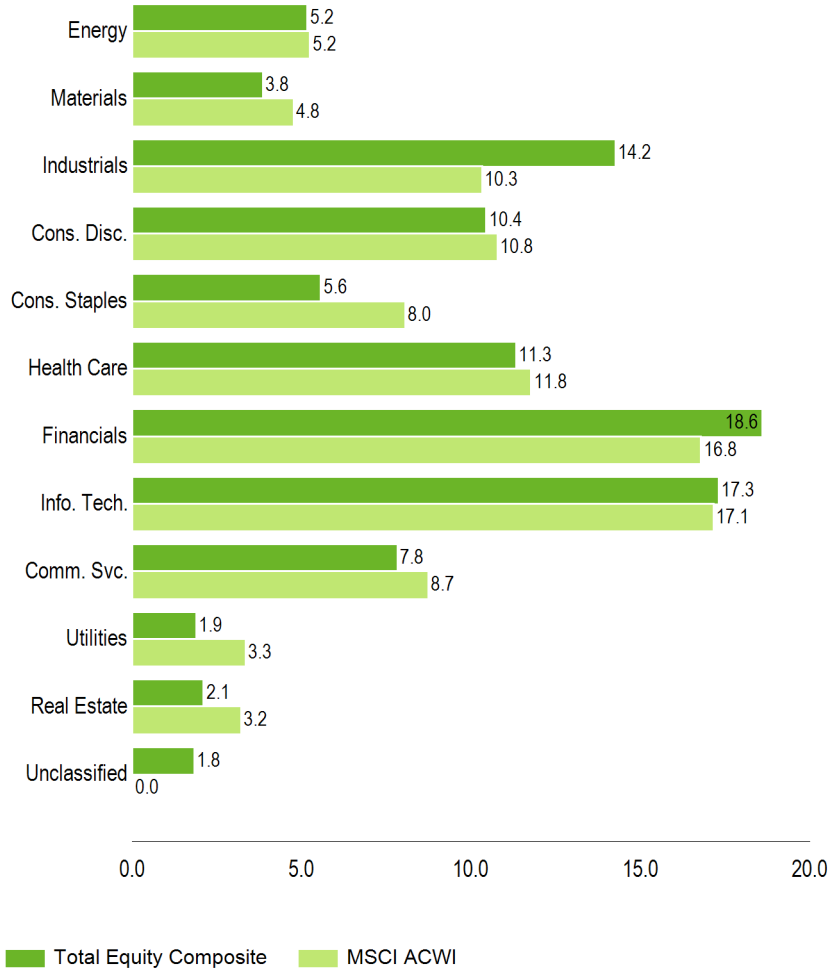
Characteristics	Portfolio	MSCI ACWI IMI Net USD
Number of Holdings	2,891	8,998
Weighted Avg. Market Cap. ($B)	98.7	155.5
Median Market Cap. ($B)	0.7	1.9
Price To Earnings	18.7	19.2
Price To Book	2.8	3.0
Price To Sales	1.2	1.5
Return on Equity (%)	14.9	17.4
Yield (%)	2.2	2.3
Beta	1.1	1.0
R-Squared	1.0	1.0

Region Weighting	Portfolio Q4-19	Index Q4-19
Americas	53.69	59.60
Europe	20.14	19.21
Asia/Pacific	25.55	19.77
Other	0.61	1.42

Market Capitalization
As of December 31, 2019



Equity Sector Allocation



Howard County Retirement Plans

TOTAL EQUITY COMPOSITE

Top Ten Holdings	
CASH - USD	1.7%
ALPHABET A	1.2%
APPLE	1.1%
AMAZON.COM	1.0%
AIA GROUP	1.0%
UNITED OVERSEAS BANK	0.9%
FACEBOOK CLASS A	0.8%
METTLER TOLEDO INTL.	0.8%
MICROSOFT	0.8%
VISA 'A'	0.8%

Top Positive Contributors	Relative Contribution %	Return %
MEDICINES COMPANY	0.1%	69.9%
VERTEX PHARMS.	0.1%	29.2%
APPLIED MATS.	0.1%	22.8%
METTLER TOLEDO INTL.	0.1%	12.6%
BECHTLE	0.1%	39.6%
HOUSING DEVELOPMENT FINANCE CORPORATION	0.1%	21.2%
SSE	0.1%	24.2%
ATLAS COPCO A	0.1%	30.6%
AUTO TRADER GROUP	0.1%	25.3%
RIGHTMOVE	0.1%	24.4%

Top Negative Contributors	Relative Contribution %	Return %
APPLE	-0.2%	31.5%
ALIBABA GROUP HOLDING ADR 1:8	-0.1%	26.8%
UNITEDHEALTH GROUP	-0.1%	35.8%
NVIDIA	-0.1%	35.3%
ALPHABET 'C'	-0.1%	9.7%
TAIWAN SEMICON.MNFG.	-0.1%	26.9%
NETFLIX	0.0%	20.9%
JOHNSON & JOHNSON	0.0%	13.5%
MICROSOFT	0.0%	13.8%
SHISEIDO	0.0%	-10.0%

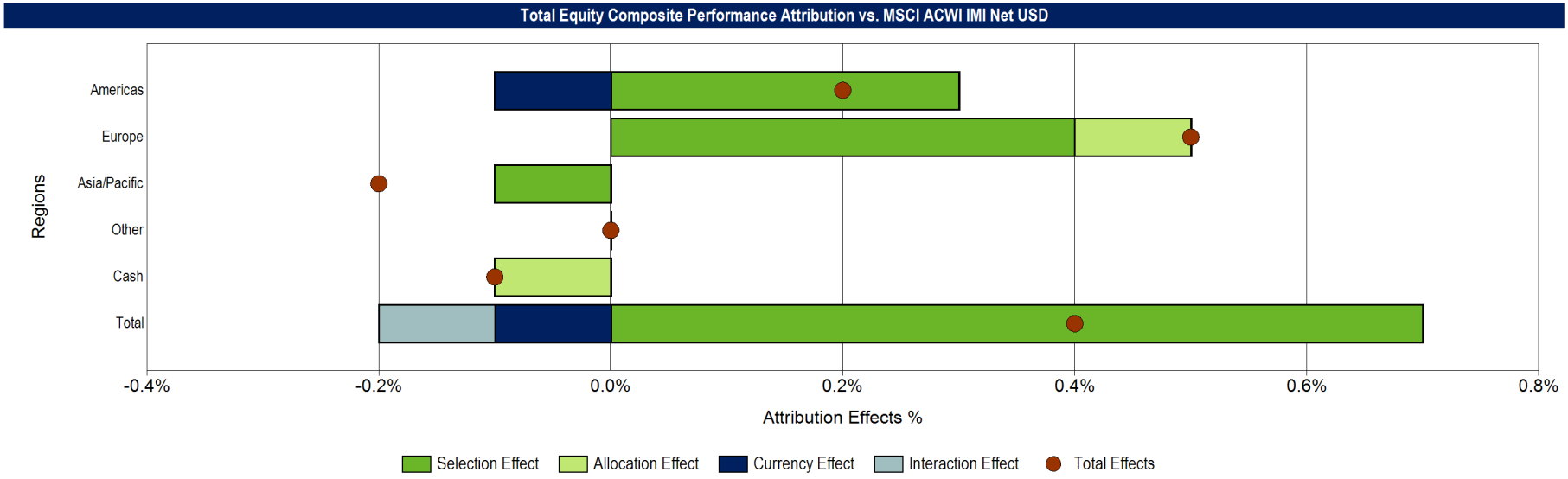
Equity Sector Attribution

			Attribution Effects					Returns		Sector Weights	
	Total Effects		Selection Effect		Allocation Effect		Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark
Energy	-0.1%		-0.1%		0.0%		-0.1%	7.2%	10.1%	4.7%	1.5%
Materials	0.1%		0.1%		-0.1%		0.1%	10.4%	4.5%	3.7%	2.4%
Industrials	0.7%		0.6%		-0.4%		0.6%	9.8%	1.5%	13.5%	8.2%
Consumer Discretionary	0.7%		0.3%		0.3%		0.0%	7.7%	4.7%	10.1%	16.6%
Consumer Staples	-0.3%		0.0%		-0.4%		0.1%	1.7%	1.0%	7.3%	3.2%
Health Care	0.2%		0.0%		0.1%		0.1%	13.1%	12.2%	12.0%	8.5%
Financials	0.0%		-0.1%		0.0%		0.0%	10.2%	10.2%	16.8%	3.9%
Information Technology	-1.7%		-1.2%		-1.2%		0.7%	13.0%	16.0%	17.4%	36.3%
Communication Services	0.0%		-0.2%		0.0%		0.2%	10.0%	10.2%	8.6%	14.2%
Utilities	-0.1%		0.0%		-0.2%		0.2%	6.6%	0.5%	2.5%	0.0%
Real Estate	0.4%		0.2%		0.3%		-0.1%	5.1%	0.1%	1.9%	5.2%
Cash	-0.1%		0.0%		-0.1%		0.0%	0.4%	--	1.6%	0.0%
Portfolio	**-0.3%**	**=**	**-0.3%**	**+**	**-1.6%**	**+**	**1.7%**	**9.6%**	**9.9%**	**100.0%**	**100.0%**

Attribution on manager pages is holdings based, using buy-and-hold assumptions from the beginning of the period portfolio. Results may differ from the flash report.

Howard County Retirement Plans

TOTAL EQUITY COMPOSITE



	Returns and Weights				Attribution Effects				
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	Total Effects
Totals									
Americas	9.4%	9.0%	59.3%	59.7%	0.3%	0.0%	-0.1%	0.0%	0.2%
Europe	12.7%	9.8%	17.2%	19.1%	0.4%	0.1%	0.0%	0.0%	0.5%
Asia/Pacific	8.2%	9.1%	21.5%	19.8%	-0.1%	0.0%	0.0%	0.0%	-0.2%
Other	12.7%	8.1%	0.5%	1.4%	0.0%	0.0%	0.0%	0.0%	0.0%
Cash	0.4%	--	1.6%	0.0%	0.0%	-0.1%	0.0%	0.0%	-0.1%
Total	**9.6%**	**9.2%**	**100.0%**	**100.0%**	**0.7%**	**0.0%**	**-0.1%**	**-0.1%**	**0.4%**
Totals									
Developed	9.9%	8.9%	88.1%	88.5%	0.9%	0.0%	0.0%	0.0%	0.9%
Emerging*	8.7%	11.6%	10.4%	11.5%	-0.3%	0.0%	-0.1%	0.0%	-0.3%
Cash	0.4%	--	1.6%	0.0%	0.0%	-0.1%	0.0%	0.0%	-0.1%

Howard County Retirement Plans

TOTAL EQUITY COMPOSITE

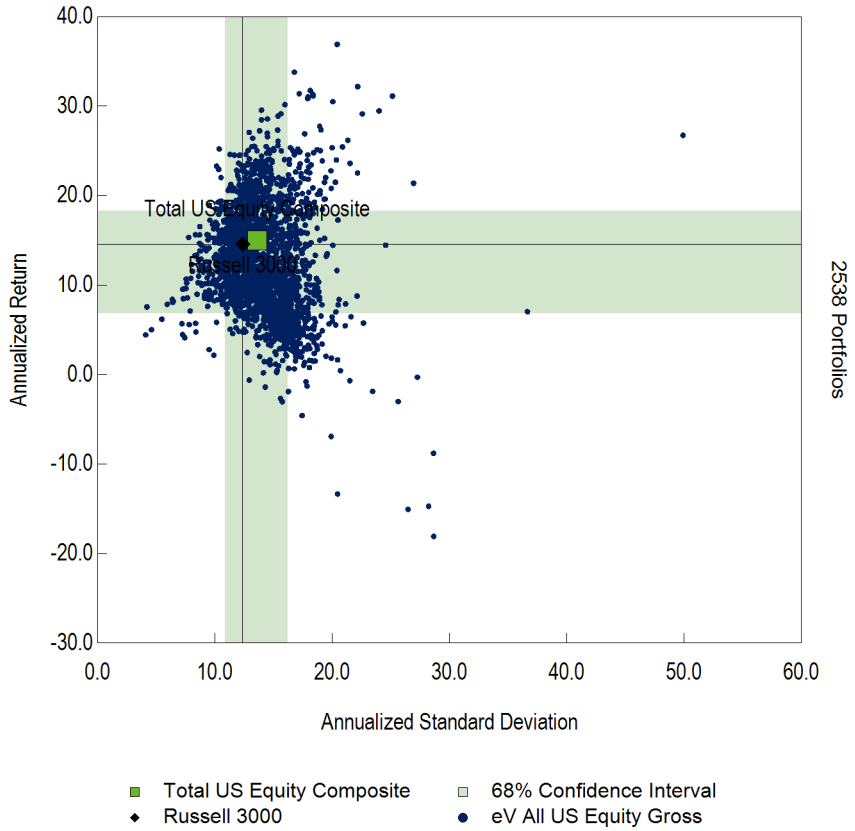
Country Allocation	Manager Allocation (USD)	Index Allocation (USD)	Manager Return (USD)	Index Return (USD)
Americas				
Brazil*	0.6%	0.9%	16.3%	15.5%
Canada	0.7%	3.1%	5.5%	5.9%
Chile*	0.1%	0.1%	-4.1%	-10.6%
Colombia*	0.0%	0.0%	4.2%	14.1%
Mexico*	0.4%	0.3%	3.3%	6.8%
United States	57.6%	55.2%	9.5%	9.2%
Total-Americas	**59.3%**	**59.7%**	**9.4%**	**9.0%**
Europe				
Czech Republic*	0.0%	0.0%	2.0%	9.2%
Denmark	0.5%	0.5%	8.3%	13.4%
Finland	0.2%	0.3%	14.9%	4.8%
France	1.3%	3.1%	11.7%	8.7%
Germany	2.6%	2.5%	12.1%	10.0%
Greece*	0.0%	0.0%	8.2%	11.8%
Hungary*	0.0%	0.0%	10.7%	20.9%
Ireland	0.2%	0.2%	25.1%	16.6%
Italy	0.6%	0.8%	4.0%	8.9%
Netherlands	1.1%	1.1%	6.2%	7.9%
Poland*	0.1%	0.1%	4.5%	5.4%
Portugal	0.3%	0.1%	-2.5%	8.8%
Russia*	0.6%	0.4%	15.6%	17.5%
Spain	0.8%	0.8%	9.3%	6.6%
Sweden	1.6%	0.9%	17.7%	14.6%
Switzerland	1.4%	2.6%	12.9%	8.0%
United Kingdom	5.7%	4.9%	15.0%	11.5%
Total-Europe	**17.2%**	**19.1%**	**12.7%**	**9.8%**

Country Allocation	Manager Allocation (USD)	Index Allocation (USD)	Manager Return (USD)	Index Return (USD)
AsiaPacific				
Australia	1.0%	2.2%	5.8%	4.3%
China*	1.2%	3.5%	6.2%	14.5%
Hong Kong	3.5%	1.0%	9.3%	7.6%
India*	3.0%	1.0%	7.9%	5.6%
Indonesia*	0.8%	0.2%	10.7%	6.2%
Japan	6.9%	7.8%	8.5%	7.8%
Korea*	1.0%	1.4%	4.9%	11.9%
Malaysia*	0.2%	0.2%	4.9%	3.4%
New Zealand	0.2%	0.1%	33.2%	13.1%
Philippines*	0.1%	0.1%	4.1%	2.4%
Singapore	1.7%	0.4%	6.1%	7.6%
Taiwan*	1.3%	1.4%	14.9%	16.6%
Thailand*	0.7%	0.4%	-0.8%	-1.2%
Total-AsiaPacific	**21.5%**	**19.8%**	**8.2%**	**9.1%**
Other				
Israel	0.1%	0.2%	7.9%	7.9%
South Africa*	0.4%	0.6%	14.8%	13.6%
Turkey*	0.1%	0.1%	4.9%	1.6%
Total-Other	**0.5%**	**1.4%**	**12.7%**	**8.1%**
Totals				
Developed	88.1%	88.5%	9.9%	8.9%
Emerging*	10.4%	11.5%	8.7%	11.6%
Cash	1.6%		0.4%	

Country* = Emerging Markets

TOTAL US EQUITY COMPOSITE

3 Year Risk Return

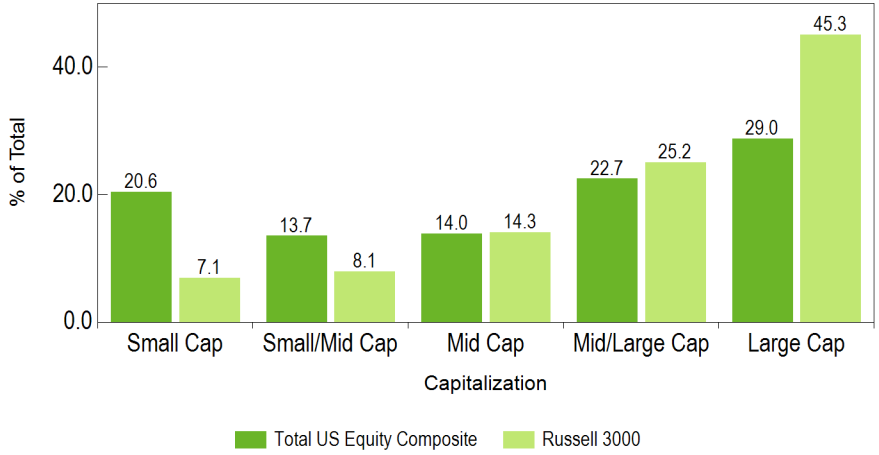


3 Year Style Analysis

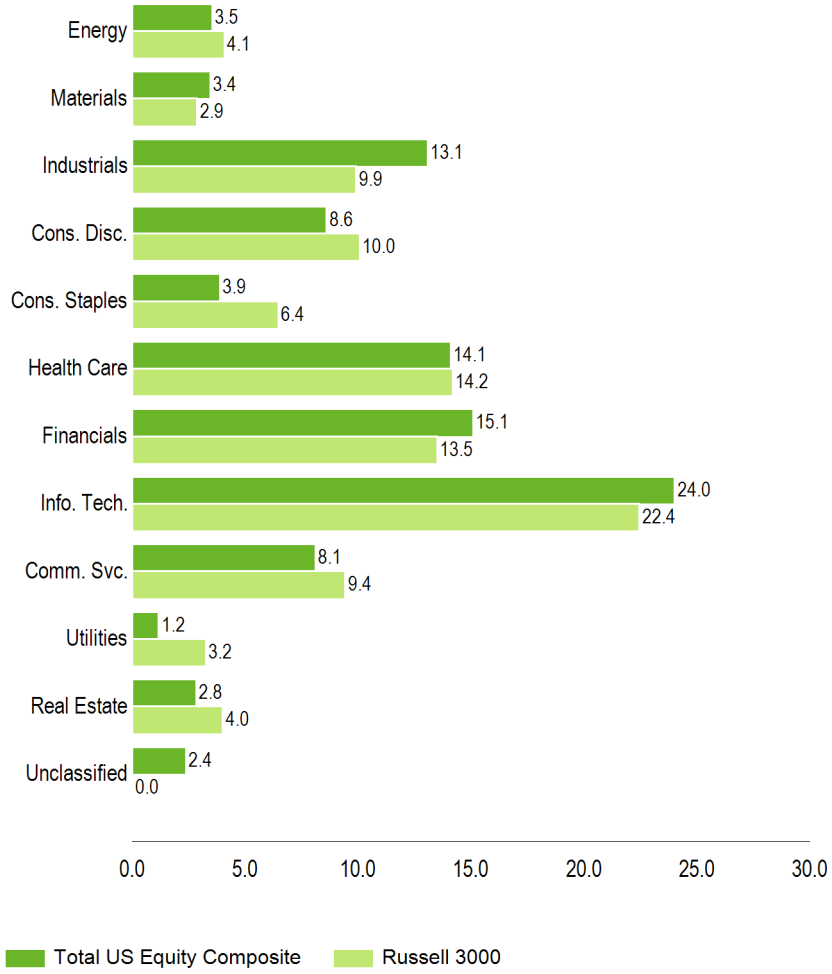
TOTAL US EQUITY COMPOSITE

Characteristics	Portfolio	Russell 3000
Number of Holdings	399	2,992
Weighted Avg. Market Cap. ($B)	143.4	230.5
Median Market Cap. ($B)	5.4	1.8
Price To Earnings	21.2	22.8
Price To Book	3.2	3.6
Price To Sales	1.5	1.9
Return on Equity (%)	17.4	20.9
Yield (%)	1.6	1.8
Beta	1.1	1.0
R-Squared	1.0	1.0

Market Capitalization
As of December 31, 2019



Equity Sector Allocation



Howard County Retirement Plans

TOTAL US EQUITY COMPOSITE

Top Ten Holdings	
CASH - USD	2.4%
ALPHABET A	2.3%
APPLE	2.1%
AMAZON.COM	2.0%
FACEBOOK CLASS A	1.6%
MICROSOFT	1.5%
VISA 'A'	1.5%
CITIGROUP	1.2%
SALESFORCE.COM	1.2%
JP MORGAN CHASE & CO.	1.2%

Top Positive Contributors	Relative Contribution %	Return %
MEDICINES COMPANY	0.2%	69.9%
VERTEX PHARMS.	0.2%	29.2%
APPLIED MATS.	0.2%	22.8%
BRISTOL MYERS SQUIBB	0.1%	27.6%
CHARTER COMMS.CL.A	0.1%	17.7%
ALPHABET A	0.1%	9.7%
CATERPILLAR	0.1%	17.8%
MARRIOTT INTL.'A'	0.1%	22.2%
BLACKSTONE GROUP A	0.1%	15.6%
BOEING	0.1%	-13.9%

Top Negative Contributors	Relative Contribution %	Return %
APPLE	-0.3%	31.5%
UNITEDHEALTH GROUP	-0.2%	35.8%
NVIDIA	-0.1%	35.3%
MICROSOFT	-0.1%	13.8%
ALPHABET 'C'	-0.1%	9.7%
JOHNSON & JOHNSON	-0.1%	13.5%
NETFLIX	-0.1%	20.9%
MASTERCARD	-0.1%	10.1%
CIGNA	0.0%	34.7%
GENERAL ELECTRIC	0.0%	24.9%

Equity Sector Attribution

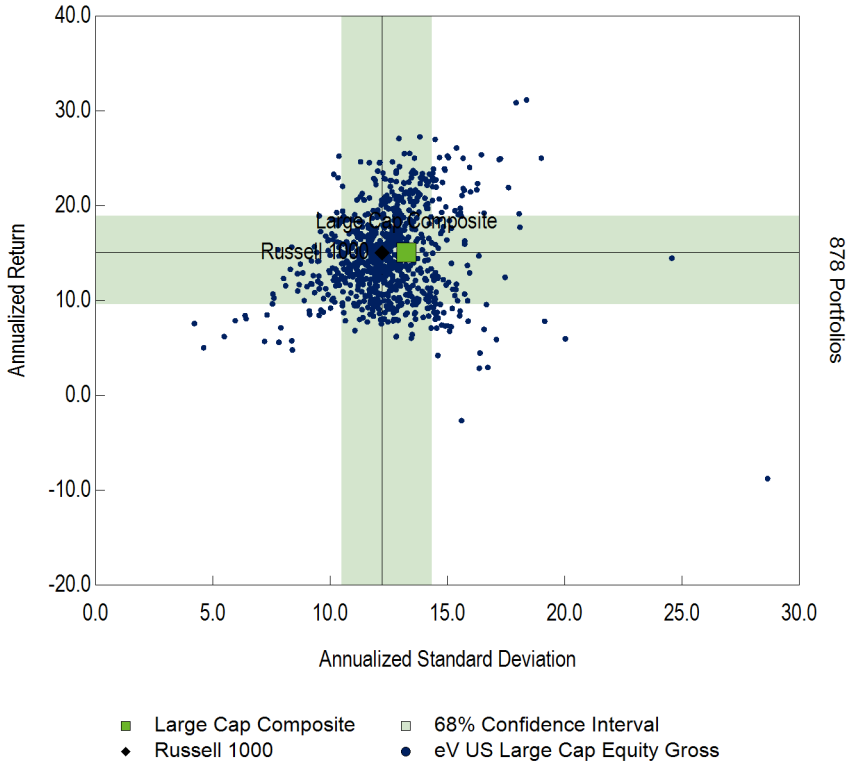
	Attribution Effects						Returns		Sector Weights	
	Total Effects		Selection Effect		Allocation Effect		Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark
Energy	0.0%		0.0%		0.0%		0.0%	6.0%	6.0%	3.6%	4.3%
Materials	0.0%		0.0%		0.0%		0.0%	7.0%	7.0%	3.3%	2.9%
Industrials	0.2%		0.2%		-0.1%		0.0%	7.8%	5.9%	12.1%	10.2%
Consumer Discretionary	-0.1%		-0.1%		0.0%		0.0%	4.8%	5.8%	9.9%	10.4%
Consumer Staples	0.0%		-0.1%		0.1%		0.0%	1.7%	3.7%	5.0%	6.6%
Health Care	-0.2%		-0.2%		0.1%		0.0%	13.3%	15.0%	14.7%	13.3%
Financials	0.1%		0.1%		0.0%		0.0%	10.3%	9.8%	13.3%	13.5%
Information Technology	-0.3%		-0.4%		0.1%		0.0%	12.4%	14.0%	24.0%	21.5%
Communication Services	0.0%		0.0%		0.0%		0.0%	9.2%	9.3%	8.9%	9.5%
Utilities	0.1%		0.0%		0.1%		0.0%	0.0%	0.4%	1.8%	3.4%
Real Estate	0.3%		0.2%		0.2%		-0.1%	5.0%	0.7%	2.2%	4.2%
Cash	-0.1%		0.0%		-0.1%		0.0%	0.4%	--	1.2%	0.0%
Portfolio	**0.0%**	**=**	**-0.4%**	**+**	**0.5%**	**+**	**-0.1%**	**9.2%**	**9.2%**	**100.0%**	**100.0%**

Attribution on manager pages is holdings based, using buy-and-hold assumptions from the beginning of the period portfolio. Results may differ from the flash report.

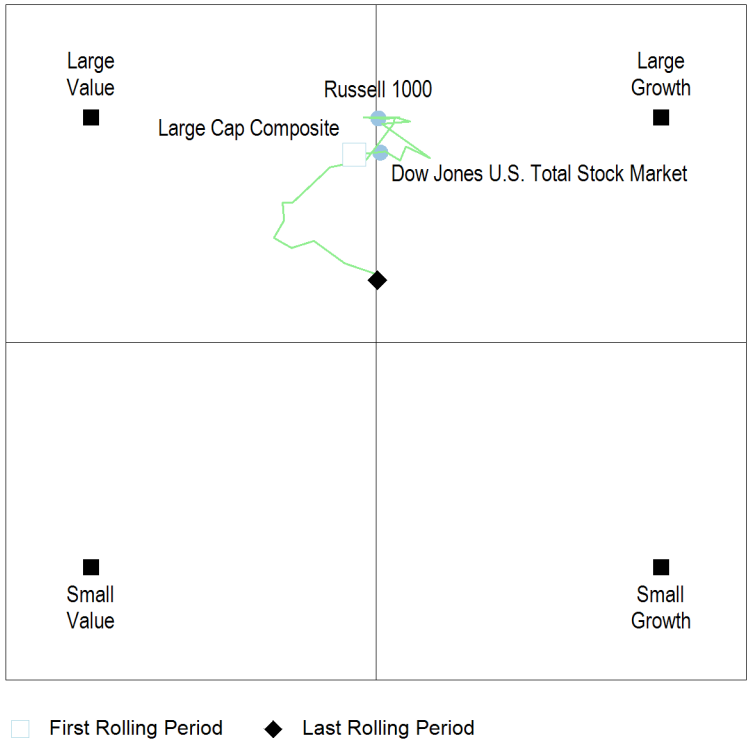
Howard County Retirement Plans

LARGE CAP COMPOSITE

3 Year Risk Return



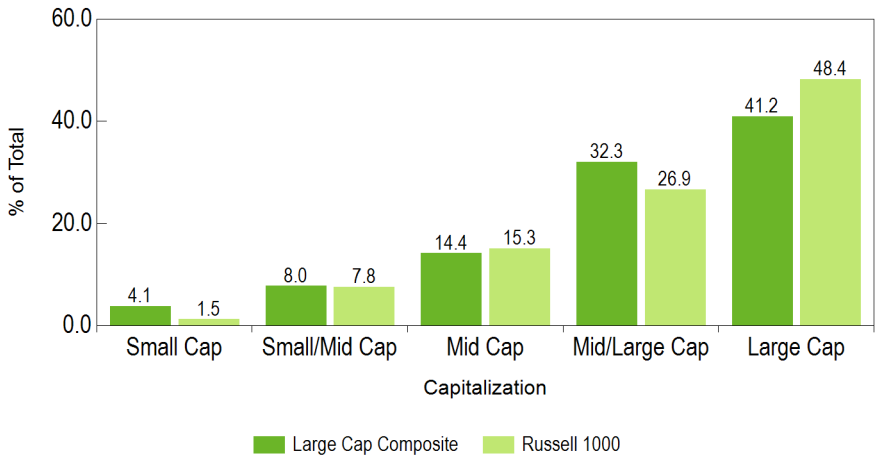
3 Year Style Analysis



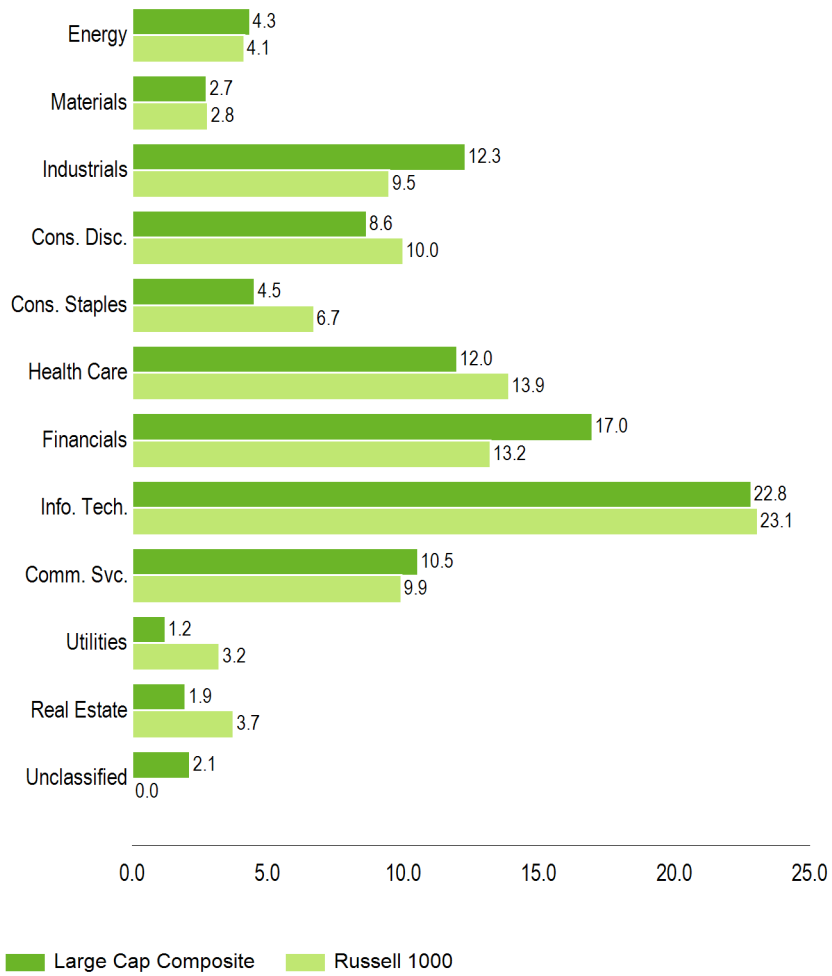
LARGE CAP COMPOSITE

Characteristics	Portfolio	Russell 1000
Number of Holdings	190	997
Weighted Avg. Market Cap. ($B)	201.9	246.6
Median Market Cap. ($B)	23.4	10.4
Price To Earnings	19.6	23.1
Price To Book	3.2	3.8
Price To Sales	1.4	2.1
Return on Equity (%)	21.1	23.8
Yield (%)	1.9	1.8
Beta	1.1	1.0
R-Squared	1.0	1.0

Market Capitalization
As of December 31, 2019



Equity Sector Allocation



Howard County Retirement Plans

LARGE CAP COMPOSITE

Top Ten Holdings	
ALPHABET A	3.2%
APPLE	3.0%
AMAZON.COM	2.9%
FACEBOOK CLASS A	2.3%
MICROSOFT	2.2%
VISA 'A'	2.2%
CASH - USD	2.1%
CITIGROUP	1.7%
SALESFORCE.COM	1.7%
JP MORGAN CHASE & CO.	1.7%

Top Positive Contributors	Relative Contribution %	Return %
APPLE	1.0%	31.5%
MICROSOFT	0.5%	13.8%
MEDICINES COMPANY	0.3%	69.9%
VERTEX PHARMS.	0.3%	29.2%
JP MORGAN CHASE & CO.	0.3%	19.4%
FACEBOOK CLASS A	0.3%	15.3%
ALPHABET A	0.3%	9.7%
APPLIED MATS.	0.3%	22.8%
BRISTOL MYERS SQUIBB	0.2%	27.6%
BANK OF AMERICA	0.2%	21.4%

Top Negative Contributors	Relative Contribution %	Return %
HOME DEPOT	-0.1%	-5.3%
CONSTELLATION BRANDS 'A'	-0.1%	-8.1%
L3HARRIS TECHNOLOGIES	0.0%	-4.8%
CISCO SYSTEMS	0.0%	-2.2%
PROGRESSIVE OHIO	0.0%	-6.2%
INTERNATIONAL BUS.MCHS.	0.0%	-6.7%
SPIRIT AEROSYSTEMS CL.A	0.0%	-11.2%
AARON'S	0.0%	-11.1%
BOEING	0.0%	-13.9%
WHIRLPOOL	0.0%	-6.1%

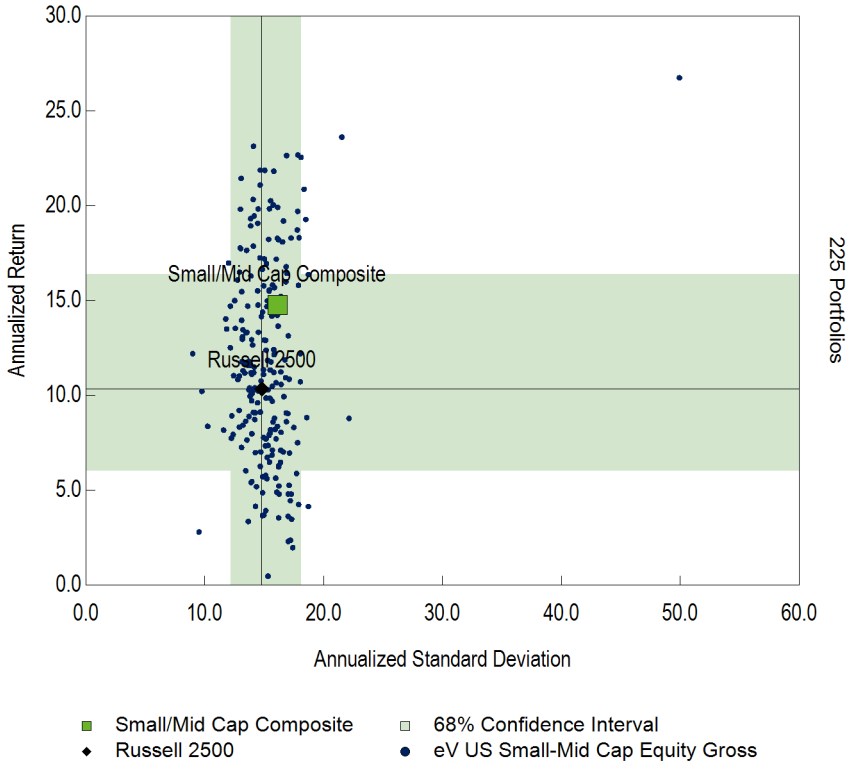
Equity Sector Attribution

	Attribution Effects												Returns		Sector Weights	
	Total Effects		Selection Effect		Allocation Effect		Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark
Energy	0.0%		0.0%		0.0%		0.0%	5.9%	5.9%	4.2%	4.4%
Materials	0.0%		0.0%		0.0%		0.0%	7.9%	6.5%	2.8%	2.8%
Industrials	0.3%		0.3%		0.0%		0.0%	8.7%	5.7%	10.9%	9.8%
Consumer Discretionary	0.0%		0.0%		0.0%		0.0%	5.1%	5.5%	10.5%	10.4%
Consumer Staples	0.0%		-0.1%		0.1%		0.0%	1.9%	3.6%	5.8%	6.9%
Health Care	0.3%		0.3%		0.0%		0.0%	16.6%	14.3%	13.4%	13.1%
Financials	0.1%		0.1%		0.0%		0.0%	10.9%	10.0%	14.0%	13.2%
Information Technology	0.1%		0.0%		0.1%		0.0%	14.3%	14.1%	23.1%	22.0%
Communication Services	0.0%		0.0%		0.0%		0.0%	9.3%	9.4%	11.0%	10.0%
Utilities	0.1%		0.0%		0.1%		0.0%	0.2%	0.5%	2.0%	3.3%
Real Estate	0.3%		0.1%		0.2%		-0.1%	3.6%	0.3%	1.4%	3.9%
Cash	-0.1%		0.0%		-0.1%		0.0%	0.4%	--	0.8%	0.0%
Portfolio	**1.1%**	**=**	**0.7%**	**+**	**0.4%**	**+**	**0.0%**	**10.2%**	**9.1%**	**99.9%**	**100.0%**

Attribution on manager pages is holdings based, using buy-and-hold assumptions from the beginning of the period portfolio. Results may differ from the flash report.

SMALL/MID CAP COMPOSITE

3 Year Risk Return



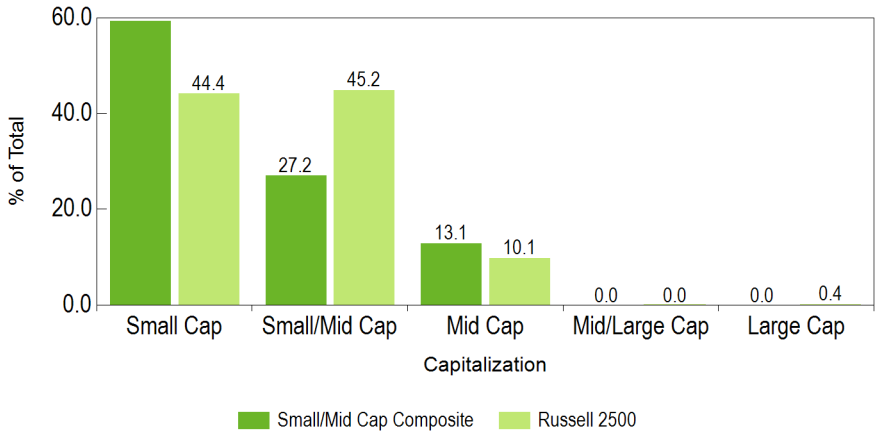
3 Year Style Analysis

Howard County Retirement Plans

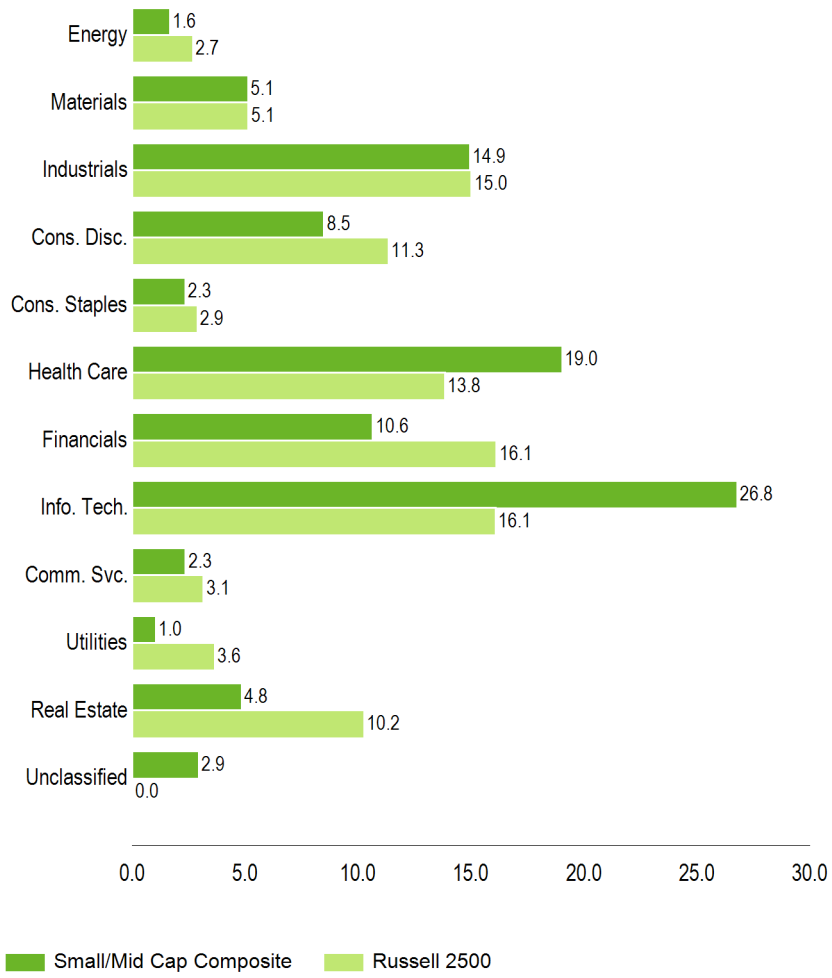
SMALL/MID CAP COMPOSITE

Characteristics	Portfolio	Russell 2500
Number of Holdings	211	2,499
Weighted Avg. Market Cap. ($B)	5.2	5.6
Median Market Cap. ($B)	2.5	1.2
Price To Earnings	27.0	20.8
Price To Book	3.3	2.8
Price To Sales	1.8	1.3
Return on Equity (%)	9.7	6.5
Yield (%)	0.9	1.6
Beta	1.1	1.0
R-Squared	0.9	1.0

Market Capitalization
As of December 31, 2019



Equity Sector Allocation



Howard County Retirement Plans

SMALL/MID CAP COMPOSITE

Top Ten Holdings	
CASH - USD	2.9%
COGNEX	1.5%
TYLER TECHNOLOGIES	1.5%
PAYCOM SOFTWARE	1.4%
VEEVA SYSTEMS CL.A	1.3%
MANHATTAN ASSOCS.	1.3%
NEOGEN	1.2%
GUIDEWIRE SOFTWARE	1.2%
QUIDEL	1.1%
ABIOMED	1.1%

Top Positive Contributors	Relative Contribution %	Return %
PAYCOM SOFTWARE	0.4%	26.4%
QUIDEL	0.2%	22.3%
TYLER TECHNOLOGIES	0.2%	14.3%
ANSYS	0.2%	16.3%
INOGEN	0.2%	42.6%
HORIZON THERAPEUTICS PUBLIC	0.2%	32.9%
IRONWOOD PHARMS.CL.A	0.2%	55.0%
COGNEX	0.2%	14.2%
FORMFACTOR	0.1%	39.3%
LAMB WESTON HOLDINGS	0.1%	18.6%

Top Negative Contributors	Relative Contribution %	Return %
GLAUKOS	-0.1%	-12.9%
VEEVA SYSTEMS CL.A	-0.1%	-7.9%
BLACKBAUD	-0.1%	-11.8%
U S CONCRETE	-0.1%	-24.6%
NETGEAR	-0.1%	-23.9%
VOCERA COMMUNICATIONS	-0.1%	-15.8%
BJAS WHOLESALE CLUB HOLDINGS	-0.1%	-12.1%
JAMES RIVER GROUP HDG.	-0.1%	-19.0%
WAYFAIR CL.A	-0.1%	-19.4%
ALBANY INTL.'A'	-0.1%	-15.6%

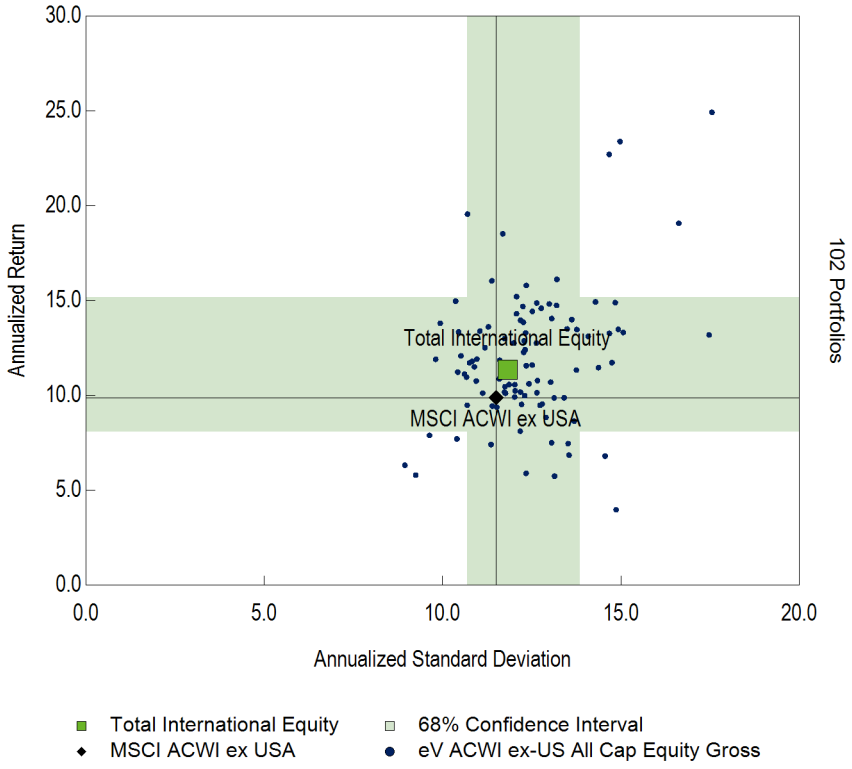
Equity Sector Attribution

	Attribution Effects						Returns		Sector Weights	
	Total Effects		Selection Effect		Allocation Effect		Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark
Energy	0.0%		0.0%		0.0%		0.0%	7.5%	8.8%	1.4%	2.9%
Materials	-0.1%		-0.1%		0.0%		0.0%	5.3%	8.1%	4.9%	5.2%
Industrials	-0.4%		-0.4%		0.0%		0.0%	5.7%	8.3%	16.2%	15.2%
Consumer Discretionary	-0.3%		-0.5%		0.1%		0.2%	3.1%	7.3%	7.7%	11.6%
Consumer Staples	-0.1%		-0.2%		0.0%		0.0%	-0.1%	6.2%	2.2%	2.8%
Health Care	-1.9%		-1.7%		0.6%		-0.8%	5.1%	18.4%	18.9%	12.5%
Financials	0.2%		0.1%		0.1%		0.0%	7.9%	7.1%	11.0%	16.4%
Information Technology	-0.9%		-0.7%		0.3%		-0.5%	6.9%	11.1%	27.3%	15.7%
Communication Services	0.0%		0.0%		0.0%		0.0%	8.2%	8.9%	1.9%	3.3%
Utilities	0.3%		0.0%		0.3%		0.0%	-1.8%	-2.0%	1.1%	3.9%
Real Estate	0.5%		0.4%		0.3%		-0.2%	6.3%	2.8%	4.8%	10.5%
Cash	-0.2%		0.0%		-0.2%		0.0%	0.4%	--	2.6%	0.0%
Portfolio	**-3.0%**	**=**	**-3.1%**	**+**	**1.5%**	**+**	**-1.4%**	**5.7%**	**8.7%**	**100.0%**	**100.0%**

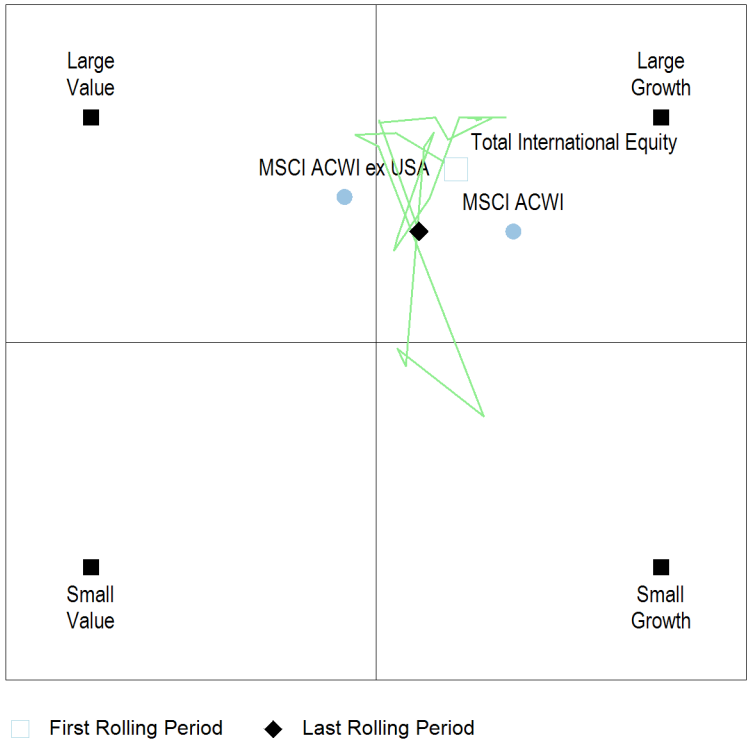
Attribution on manager pages is holdings based, using buy-and-hold assumptions from the beginning of the period portfolio. Results may differ from the flash report.

TOTAL INTERNATIONAL EQUITY

3 Year Risk Return



3 Year Style Analysis

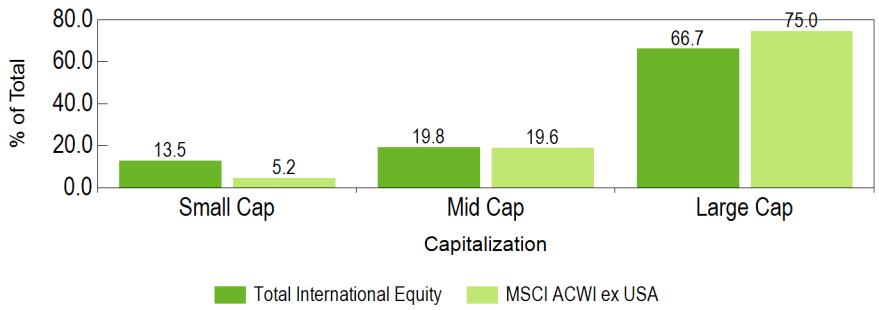


TOTAL INTERNATIONAL EQUITY

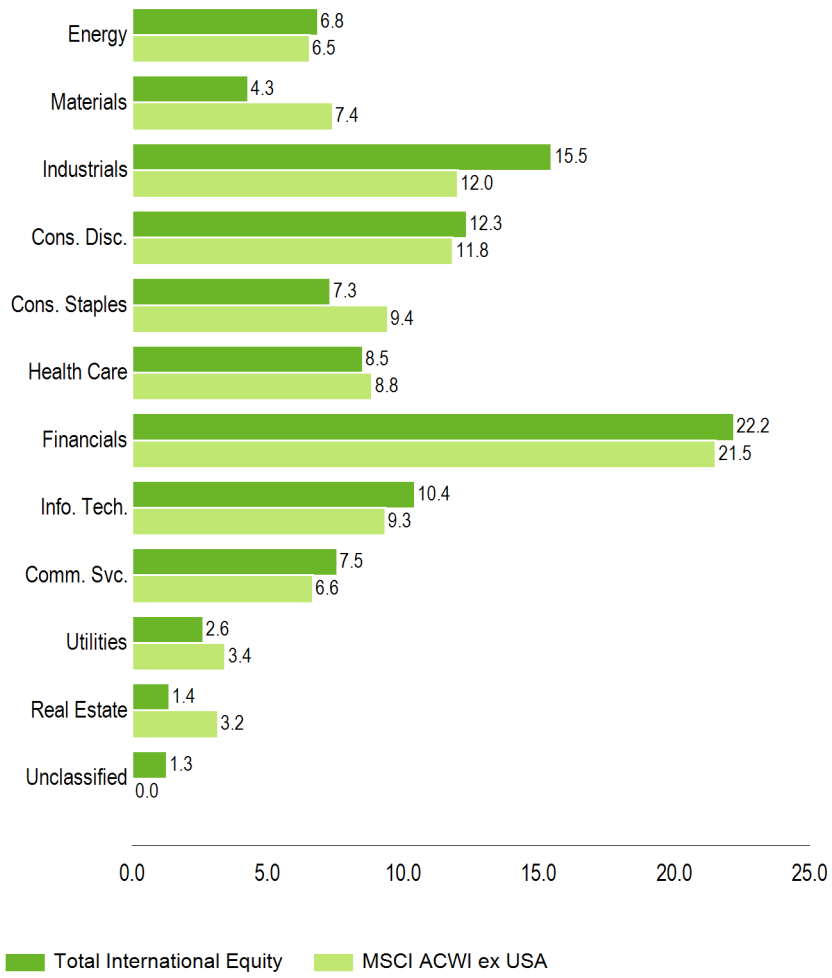
Characteristics	Portfolio	MSCI ACWI ex USA
Number of Holdings	2,496	2,379
Weighted Avg. Market Cap. ($B)	53.3	74.1
Median Market Cap. ($B)	0.5	8.2
Price To Earnings	17.2	16.3
Price To Book	2.5	2.4
Price To Sales	1.0	1.2
Return on Equity (%)	13.7	15.1
Yield (%)	2.8	3.0
Beta	1.0	1.0
R-Squared	1.0	1.0

Region Weighting	Portfolio Q4-19	Index Q4-19
Americas	7.24	10.39
Europe	39.94	42.85
Asia/Pacific	51.76	43.76
Other	1.06	2.99

Market Capitalization
As of December 31, 2019



Equity Sector Allocation



Howard County Retirement Plans

TOTAL INTERNATIONAL EQUITY

Top Ten Holdings	
AIA GROUP	2.0%
UNITED OVERSEAS BANK	1.7%
ASML HOLDING	1.2%
HOUSING DEVELOPMENT FINANCE CORPORATION	1.2%
ALIBABA GROUP HOLDING ADR 1:8	1.2%
CASH - USD	1.1%
RELIANCE INDUSTRIES	1.1%
HARGREAVES LANSDOWN	1.0%
METTLER TOLEDO INTL.	1.0%
SSE	1.0%

Top Positive Contributors	Relative Contribution %	Return %
BECHTLE	0.2%	39.6%
HOUSING DEVELOPMENT FINANCE CORPORATION	0.2%	21.2%
SSE	0.2%	24.2%
ATLAS COPCO A	0.2%	30.6%
RIGHTMOVE	0.2%	24.4%
AUTO TRADER GROUP	0.2%	25.3%
AIA GROUP	0.2%	11.1%
NIBE INDUSTRIER B	0.2%	36.6%
LLOYDS BANKING GROUP	0.1%	24.1%
KINGSPAN GROUP	0.1%	25.1%

Top Negative Contributors	Relative Contribution %	Return %
ALIBABA GROUP HOLDING ADR 1:8	-0.3%	26.8%
TAIWAN SEMICON.MNFG.	-0.1%	26.9%
SHISEIDO	-0.1%	-10.0%
TENCENT HOLDINGS	-0.1%	14.4%
PRUDENTIAL	-0.1%	23.7%
INFOSYS ADR 1:1	0.0%	-8.1%
TREASURY WINE ESTATES	0.0%	-8.9%
PIGEON	0.0%	-9.6%
NOVARTIS 'R'	0.0%	9.4%
BANCO BRADESCO PN	0.0%	15.8%

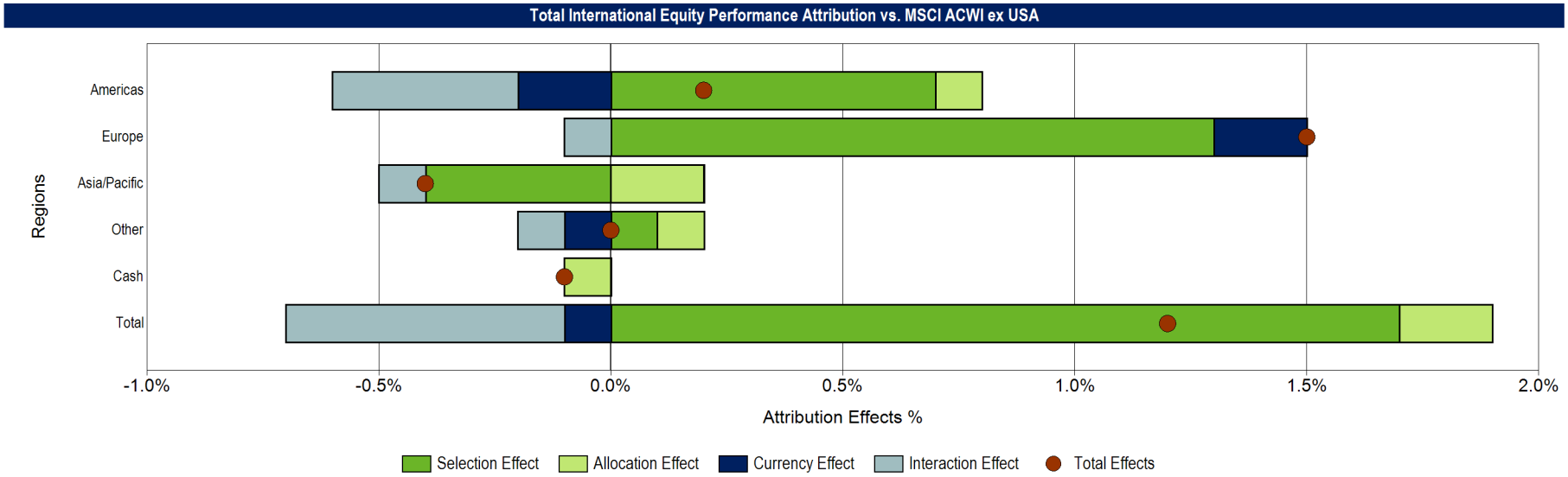
Equity Sector Attribution

	Attribution Effects								Returns		Sector Weights	
	Total Effects		Selection Effect		Allocation Effect		Interaction Effects		Portfolio	Benchmark	Portfolio	Benchmark
Energy	0.1%		0.1%		0.0%		-0.1%		8.1%	6.9%	6.2%	6.8%
Materials	0.0%		0.2%		0.0%		-0.2%		13.9%	10.7%	4.3%	7.5%
Industrials	0.5%		0.2%		0.0%		0.2%		11.9%	9.6%	15.4%	12.0%
Consumer Discretionary	0.0%		0.0%		0.0%		0.1%		11.7%	11.3%	10.3%	11.5%
Consumer Staples	-0.1%		0.1%		0.0%		-0.1%		1.7%	2.1%	10.5%	9.9%
Health Care	0.0%		0.1%		0.0%		-0.1%		12.8%	12.5%	8.4%	8.4%
Financials	0.4%		0.5%		0.0%		-0.1%		10.1%	8.2%	21.6%	21.7%
Information Technology	0.0%		0.1%		0.0%		-0.1%		15.5%	15.3%	8.1%	8.7%
Communication Services	0.3%		0.2%		0.0%		0.2%		11.3%	7.2%	8.0%	6.9%
Utilities	0.2%		0.2%		0.0%		0.1%		11.3%	4.9%	3.5%	3.5%
Real Estate	-0.1%		-0.1%		0.0%		0.0%		5.3%	7.6%	1.6%	3.2%
Cash	-0.1%		0.0%		-0.1%		0.0%		0.4%	--	2.1%	0.0%
Portfolio	**1.2%**	=	**1.6%**	+	**-0.2%**	+	**-0.1%**		**10.2%**	**9.0%**	**100.0%**	**100.0%**

Attribution on manager pages is holdings based, using buy-and-hold assumptions from the beginning of the period portfolio. Results may differ from the flash report.

Howard County Retirement Plans

TOTAL INTERNATIONAL EQUITY



	Returns and Weights				Attribution Effects				
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	Total Effects
Totals									
Americas	12.9%	6.9%	4.8%	10.1%	0.7%	0.1%	-0.2%	-0.4%	0.2%
Europe	12.8%	9.1%	40.8%	43.1%	1.3%	0.0%	0.2%	-0.1%	1.5%
Asia/Pacific	8.2%	9.4%	51.3%	43.8%	-0.4%	0.2%	0.0%	-0.1%	-0.4%
Other	13.6%	7.5%	1.0%	3.0%	0.1%	0.1%	-0.1%	-0.1%	0.0%
Cash	0.4%	--	2.1%	0.0%	0.0%	-0.1%	0.0%	0.0%	-0.1%
Total	**10.2%**	**9.0%**	**100.0%**	**100.0%**	**1.7%**	**0.2%**	**-0.1%**	**-0.6%**	**1.2%**
Totals									
Developed	11.0%	8.0%	73.1%	73.7%	2.2%	0.0%	0.1%	0.0%	2.2%
Emerging*	8.7%	11.9%	24.8%	26.3%	-0.7%	-0.1%	-0.2%	0.0%	-0.9%
Cash	0.4%	--	2.1%	0.0%	0.0%	-0.1%	0.0%	0.0%	-0.1%

Howard County Retirement Plans

TOTAL INTERNATIONAL EQUITY

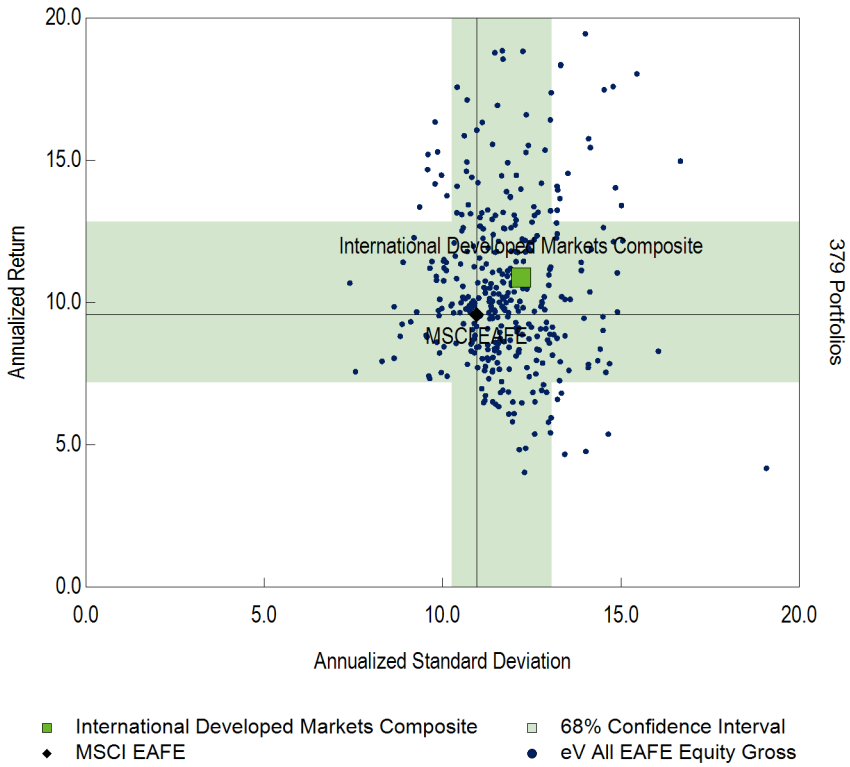
Country Allocation	Manager Allocation (USD)	Index Allocation (USD)	Manager Return (USD)	Index Return (USD)
Americas				
Brazil*	1.4%	2.0%	16.3%	14.3%
Chile*	0.2%	0.3%	-4.1%	-9.6%
Colombia*	0.0%	0.1%	4.2%	15.2%
Mexico*	0.9%	0.7%	3.3%	6.3%
United States	2.3%	0.0%	15.9%	9.2%
Total-Americas	**4.8%**	**10.1%**	**12.9%**	**6.9%**
Europe				
Czech Republic*	0.0%	0.0%	2.0%	9.3%
Denmark	1.3%	1.2%	8.3%	13.2%
Finland	0.6%	0.7%	14.9%	3.1%
France	3.1%	7.5%	11.7%	8.6%
Germany	6.1%	5.7%	12.7%	9.5%
Greece*	0.0%	0.1%	8.2%	13.1%
Hungary*	0.0%	0.1%	10.7%	22.0%
Ireland	0.6%	0.4%	25.1%	18.7%
Italy	1.5%	1.6%	4.0%	8.5%
Netherlands	2.6%	2.6%	6.2%	7.4%
Poland*	0.2%	0.3%	4.5%	4.1%
Portugal	0.7%	0.1%	-2.5%	8.6%
Russia*	1.4%	1.0%	15.6%	18.0%
Spain	1.9%	1.9%	9.3%	6.1%
Sweden	3.7%	1.7%	17.7%	13.6%
Switzerland	3.4%	6.2%	12.9%	7.7%
United Kingdom	13.8%	10.8%	15.0%	10.1%
Total-Europe	**40.8%**	**43.1%**	**12.8%**	**9.1%**

Country Allocation	Manager Allocation (USD)	Index Allocation (USD)	Manager Return (USD)	Index Return (USD)
AsiaPacific				
Australia	2.5%	4.7%	5.8%	4.4%
China*	2.8%	8.6%	6.2%	14.8%
Hong Kong	8.3%	2.5%	9.3%	7.7%
India*	7.2%	2.2%	7.9%	5.6%
Indonesia*	1.9%	0.5%	10.7%	7.8%
Japan	16.5%	16.5%	8.5%	7.7%
Korea*	2.4%	3.2%	4.9%	12.1%
Malaysia*	0.6%	0.5%	4.9%	3.3%
New Zealand	0.4%	0.2%	33.2%	17.1%
Philippines*	0.2%	0.3%	4.1%	2.9%
Singapore	4.0%	0.9%	6.1%	7.6%
Taiwan*	3.0%	3.0%	14.9%	17.9%
Thailand*	1.6%	0.8%	-0.8%	-0.9%
Total-AsiaPacific	**51.3%**	**43.8%**	**8.2%**	**9.4%**
Other				
South Africa*	0.9%	1.4%	14.8%	12.1%
Turkey*	0.1%	0.1%	4.9%	0.1%
Total-Other	**1.0%**	**3.0%**	**13.6%**	**7.5%**
Totals				
Developed	73.1%	73.7%	11.0%	8.0%
Emerging*	24.8%	26.3%	8.7%	11.9%
Cash	2.1%		0.4%	

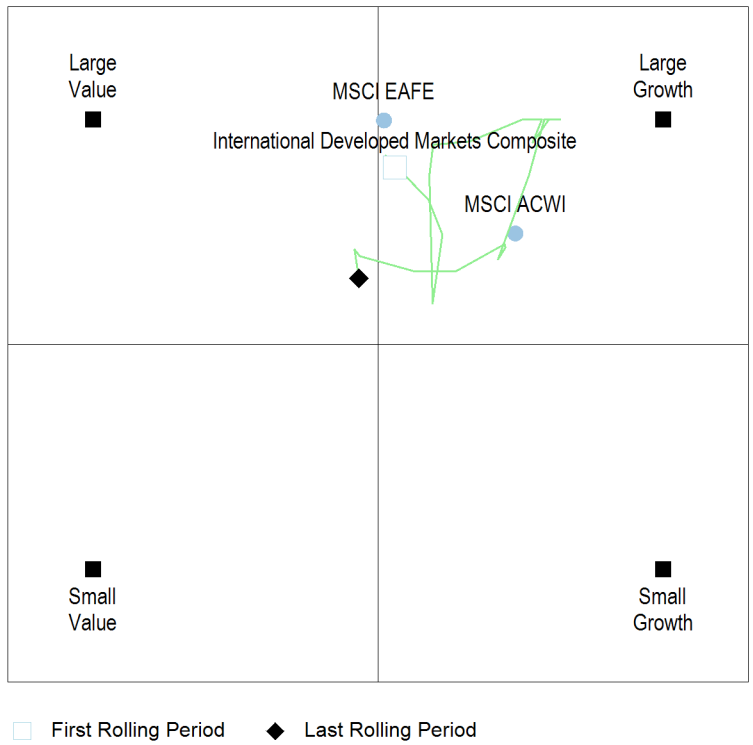
Country* = Emerging Markets

INTERNATIONAL DEVELOPED MARKETS COMPOSITE

3 Year Risk Return



3 Year Style Analysis

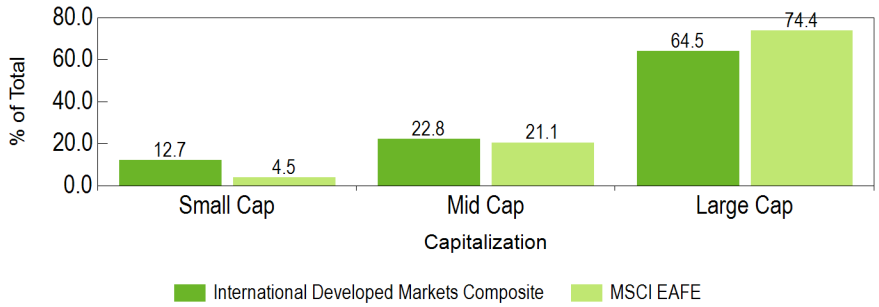


INTERNATIONAL DEVELOPED MARKETS COMPOSITE

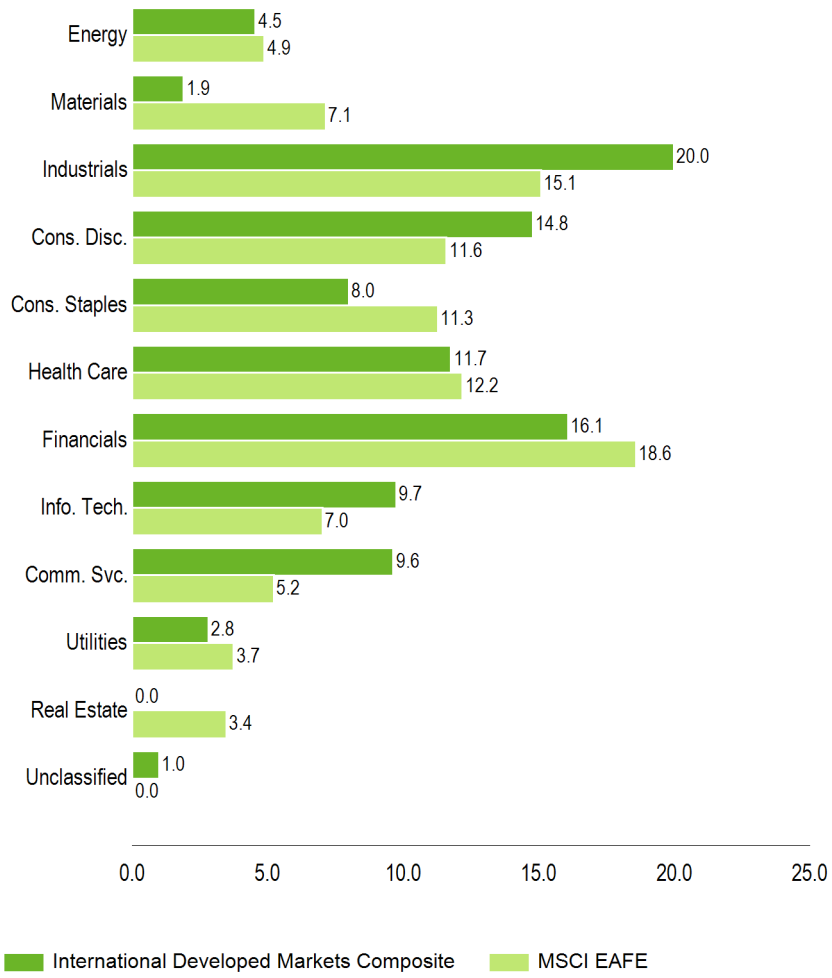
Characteristics	Portfolio	MSCI EAFE
Number of Holdings	121	918
Weighted Avg. Market Cap. ($B)	42.2	63.7
Median Market Cap. ($B)	21.1	10.8
Price To Earnings	19.4	17.2
Price To Book	2.6	2.4
Price To Sales	1.1	1.1
Return on Equity (%)	16.4	14.4
Yield (%)	2.8	3.2
Beta	1.1	1.0
R-Squared	1.0	1.0

Region Weighting	Portfolio Q4-19	Index Q4-19
Americas	3.19	0.55
Europe	56.53	62.75
Asia/Pacific	40.28	36.30
Other	--	0.40

Market Capitalization
As of December 31, 2019



Equity Sector Allocation



Howard County Retirement Plans

INTERNATIONAL DEVELOPED MARKETS COMPOSITE

Top Ten Holdings	
UNITED OVERSEAS BANK	2.6%
AIA GROUP	1.7%
HARGREAVES LANSDOWN	1.6%
METTLER TOLEDO INTL.	1.5%
SSE	1.5%
ROYAL DUTCH SHELL B	1.5%
ASML HOLDING	1.5%
LLOYDS BANKING GROUP	1.4%
TAKEDA PHARMACEUTICAL	1.4%
CK HUTCHISON (HSC) HOLDINGS	1.3%

Top Positive Contributors	Relative Contribution %	Return %
BECHTLE	0.3%	39.6%
SSE	0.3%	24.2%
ATLAS COPCO A	0.3%	30.6%
RIGHTMOVE	0.3%	24.4%
AUTO TRADER GROUP	0.3%	25.3%
NIBE INDUSTRIER B	0.2%	36.6%
LLOYDS BANKING GROUP	0.2%	24.1%
KINGSPAN GROUP	0.2%	25.1%
TRAINLINE	0.2%	30.1%
SPOTIFY TECHNOLOGY	0.2%	31.2%

Top Negative Contributors	Relative Contribution %	Return %
SHISEIDO	-0.1%	-10.0%
TREASURY WINE ESTATES	-0.1%	-8.9%
PIGEON	0.0%	-9.6%
NOVARTIS 'R'	0.0%	9.4%
JERONIMO MARTINS	0.0%	-2.5%
ISS	0.0%	-3.0%
TELIA COMPANY	0.0%	-1.4%
DEUTSCHE TELEKOM	0.0%	-2.7%
SUGI HOLDINGS	0.0%	-2.1%
WEIR GROUP	0.0%	15.2%

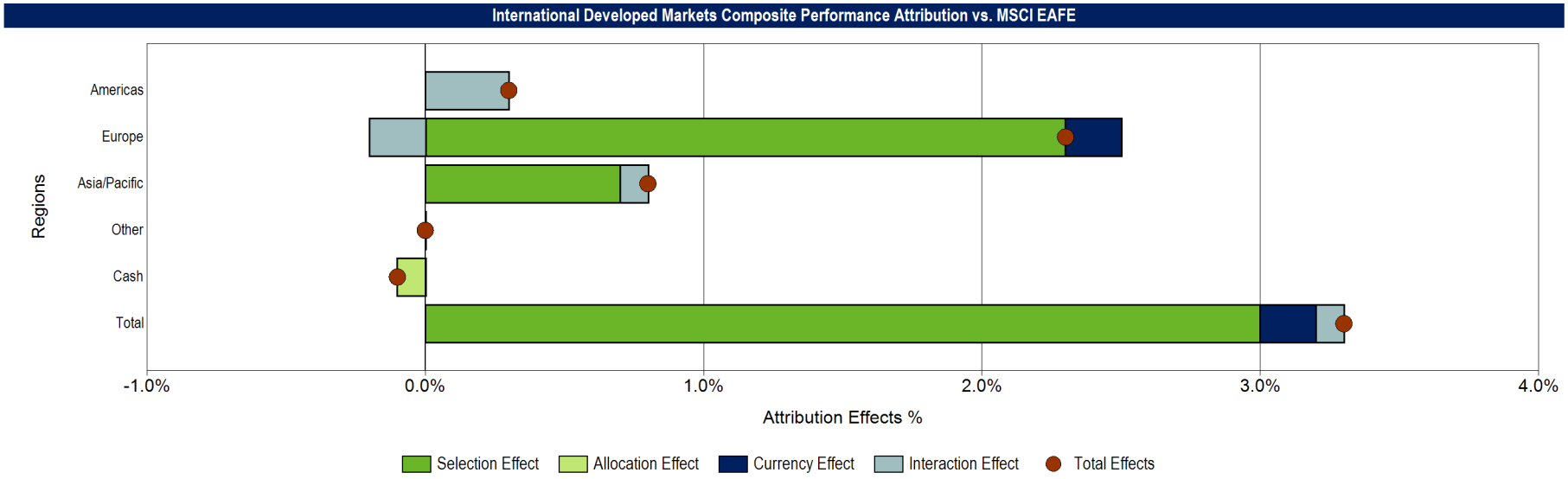
Equity Sector Attribution

	Attribution Effects						Returns		Sector Weights	
	Total Effects		Selection Effect		Allocation Effect		Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark
Energy	0.0%		-0.1%		0.0%		0.0%	3.7%	4.0%	4.4%	5.1%
Materials	-0.1%		0.2%		-0.1%		-0.3%	14.7%	10.6%	2.8%	7.2%
Industrials	0.9%		0.4%		0.1%		0.4%	13.5%	10.1%	19.6%	14.8%
Consumer Discretionary	0.5%		0.2%		0.0%		0.2%	12.0%	9.2%	13.9%	11.6%
Consumer Staples	0.2%		0.3%		0.2%		-0.3%	3.0%	2.0%	8.7%	11.8%
Health Care	0.2%		0.2%		0.0%		-0.1%	13.7%	12.4%	11.6%	11.3%
Financials	0.1%		0.2%		0.0%		-0.1%	9.5%	8.5%	16.4%	18.8%
Information Technology	0.8%		0.6%		0.1%		0.1%	20.9%	12.6%	8.0%	6.7%
Communication Services	0.6%		0.3%		-0.1%		0.4%	11.4%	5.0%	9.7%	5.4%
Utilities	0.3%		0.2%		0.0%		0.0%	14.8%	5.3%	3.1%	3.7%
Real Estate	0.0%		--		0.1%		--	--	4.3%	0.0%	3.5%
Cash	-0.1%		0.0%		-0.1%		0.0%	0.4%	--	1.8%	0.0%
Portfolio	**3.3%**	=	**2.6%**	+	**0.3%**	+	**0.4%**	**11.5%**	**8.2%**	**100.0%**	**100.0%**

Attribution on manager pages is holdings based, using buy-and-hold assumptions from the beginning of the period portfolio. Results may differ from the flash report.

Howard County Retirement Plans

INTERNATIONAL DEVELOPED MARKETS COMPOSITE



	Returns and Weights				Attribution Effects				
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	Total Effects
Totals									
Americas	18.1%	--	2.2%	0.0%	0.0%	0.0%	0.0%	0.3%	0.3%
Europe	13.5%	8.9%	56.3%	62.3%	2.3%	0.0%	0.2%	-0.2%	2.3%
Asia/Pacific	9.0%	7.1%	39.8%	37.1%	0.7%	0.0%	0.0%	0.1%	0.8%
Other	--	8.1%	0.0%	0.6%	--	0.0%	0.0%	--	0.0%
Cash	0.4%	--	1.8%	0.0%	0.0%	-0.1%	0.0%	0.0%	-0.1%
Total	**11.5%**	**8.2%**	**100.0%**	**100.0%**	**3.0%**	**0.0%**	**0.2%**	**0.1%**	**3.3%**
Totals									
Developed	11.6%	8.2%	97.5%	100.0%	3.2%	0.0%	0.2%	-0.1%	3.2%
Emerging*	26.9%	--	0.7%	0.0%	0.0%	0.0%	0.0%	0.1%	0.2%
Cash	0.4%	--	1.8%	0.0%	0.0%	-0.1%	0.0%	0.0%	-0.1%

Howard County Retirement Plans

INTERNATIONAL DEVELOPED MARKETS COMPOSITE

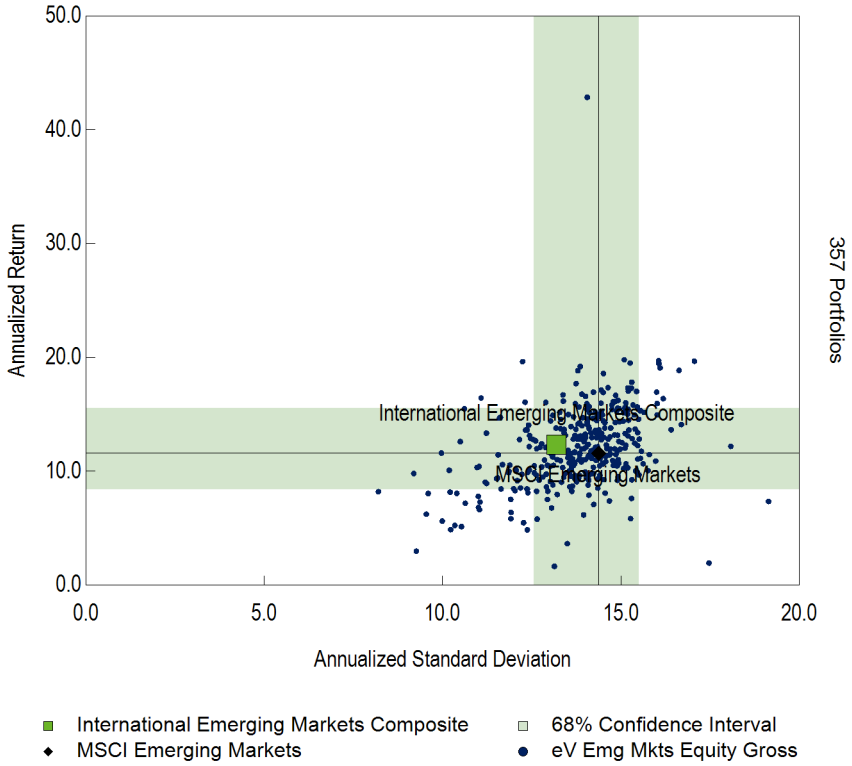
Country Allocation	Manager Allocation (USD)	Index Allocation (USD)	Manager Return (USD)	Index Return (USD)
Americas				
United States	2.2%	0.0%	18.1%	9.2%
Total-Americas	**2.2%**	**0.0%**	**18.1%**	**--**
Europe				
Denmark	1.9%	1.7%	8.3%	13.2%
Finland	0.9%	1.0%	14.9%	3.1%
France	4.6%	11.2%	11.7%	8.6%
Germany	9.2%	8.5%	12.7%	9.5%
Ireland	0.9%	0.5%	25.1%	18.7%
Italy	2.3%	2.3%	4.0%	8.5%
Netherlands	1.8%	4.0%	16.3%	7.4%
Portugal	1.1%	0.2%	-2.5%	8.6%
Spain	2.8%	2.9%	9.3%	6.1%
Sweden	5.6%	2.6%	17.7%	13.6%
Switzerland	5.1%	9.3%	12.9%	7.7%
United Kingdom	20.1%	16.1%	15.4%	10.1%
Total-Europe	**56.3%**	**62.3%**	**13.5%**	**8.9%**

Country Allocation	Manager Allocation (USD)	Index Allocation (USD)	Manager Return (USD)	Index Return (USD)
AsiaPacific				
Australia	3.7%	7.1%	5.8%	4.4%
Hong Kong	5.4%	3.7%	10.4%	7.7%
Japan	24.9%	24.8%	8.5%	7.7%
New Zealand	0.6%	0.2%	33.2%	17.1%
Singapore	4.4%	1.3%	6.3%	7.6%
Taiwan*	0.7%	0.0%	26.9%	17.9%
Total-AsiaPacific	**39.8%**	**37.1%**	**9.0%**	**7.1%**
Totals				
Developed	97.5%	100.0%	11.6%	8.2%
Emerging*	0.7%	0.0%	26.9%	--
Cash	1.8%		0.4%	

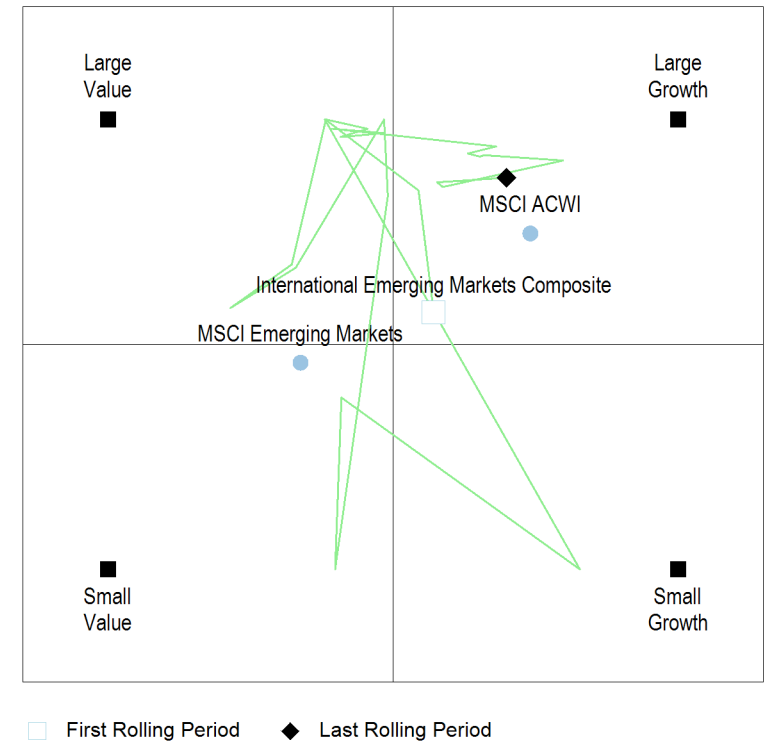
Country* = Emerging Markets

INTERNATIONAL EMERGING MARKETS COMPOSITE

3 Year Risk Return



3 Year Style Analysis

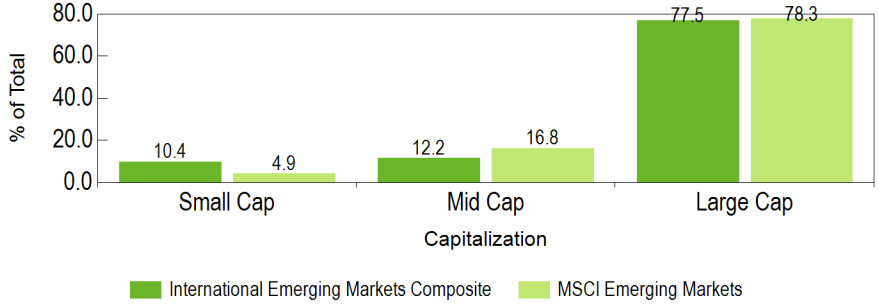


INTERNATIONAL EMERGING MARKETS COMPOSITE

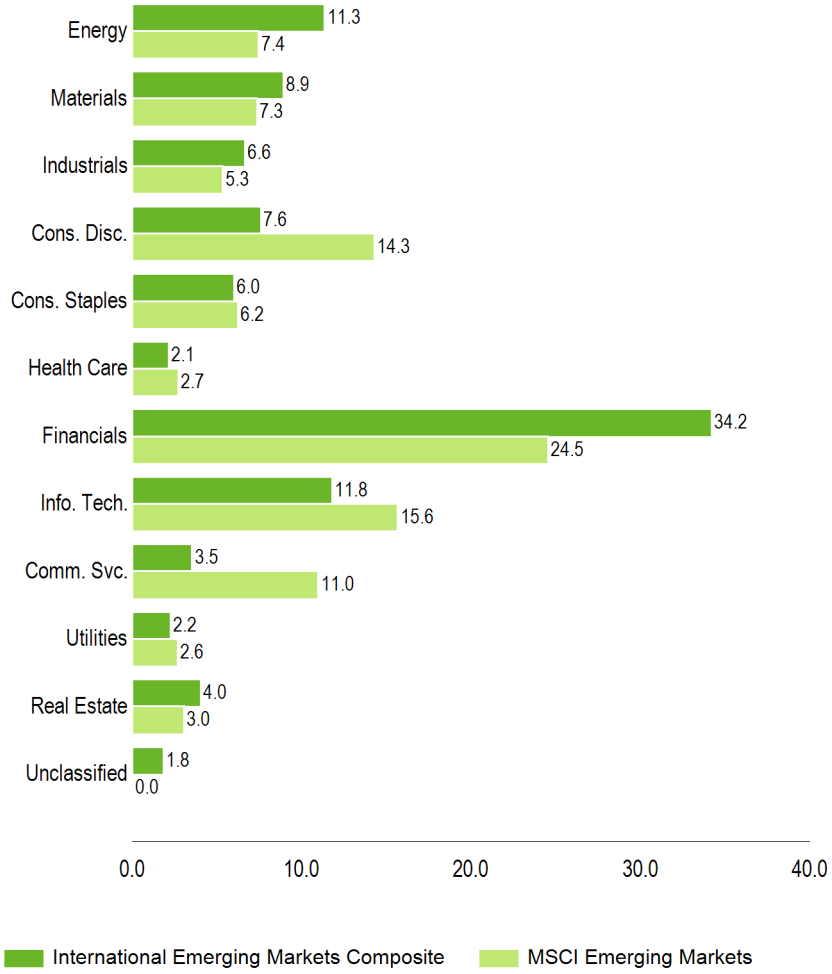
Characteristics	Portfolio	MSCI Emerging Markets
Number of Holdings	2,380	1,371
Weighted Avg. Market Cap. ($B)	75.2	106.2
Median Market Cap. ($B)	0.4	5.9
Price To Earnings	14.4	15.0
Price To Book	2.4	2.6
Price To Sales	1.1	1.3
Return on Equity (%)	14.4	17.0
Yield (%)	2.7	2.7
Beta	0.9	1.0
R-Squared	0.9	1.0

Region Weighting	Portfolio Q4-19	Index Q4-19
Americas	15.18	12.19
Europe	7.42	5.69
Asia/Pacific	74.27	72.20
Other	3.12	9.92

Market Capitalization
As of December 31, 2019



Equity Sector Allocation



Howard County Retirement Plans

INTERNATIONAL EMERGING MARKETS COMPOSITE

Characteristics	Portfolio	MSCI Emerging Markets
Number of Holdings	2,380	1,371
Weighted Avg. Market Cap. ($B)	75.2	106.2
Median Market Cap. ($B)	0.4	5.9
Price To Earnings	14.4	15.0
Price To Book	2.4	2.6
Price To Sales	1.1	1.3
Return on Equity (%)	14.4	17.0
Yield (%)	2.7	2.7
Beta	0.9	1.0
R-Squared	0.9	1.0

Top Positive Contributors	Relative Contribution %	Return %
HOUSING DEVELOPMENT FINANCE CORPORATION	0.5%	21.2%
BANK CENTRAL ASIA	0.3%	13.0%
HDFC BANK ADR 1:3	0.3%	11.1%
AIA GROUP	0.3%	11.1%
RELIANCE INDUSTRIES	0.3%	12.8%
YANDEX	0.2%	24.2%
PJSC LUKOIL SPON (LON) ADR	0.1%	23.6%
GUANGDONG INVESTMENT	0.1%	8.1%
BANK RAKYAT INDONESIA	0.1%	9.2%
SINGAPORE EXCHANGE	0.1%	9.5%

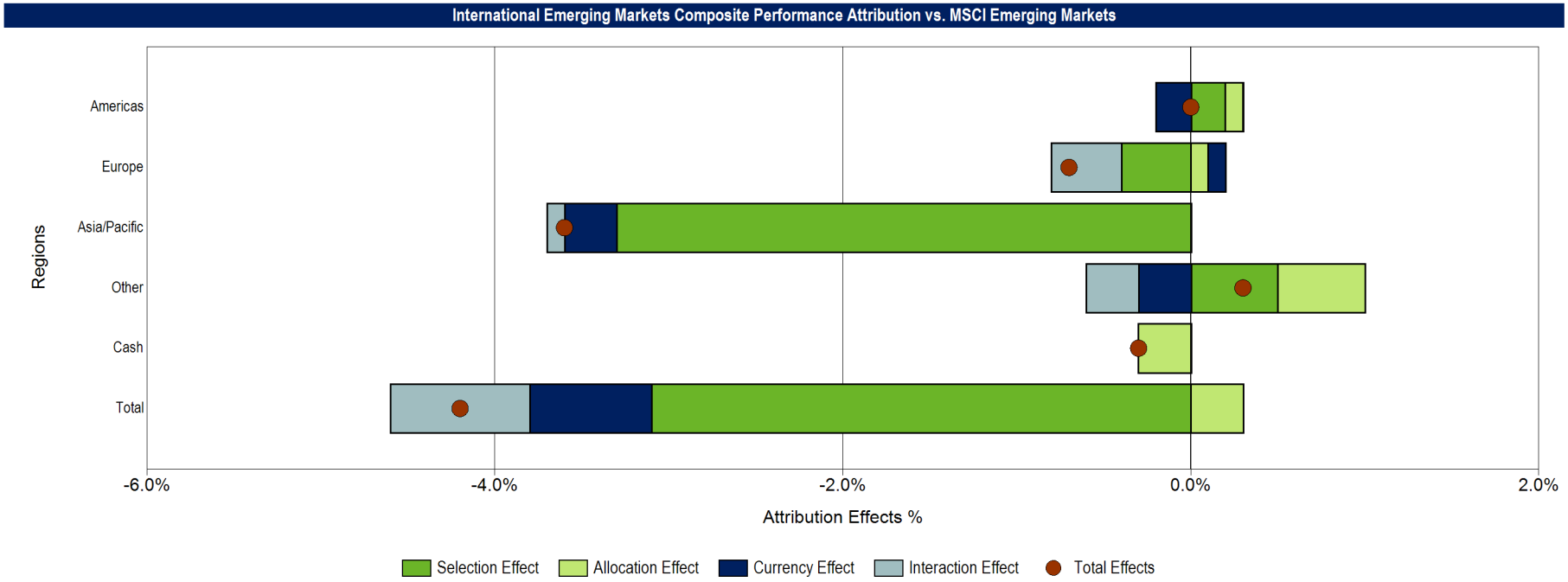
Top Negative Contributors	Relative Contribution %	Return %
ALIBABA GROUP HOLDING ADR 1:8	-1.1%	26.8%
TAIWAN SEMICON.MNFG.	-1.0%	26.9%
TENCENT HOLDINGS	-0.4%	14.4%
INFOSYS ADR 1:1	-0.1%	-8.1%
UNILEVER	-0.1%	-3.6%
BANCO BRADESCO PN	-0.1%	15.8%
CP ALL FB	-0.1%	-5.5%
CHINA CON.BANK 'H'	-0.1%	13.2%
ICICI BANK	-0.1%	23.4%
INDL&COML.BOC.'H'	-0.1%	15.0%

Equity Sector Attribution

	Attribution Effects						Returns		Sector Weights	
	Total Effects		Selection Effect		Allocation Effect		Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark
Energy	0.2%		0.3%		0.0%		0.0%	12.1%	10.2%	9.7%	7.7%
Materials	0.1%		0.1%		0.0%		0.0%	13.2%	11.9%	7.3%	7.5%
Industrials	-0.3%		-0.2%		-0.1%		0.0%	3.3%	7.2%	7.2%	5.4%
Consumer Discretionary	-1.0%		-1.1%		-0.5%		0.7%	8.9%	16.8%	3.2%	13.3%
Consumer Staples	-0.9%		-0.2%		-0.7%		0.0%	0.1%	3.1%	14.0%	6.6%
Health Care	-0.3%		-0.3%		0.0%		0.1%	3.1%	14.9%	2.0%	2.7%
Financials	0.3%		0.4%		-0.1%		0.0%	10.6%	9.7%	31.7%	24.9%
Information Technology	-1.7%		-1.6%		-0.3%		0.3%	5.4%	18.6%	8.4%	14.5%
Communication Services	0.0%		0.1%		0.1%		-0.2%	10.7%	10.1%	4.8%	11.6%
Utilities	0.0%		0.1%		-0.1%		0.0%	6.3%	4.6%	4.3%	2.8%
Real Estate	-0.4%		-0.3%		0.1%		-0.2%	5.3%	17.9%	4.6%	2.9%
Cash	-0.3%		0.0%		-0.3%		0.0%	0.4%	--	2.7%	0.0%
Portfolio	**-4.2%**	**=**	**-2.8%**	**+**	**-2.0%**	**+**	**0.5%**	**7.6%**	**11.9%**	**100.0%**	**100.0%**

Attribution on manager pages is holdings based, using buy-and-hold assumptions from the beginning of the period portfolio. Results may differ from the flash report.

INTERNATIONAL EMERGING MARKETS COMPOSITE



	Returns and Weights				Attribution Effects				
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	Total Effects
Totals									
Americas	10.6%	10.5%	9.8%	11.9%	0.2%	0.1%	-0.2%	0.0%	0.0%
Europe	6.2%	15.3%	10.4%	5.7%	-0.4%	0.1%	0.1%	-0.4%	-0.7%
Asia/Pacific	7.4%	12.4%	74.1%	72.2%	-3.3%	0.0%	-0.3%	-0.1%	-3.6%
Other	13.6%	7.4%	3.0%	10.1%	0.5%	0.5%	-0.3%	-0.3%	0.3%
Cash	0.4%	--	2.7%	0.0%	0.0%	-0.3%	0.0%	0.0%	-0.3%
Total	**7.6%**	**11.9%**	**100.0%**	**100.0%**	**-3.1%**	**0.3%**	**-0.7%**	**-0.8%**	**-4.2%**
Totals									
Developed	6.4%	--	25.2%	0.0%	0.0%	0.0%	0.4%	-1.2%	-0.8%
Emerging*	8.3%	11.9%	72.1%	100.0%	-3.0%	0.0%	-1.1%	0.8%	-3.2%
Cash	0.4%	--	2.7%	0.0%	0.0%	-0.3%	0.0%	0.0%	-0.3%

Howard County Retirement Plans

INTERNATIONAL EMERGING MARKETS COMPOSITE

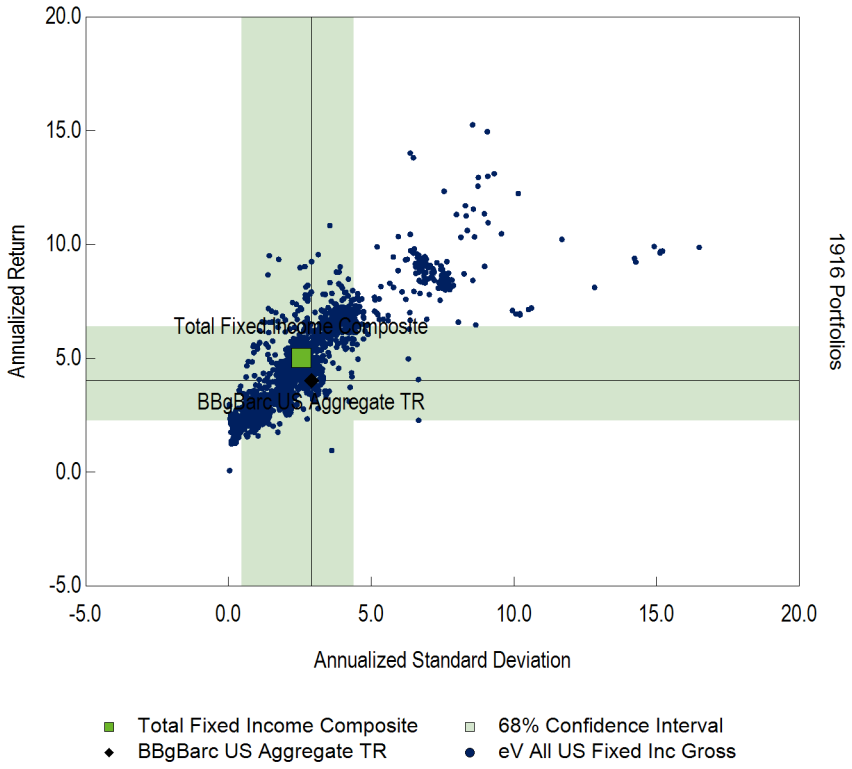
Country Allocation	Manager Allocation (USD)	Index Allocation (USD)	Manager Return (USD)	Index Return (USD)
Americas				
Brazil*	4.1%	7.5%	16.3%	14.3%
Chile*	0.5%	1.0%	-4.1%	-9.6%
Colombia*	0.1%	0.4%	4.2%	15.2%
Mexico*	2.6%	2.5%	3.3%	6.3%
United States	2.5%	0.0%	12.1%	9.2%
Total-Americas	**9.8%**	**11.9%**	**10.6%**	**10.5%**
Europe				
Czech Republic*	0.1%	0.1%	2.0%	9.3%
Greece*	0.1%	0.3%	8.2%	13.1%
Hungary*	0.1%	0.3%	10.7%	22.0%
Netherlands	4.2%	0.0%	-2.3%	7.4%
Poland*	0.5%	1.0%	4.5%	4.1%
Russia*	4.2%	4.0%	15.6%	18.0%
Spain	0.0%	0.0%	5.8%	6.1%
United Kingdom	1.3%	0.0%	4.1%	10.1%
Total-Europe	**10.4%**	**5.7%**	**6.2%**	**15.3%**

Country Allocation	Manager Allocation (USD)	Index Allocation (USD)	Manager Return (USD)	Index Return (USD)
AsiaPacific				
China*	8.4%	32.5%	6.2%	14.8%
Hong Kong	14.0%	0.0%	8.5%	7.7%
India*	21.3%	8.4%	7.9%	5.6%
Indonesia*	5.5%	2.1%	10.7%	7.8%
Korea*	7.2%	12.0%	4.9%	12.1%
Malaysia*	1.7%	2.0%	4.9%	3.3%
Philippines*	0.5%	1.1%	4.1%	2.9%
Singapore	3.2%	0.0%	5.4%	7.6%
Taiwan*	7.5%	11.3%	12.6%	17.9%
Thailand*	4.8%	2.9%	-0.8%	-0.9%
Total-AsiaPacific	**74.1%**	**72.2%**	**7.4%**	**12.4%**
Other				
South Africa*	2.6%	5.2%	14.8%	12.1%
Turkey*	0.4%	0.6%	4.9%	0.1%
Total-Other	**3.0%**	**10.1%**	**13.6%**	**7.4%**
Totals				
Developed	25.2%	0.0%	6.4%	--
Emerging*	72.1%	100.0%	8.3%	11.9%
Cash	2.7%		0.4%	

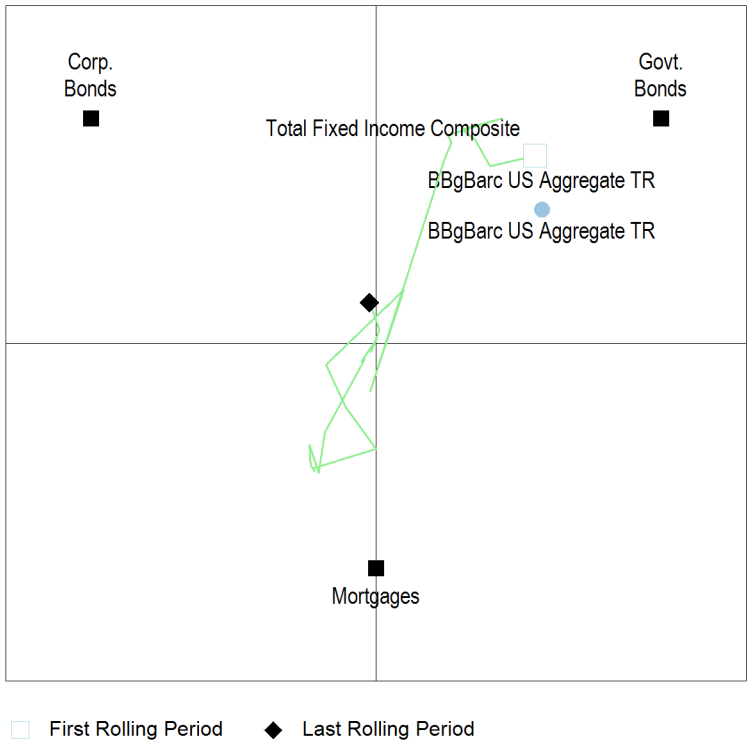
Country* = Emerging Markets

TOTAL FIXED INCOME COMPOSITE

3 Year Risk Return

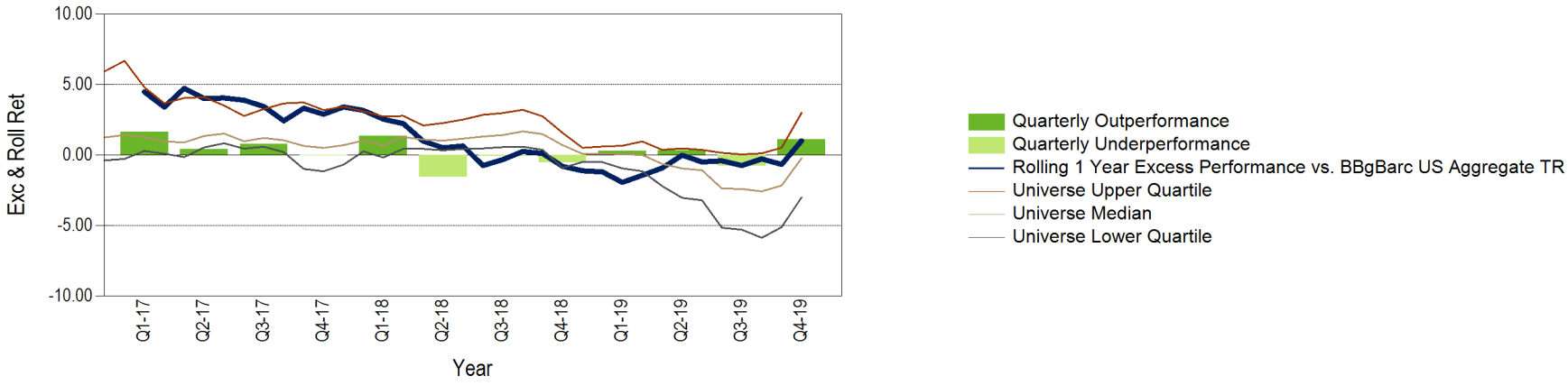


3 Year Style Analysis



TOTAL FIXED INCOME COMPOSITE

Annualized Excess Performance



NEPC'S DUE DILIGENCE MONITOR

- **There are no due diligence updates**

APPENDIX

NEPC, LLC

HIGHLIGHTS OF 2019 FOURTH QUARTER HAPPENINGS AT NEPC

NEPC INSIGHTS

- 2019 Third Quarter Market Thoughts
- White Paper: "The Late Stage of a Market Cycle: Been There, Done That?"
- White Paper: "Direct Investments"
- White Paper: "Family Office Best Practices"
- Market Chatter: "To the Venturesome Go the Spoils: Venture Capital Opportunities in China"
- Market Chatter: "To the Venturesome Go the Spoils: Venture Capital Opportunities in China (Part 2)"
- Market Chatter: "The Privates Drive It: Fiscal Year 2019 Mega Endowment Returns"
- Taking Stock: "The Other New Entrant in an Emerging Markets Benchmark"
- Taking Stock: "Draghi's Final Act"
- Taking Stock: "NEPC's Third Quarter Pension Monitor"
- Taking Stock: "Public Markets Dole Out a Dose of Reality"
- Taking Stock: "Is it Time to Worry about BBB Bonds?"
- NEPC's Fall 2019 Endowments & Foundations Survey Results & Infographic
- Diverse Manager Policy Infographic
- Diverse Manager Policy Press Release
- NEPC's 2019 Hedge Fund Operational Due Diligence Survey Results
- 2019 Defined Benefit Plan Trends Survey Results and Infographic
- 2019 Defined Benefit Plan Trends Survey Results and Infographic - Healthcare

WEBINAR REPLAYS

- NEPC's 2019 Q3 Quarterly Market Thoughts Call

To download NEPC's recent insights and webinar replays, visit: www.NEPC.com/insights

HIGHLIGHTS OF 2019 FOURTH QUARTER HAPPENINGS AT NEPC

FUTURE FUNDAMENTALS CAMPAIGN

In October, we introduced the *Future Fundamentals of Investing*. Future Fundamentals is a simple phrase that highlights what we do best: staying ahead of the curve with regards to industry trends and research. While there are many concepts and ideas floating through the investment world, we believe the following will be the largest drivers of success in the coming years:

1. Sustainability
2. Diversity and Inclusion
3. Innovation

While we expect these concepts to drive investment trends for some time, we also expect these fundamentals to evolve over time. You can rely on us to identify when these fundamentals evolve or change, and to be positioning your portfolio and our business for success.

In a Wealth Management Op-Ed, the Co-Head of NEPC's Impact Investing Committee, Krissy Pelletier, defines the three pillars that will be the largest drivers of investment success. Read more here: New Decade, New Fundamentals for Investing

To learn more about the Future Fundamentals of Investing, visit: https://futurefundamentals.nepc.com/

FUTURE IN FOCUS 2020

NEPC's 25th Annual Investment Conference

- Please save the date for our 25th Annual Investment Conference on Wednesday, May 20 and Thursday, May 21 at the Renaissance Boston Waterfront Hotel.

- Our theme for the conference this year is the Future in Focus. Please join us as we and our distinguished lineup of industry experts explore the potential changes and challenges facing markets in the new decade. We look forward to discussing innovative investment ideas and concepts, and new key areas of focus such as sustainability and diversity.

- We are pleased to announce that Howard Marks, Co-Chairman of Oaktree Capital Management will be our keynote speaker.

- Please reach out to Sarah Winrow: swinrow@nepc.com if you have any questions.

INVESTMENT MANAGER - DUE DILIGENCE KEY

NEPC Due Diligence Status Key	
No Action	Informational items have surfaced; no action is recommended.
Watch	Issues have surfaced to be concerned over; manager can participate in future searches, but current and prospective clients must be made aware of the issues.
Hold	Serious issues have surfaced to be concerned over; manager cannot be in future searches unless a client specifically requests, but current and prospective clients must be made aware of the issues.
Client Review	Very serious issues have surfaced with a manager; manager cannot be in future searches unless a client specifically requests. Current clients must be advised to review the manager.
Terminate	We have lost all confidence in the product; manager would not be recommended for searches and clients would be discouraged from using. The manager cannot be in future searches unless a client specifically requests. Current clients must be advised to replace the manager.

NEPC Due Diligence Rating Key	
1	A high conviction investment product. Product has a clear and economically-grounded investment thesis, and is managed by an investment team that is sufficiently resourced and incented to execute on the thesis.
2	NEPC has a positive view of the strategy. Strategy has a compelling and sound investment thesis. The manager is sufficiently resourced and incented to execute on the thesis. Strengths outweigh the weaknesses, but the strategy does not meet all requirements for a 1 rating.
3	A satisfactory investment product. The strategy lacks a compelling investment thesis, however there are no significant concerns around the manager's viability.
4	The strategy may have an unclear or ambiguous investment thesis or the manager may lack the ability to execute on the stated thesis. The strategy likely has strengths and weaknesses and the weaknesses may outweigh the strengths.
5	A strategy that lacks an investment thesis or NEPC has no confidence in the manager's ability to execute on the thesis, and/or the investment firm may not be viable. Serious issues have been identified with an investment manager or product. This rating aligns with a Terminate Due Diligence status for client-owned products.
NR	Due diligence has not been sufficiently completed on the product or manager.

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Derivative Instrument[3] - A financial obligation that derives its precise value from the value of one or more other instruments (or assets) at the same point of time. For example, the relationship between the value of an S&P 500 futures contract (the derivative instrument in this case) is determined by the value of the S&P 500 Index and the value of a U.S. Treasury bill that matures at the expiration of the futures contract.

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Annualized Standard Deviation (Fund Return - Average Fund Return) where average fund return is greater than individual fund returns, monthly or quarterly.

Duration[3] - Duration is a measure of interest rate risk. The greater the duration of a bond, or a portfolio of bonds, the greater its price volatility will be in response to a change in interest rates. A bond's duration is inversely related to interest rates and directly related to time to maturity.

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Foreign Bond[3] - A bond that is issued in a domestic market by a foreign entity, in the domestic market's currency. A foreign bond is most often issued by a foreign firm to raise capital in a domestic market that would be most interested in purchasing the firm's debt. For foreign firms doing a large amount of business in the domestic market, issuing foreign bonds is a common practice.

Hard Hurdle[5] – is a hurdle rate that once beaten allows a fund manager to charge a performance fee on only the funds above the specified hurdle rate.

High-Water Mark[4] - The highest peak in value that an investment fund/account has reached. This term is often used in the context of fund manager compensation, which is performance based. Some performance-based fees only get paid when fund performance exceeds the high-water mark. The high-water mark ensures that the manager does not get paid large sums for poor performance.

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Price to Sales (P/S)[4] - A ratio for valuing a stock relative to its own past performance, other companies, or the market itself. Price to sales is calculated by dividing a stock's current price by its revenue per share for the trailing 12 months.

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Soft Hurdle rate[5] – is a hurdle rate that once beaten allows a fund manager to charge a performance fee based on the entire annualized return.

Tiered Fee[1] – A fee structure that is paid to fund managers based on the size of the investment (i.e. 1.00% fee on the first $10M invested, 0.90% on the next $10M, and 0.80% on the remaining balance).

Total Effects[2] - The active management (total) effect is the sum of the selection, allocation, and interaction effects. It is also the difference between the total portfolio return and the total benchmark return. You can use the active management effect to determine the amount the investment manager has added to a portfolio's return.

Total Return[1] - The actual rate of return of an investment over a specified time period. Total return includes interest, capital gains, dividends, and distributions realized over a defined time period.

Universe[3] - The list of all assets eligible for inclusion in a portfolio.

Upside Deviation[1] – Standard Deviation of Positive Returns

Weighted Avg. Market Cap.[4] - A stock market index weighted by the market capitalization of each stock in the index. In such a weighting scheme, larger companies account for a greater portion of the index. Most indexes are constructed in this manner, with the best example being the S&P 500.

Yield (%)[3] - The current yield of a security is the current indicated annual dividend rate divided by current price.
Yield to Maturity[3] -The discount rate that equates the present value of cash flows, both principal and interest, to market price.

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GLOSSARY OF INVESTMENT TERMINOLOGY

Alpha - Measures the relationship between the fund performance and the performance of another fund or benchmark index and equals the excess return while the other fund or benchmark index is zero.

Alpha Jensen - The average return on a portfolio over and above that predicted by the capital asset pricing model (CAPM), given the portfolio's beta and the average market return. Also known as the abnormal return or the risk adjusted excess return.

Annualized Excess Return over Benchmark - Annualized fund return minus the annualized benchmark return for the calculated return.

Annualized Return - A statistical technique whereby returns covering periods greater than one year are converted to cover a 12 month time span.

Beta - Measures the volatility or systematic risk and is equal to the change in the fund's performance in relation to the change in the assigned index's performance.

Information Ratio - A measure of the risk adjusted return of a financial security, asset, or portfolio.

Formula:
(Annualized Return of Portfolio - Annualized Return of Benchmark)/Annualized Standard Deviation(Period Portfolio Return – Period Benchmark Return). To annualize standard deviation, multiply the deviation by the square root of the number of periods per year where monthly returns per year equals 12 and quarterly returns is four periods per year.

R-Squared – Represents the percentage of a fund's movements that can be explained by movements in an index. R-Squared values range from 0 to 100. An R-Squared of 100 denotes that all movements of a fund are completely explained by movements in the index.

Sharpe Ratio - A measure of the excess return or risk premium per unit of risk in an investment asset or trading strategy.

Sortino Ratio - A method to differentiate between good and bad volatility in the Sharpe Ratio. The differentiation of up and down volatility allows the calculation to provide a risk adjusted measure of a security or fund's performance without upward price change penalties.

Formula:
*Calculation Average (X-Y)/Downside Deviation (X-Y) * 2*
Where X=Return Series X Y = Return Series Y which is the risk free return (91 day T-bills)

Standard Deviation - The standard deviation is a statistical term that describes the distribution of results. It is a commonly used measure of volatility of returns of a portfolio, asset class, or security. The higher the standard deviation the more volatile the returns are.

Formula:
(Annualized Return of Portfolio – Annualized Return of Risk Free) / Annualized Standard Deviation (Portfolio Returns)

Tracking Error - Tracking error, also known as residual risk, is a measure of the degree to which a portfolio tracks its benchmark. It is also a measure of consistency of excess returns. Tracking error is computed as the annualized standard deviation of the difference between a portfolio's return and that of its benchmark.

Formula:
*Tracking Error = Standard Deviation (X-Y) * √(# of periods per year)*
Where X = periods portfolio return and Y = the period's benchmark return
For monthly returns, the periods per year = 12
For quarterly returns, the periods per year = 4

Treynor Ratio - A risk-adjusted measure of return based on systematic risk. Similar to the Sharpe ratio with the difference being the Treynor ratio uses beta as the measurement of volatility.

Formula:
(Portfolio Average Return - Average Return of Risk-Free Rate)/Portfolio Beta

Up/Down Capture Ratio - A measure of what percentage of a market's returns is "captured" by a portfolio. For example, if the market declines 10% over some period, and the manager declines only 9%, then his or her capture ratio is 90%. In down markets, it is advantageous for a manager to have as low a capture ratio as possible. For up markets, the higher the capture ratio the better. Looking at capture ratios can provide insight into how a manager achieves excess returns. A value manager might typically have a lower capture ratio in both up and down markets, achieving excess returns by protecting on the downside, whereas a growth manager might fall more than the overall market in down markets, but achieve above-market returns in a rising market.

UpsideCapture = TotalReturn(FundReturns)/TotalReturns(BMReturn) when Period Benchmark Return is > = 0

DownsideCapture = TotalReturn(FundReturns)/TotalReturns(BMReturn) when Benchmark <0

Data Source: InvestorForce

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Yield (%)[3] - The current yield of a security is the current indicated annual dividend rate divided by current price.
Yield to Maturity[3] -The discount rate that equates the present value of cash flows, both principal and interest, to market price.

Data Source: [1]InvestorForce, [2]Interaction Effect Performance Attribution, [3]NEPC, LLC, [4]Investopedia, [5]Hedgeco.net

Information Disclaimer

- Past performance is no guarantee of future results.
- All investments carry some level of risk. Diversification and other asset allocation techniques are not guaranteed to ensure profit or protect against losses.
- NEPC's source for portfolio pricing, calculation of accruals, and transaction information is the plan's custodian bank. Information on market indices and security characteristics is received from other sources external to NEPC. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.
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- The client's custodian bank is NEPC's preferred data source unless otherwise directed. NEPC generally reconciles custodian data to manager data. If the custodian cannot provide accurate data, manager data may be used.
- Trailing time period returns are determined by geometrically linking the holding period returns, from the first full month after inception to the report date. Rates of return are annualized when the time period is longer than a year. Performance is presented gross and/or net of manager fees as indicated on each page.
- For managers funded in the middle of a month, the "since inception" return will start with the first full month, although actual inception dates and cash flows are taken into account in all Composite calculations.
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